

COMPARISON OF TWO METHODS OF TRAINING SPECIAL OLYMPICS  
VOLUNTEERS TO TEACH AND COACH BOWLING

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PHYSICAL EDUCATION, RECREATION, AND DANCE

BY  
CINDY WATERS ALBRIGHT, BSE, MED

---

DENTON, TEXAS

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TEXAS WOMAN'S UNIVERSITY  
DENTON, TEXAS

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Date

To the Provost of the Graduate School:

I am submitting herewith a dissertation written by Cindy Waters Albright entitled "Comparison of Two Methods of Training Special Olympics Volunteers to Teach and Coach Bowling" I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Adapted Physical Education.

  
Dr. Jean Pyfer, Major Professor

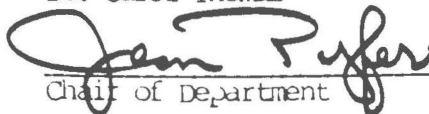
We have read this dissertation  
and recommend its acceptance:

  
Dr. Ron French

  
Dr. Barbara Gench

  
Dr. Marilyn Hinson

  
Dr. Carol Thomas

  
Chair of Department  
  
Dean of College

Accepted

  
Provost of the Graduate School



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## DEDICATION

This dissertation is dedicated to  
my parents, Vern and Sue Waters, who nurtured me with their love  
and guidance and my husband, Gary.

COMPLETED RESEARCH IN HEALTH, PHYSICAL EDUCATION, RECREATION,  
AND DANCE

Texas Woman's University, Denton, TX

A. Uhler  
Institutional Representative

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Two methods of training Special Olympics volunteers in coaching and providing developmental bowling skills to mentally retarded individuals were developed and evaluated in this study. Twenty-six subjects attended an inservice training workshop held at Arkansas State University in Jonesboro, Arkansas. Subjects were randomly placed in one of two training methods. One method involved a 4-hr intensive practicum setting, while the other method involved a 3-hr session which required viewing two videotape modules and participating in a practicum setting. Thirteen subjects randomly selected from an introductory special education class served as subjects for the control group and received no instructional training. An evaluation instrument consisting of a 45-item multiple choice test was developed to assess the subjects' knowledge in teaching bowling skills to mentally retarded individuals. Pretest and posttest data were collected from all subjects. A one-way analysis of covariance was used to analyze the data on the adjusted posttest scores on the knowledge test.

Results of the analyzed data indicated that there was a significant difference,  $F(2,35) = 63.71$ ,  $p < .001$ , among the adjusted posttest means on the knowledge test scores. The Tukey A post-hoc test was computed to determine where the differences were. Both the practicum group and the videotape group scored significantly higher than the control group. There were no significant differences between the practicum group and the videotape group. Therefore, it can be concluded that a videotape module is as effective as a practicum setting for training volunteers to coach and teach developmental bowling skills to mentally retarded individuals.

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## CHAPTER I

### INTRODUCTION TO THE STUDY

During the first few years Special Olympics, Inc. was in existence, their athletes were brought to sporting events unprepared for the challenges ahead. The participants enjoyed more of a festival atmosphere rather than a physical challenge. Emphasis in training has changed since those early days. During the keynote address at the Third International Symposium on Adapted Physical Activities held in New Orleans, Eunice Kennedy Shriver (1983) stated:

At the 1983 games we would like to get every one of these 52 nations represented with a professionally trained delegation, not just a token group, but well-coached, skilled athletes who have won the right to come to the games through year-round training by professionals and participation in local and national events. (p. 8)

Times have changed as a result of more volunteers and professionals understanding Special Olympics, Inc. priority goals of year-round quality training and competition. Of the 125 thousand volunteers who provide the person power for Special Olympics, those individuals who have the greatest influence in the training of Special Olympics athletes are (a) volunteer coaches, (b) volunteers who train the coaches, (c) professional educators who assist athletes through school programs, and (d) recreational personnel who extend training in the community settings. Volunteers may serve in



various capacities such as coaches, clerical staff, clinicians, program director/supervisor, games/event staff, and huggers.

One volunteer capacity that is of primary importance to the mentally retarded individual is that of a coach. In Huetting's (1982) investigation of motives of Special Olympics volunteers, coaches comprised the largest percentage of the volunteers. The ideal candidates for these positions are those who have had experience coaching a secondary school or college team, and also have had experience coaching mentally retarded persons. However, this is not always the case.

In many situations, volunteer coaches take on coaching responsibilities with little knowledge of the magnitude of their role in working with mentally retarded individuals. Coaches do not realize that in addition to promoting physical and motor development they are also responsible for the welfare and safety of the individuals they are coaching (Ehgh, 1975). In 1979, in an attempt to better prepare volunteers, Special Olympics, Inc. began to offer training schools to help volunteer coaches develop the necessary skills and training techniques needed to prepare their athletes for sports competition. The purpose of these training schools are to (a) provide information about Special Olympics, Inc. and mental retardation, (b) provide instruction in the skills of a sport, and (c) provide certification to volunteer coaches. As a result, over 24 thousand individuals have been trained as coaches, officials, and event directors in Special Olympics Training Schools (Special Olympics, Inc., 1983).

In 1987, the Arkansas Chapter of Special Olympics in Little Rock required that all volunteer coaches working with mentally retarded individuals in Special Olympics programs must be certified to coach before their athletes can compete at a State Games event. To become certified, volunteer coaches must attend a Coaches Training Workshop which has been designed to meet the needs of (a) persons who have coached previously, but have not worked with mentally retarded athletes and (b) persons who have worked with Special Olympians, but have no coaching experience.

The Coaches Training Workshop consists of a lecture session and a practicum session. The lecture portion covers coaching methods and strategies, assessment of an athlete's progress, rules and safety of the sport, and specific training techniques for the sport presented. During the practicum session an actual training experience occurs where coaches work with Special Olympians in either a group or one-on-one situations. Each coach in training practices the skills presented during the lecture portion of the workshop.

Certification is an excellent way to increase the probability of uniformity in the training of coaches and uniformity in the training of Special Olympics athletes; however, each coach must receive certification in each sport they intend to coach. With the Special Olympics, Inc. program offering 22 official sports, coaches need training workshops in that number of sport skills. Churton (1986) stated that a problem with certification is that there is a presumption that individuals need extensive training to develop certain competencies, when in fact, they may

need only minimal training to be effective. In rural areas, time spent in travel and hours in attendance at workshops may be a misuse of valuable time. Another issue that certification creates is maintaining certified coaches in each sport. Small rural schools tend to have a higher turn-over rate of teaching personnel, thus requiring continuous training workshops to certify their personnel. With the increased responsibilities of coaching, teachers are seeking alternative methods for gaining the needed certification training.

Researchers have shown that training principles are no different among normal athletes and handicapped athletes (Johnson et al., 1988; Stein, 1983). Stein (1983) stated that the same training principles and methods used by normal athletes are being applied with disabled athletes regardless of handicapping conditions. But until recently, most handicapped individuals trained for competitive activities by participating in practices that had little structure and adhered to few, if any basic principles. Johnson, Sundheim, Santos, and Couzzo (1988) investigated the effectiveness of a Special Olympics coaches training program and its influence on athletic performance of mentally retarded athletes. Johnson et al. (1988) found that if the Special Olympics Coaches Training Workshop format and the Sports Skills Instructional Program curricula for each specific sport is utilized, the trained coaches produced significant gains in the performance of their mentally retarded athletes.

It is important that Special Olympians participate in well-rounded, year long athletic training programs. It is not enough to train them only

in Special Olympics activities for a few weeks and consider the job done. Local coaches and their teams need a greater understanding of activities, methods, and performance levels available to them. A planned inservice workshop can emphasize how to work with mentally retarded athletes, provide instructions in using the sport manuals, and give various strategies and methods of sport activities.

Through its sport programs, Special Olympics provides mentally retarded individuals with continuing opportunities to develop physical fitness, confidence, and skills needed for competition (Songster, 1986). Daily participation is an important aspect of any sports training program. It is possible to use physical education programs to provide the necessary developmental skills that would impact on Special Olympics training programs.

Well-designed educational programs at the elementary and secondary school level include a block of time within each school day for organized instruction in physical education under the direction of trained personnel. Rarick and McQuillan (1977) reported that such programs were not universally available to mentally retarded children. At the time of the first games in 1968, researchers have shown that about 45% of all mentally retarded students in the United States received no physical education at all. Only one-quarter of all mentally retarded students received as much as 1 hr of physical fitness training in a week. Other researchers have shown that trainable retarded individuals were physically four to six years behind normal individuals (Rarick, Widdop, & Broadhead, 1970; Songster,

1988; Stein, 1983). These researchers concluded that this difference did not mean that the mentally retarded individuals did not have the potential for physical accomplishment but many times ignored when it came to physical education (Henroid, 1979).

With the passage of Public Law 94-142, physical education was specifically included in the special education services to be provided to handicapped children. These services may be provided in either a regular or an adapted physical education class. Regular physical education classes have traditionally accommodated students with minor disabilities or those who can perform at lower ranges of normal group performance. Adapted physical education classes are composed of students with significant physical and motor development disabilities who need individual attention (Sierrill, 1986).

Few rural schools in Arkansas have adequate funds or personnel to accurately comply with the federal legislation. In fact, graded programs for handicapped children under the direction of qualified teachers are the exception rather than the rule. Adapted physical education is primarily available in the larger urban areas, whereas, the smaller rural areas utilize mainstreaming in regular physical education to meet federal standards.

Karper (1980) stated that there are not enough trained regular physical educators nor adapted physical educators to serve handicapped individuals. In rural districts that do not have regular or adapted physical education teachers, the classroom and special education teachers

might be required to perform all the tasks normally handled by the physical educator. Therefore, Karper noted that both regular classroom and special education teachers should be trained in planning, organizing, evaluating, and interpreting physical education programs.

The Special Olympics, Inc. program largely depends on special education, regular classroom teachers, and paraprofessionals to function in roles of volunteer coaches. Datelle (1977) stated that a major problem area is the lack of trained individuals with skills that cross the disciplines of special education, physical education, and recreation. The professionals who are involved are usually committed to other full-time positions, limiting their ability to commit time to the program. Broadhead (1986) added that at present, little is available to guide cooperation in programming with associated fields. Even parents would appreciate knowing how to supplement the work of school or sports training in the home environment (Folsom-Meek, 1984; Horvat, 1982). Any technique that would provide needed training and could be delivered through a flexible time schedule would enhance training opportunities for the mentally retarded individuals.

Many technological media have been invented and developed that appear to offer major contributions to the effectiveness and/or efficiency of educational institutions. A relatively new instructional medium, videotape, has become increasingly important in teacher training during the past decade (Tyler, 1980). As early as the 1960s, the use of videotape to enhance learning through behavioral change has been in the experimental

phase. Bandura (1969) was one of the first to utilize modern technology to exploit the concept of "observational learning". Since Bandura's initiation of learning by observation, investigators from various auxiliary professions have developed and used the concept associated with "modeling" through the medium of videotapes. For years, schools used videotapes as supplementary aids to instruction. Today videotape presentations are an integral part of educational instruction.

Clark (1978) stated that individuals receive stimuli in many forms: auditory, verbal, visual, or in combination. Educators who now have a variety of media available to them may select the best medium to supplement instruction. Salomon and Clark (1977) added that different media attributes may have different psychological effects on individual learners and that instructional effectiveness is the result of the interaction of the psychological effect with the requirements of the learning outcome. Therefore, it is important to use media to activate, elicit, or arouse the mental strategies and procedures of individuals for effective learning to take place (McAleese & Unwin, 1971; Young, 1969).

The use of the videotape generally proves more convenient than film in the construction of a training module because of the ease of editing and the comparatively small cost in time and materials. It is superior to sound tape with skills which are by nature visual (McAleese & Unwin, 1971). Cline (1972) stated that videotape has the advantage of being a permanent record so that it can be studied, restudied, and compared with other videotapes at a later time.

Recently, manufacturers of video recorders and cameras have begun to produce relatively small units at purchase prices within the financial reach of public schools, colleges, and universities. The increased use of video recorders during the last 5 years represents one of the most dramatic changes in school curriculum. A survey of the nation's public school districts shows that about 80% of the nation's 81,513 public schools have at least one video cassette recorder for classroom use (Plaza, 1986).

The literature is abundant with citations extolling the value of videotape feedback in the physical education setting (Dearing, 1978; McCarthy, 1974). However, few studies have been conducted using videotape presentation as a means of training personnel (Ames, 1982; Bower, 1978; Rodriguez, 1980). Shaw (1986) addressed the use of videotape as a method for training individuals to measure skinfolds. Shaw concluded that individuals trained using the videotape were more reliable in taking skinfold measures than those trained by reading written material.

Recently, Shriver (1988) stated that a mission of Special Olympics, Inc. is "to develop technical resources through research and demonstration programs that may enable all nations of the world to embark on programs that improve opportunity for mentally retarded individuals to acquire sports skills" (p. 2). The purpose of this study was to evaluate the use of videotaping as an instructional method to train Special Olympics volunteers to coach and teach the sport of bowling to mentally retarded athletes.



The sport of bowling was chosen for this study because it is one lifetime sport that, regardless of age or skill level, most everyone can become involved. Bowling is also a sport that can easily be adapted to meet individual's needs. Within Area 7 in Arkansas, there are a small number of schools and organizations that participate in bowling and only a few coaches are certified in the sport of bowling. Therefore, the twofold purpose for using the sport of bowling was (a) to encourage participation in bowling competition and (b) to certify the coaches in this sport.

#### Purpose of the Study

The purpose of this study was to determine the effectiveness of a practicum and a videotape training method designed to prepare Special Olympics volunteers to coach and provide developmental bowling skills to mentally retarded individuals.

#### Statement of the Problem

The problem was to develop, present, and evaluate two methods of training volunteers who have or will have the responsibilities of coaching mentally retarded individuals to bowl. The two training methods were conducted at an on-site workshop held at Arkansas State University in Jonesboro during the Fall semester, 1988. The inservice workshop was used to train Special Olympics volunteers to become coaches in the sport of bowling. Subjects consisted of 39 special educators, paraprofessionals, physical educators, preservice students in the area of special education

and physical education, parents, and other volunteers within Area 7. On the day of the workshop, subjects were randomly placed into either a practicum training program or a videotape training program. The control group consisted of 13 undergraduate special education majors enrolled in an introductory special education course.

The training methods followed the mandates of Special Olympics, Inc., which consisted of presentations on Special Olympics, mental retardation, coaching techniques, and specific sports skills instruction. A coaching practicum providing on-hands experience with mentally retarded athletes was included in the 3- to 4-hr workshop. A knowledge test relating to knowledge of skills, rules, scoring, and coaching strategies in bowling for mentally retarded individuals was administered at the beginning and end of the training program to the two experimental groups. The control group received no instruction nor a coaching practicum and only the scores of subjects completing both the pretest and posttest were included in the statistical analysis. Pretest and posttest data were collected through the administration of the knowledge test. The data were treated statistically by a one-way analysis of covariance. Based on the findings, a conclusion was drawn concerning the effectiveness of a practicum and a videotape training method in preparing bowling coaches for Special Olympics.

### Definitions and/or Explanations of Terms

For clarification purposes, the following definitions of terms were used throughout this study.

Area 7 - A geographical division of the state of Arkansas established by the Arkansas Special Olympics Executive Committee. Arkansas Special Olympics is divided into 15 areas. Area 7 specifically covers 3 counties (Craighead, Cross County, and Poinsett).

Inservice Training - A planned program of learning opportunities afforded staff members of school districts and related agencies for purposes of improving performance in already held or assigned positions (Harris, 1980).

Knowledge Test - A test developed by the investigator in accordance with the content of the inservice workshop. This instrument was designed to assess knowledge of skills, rules, scoring, and teaching strategies regarding bowling for Special Olympians. This instrument was also used to assess the effectiveness of the two training methods in providing knowledge to the participants.

Special Olympics - A program of physical education, sports training, athletic competition, and recreation for mentally retarded individuals. Special Olympics, Inc. programs provide opportunities for mentally retarded individuals, 8 years and older, to participate in a variety of activities on the local, state, regional, national, and international levels.

Volunteer - "A person who performs or gives his/her services of his/her own free will" (Huetting, 1982, p. 11). All volunteers must adhere to the rules, regulations, and policies of Special Olympics, Inc.

### Hypothesis

The following null hypothesis was tested at the .01 level of significance:

There will be no significant difference in the adjusted posttest means on the bowling knowledge test scores between the videotape method group, the practicum group, and the control group.

### Delimitations of the Study

This study was subject to the following delimitations:

1. Subjects consist of individuals residing within Area 7.
2. Sample size of 13 participants in each of the two training groups and the control group.
3. Validity, reliability, and objectivity of the knowledge test as developed by the investigator.
4. Variability of the subjects within the control group due to purposive sampling.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

The purpose of this study was to compare a practicum and a videotape method of training Special Olympics volunteers to become coaches in a specific sport skill. The literature search was concentrated in two areas. The first phase, the history and growth of the Special Olympics, Inc. was reviewed with an emphasis on Special Olympics sports' training delivery systems. The second phase focused on videotaping and its use in training teachers/volunteers.

#### History and Growth of Special Olympics

In this section, a history and the growth of Special Olympics, Inc. will be presented. Special attention will be given to the impact this sports' training program has on the mentally retarded athlete.

The Joseph P. Kennedy, Jr. Foundation was established in 1946 by Ambassador and Mrs. Joseph P. Kennedy, in honor of their eldest son who was killed in World War II. The foundation created the Special Olympics program with two firm objectives: (a) to seek the prevention of mental retardation by identifying its causes and (b) to improve the means by which society deals with its citizens who are mentally retarded (Smits, 1981).

In the summer of 1963, Eunice Kennedy Shriver established at her home a day-camp for mentally retarded individuals in order to test their

abilities in a variety of sports and physical activities. The Kennedy Foundation then began to fund other summer day-camps for mentally retarded people across the country (Songster, 1986).

In July of 1968, the Kennedy Foundation, with the help of the Chicago Park District, planned and financed the First International Special Olympics Games. These historic games were held at Chicago's Soldier Field, where more than 1,000 mentally retarded athletes from 26 states and Canada participated in track and field and swimming competitions. Soon after, Special Olympics, Inc. was established as a nonprofit charitable organization (Special Olympics, Inc., 1983).

At present, Special Olympics, Inc. is the world's largest program of sports training and competition for mentally retarded individuals. The program encompasses more than one million athletes from the United States and 60 countries, and hundreds of thousands of dedicated volunteers and coaches worldwide.

The mission of Special Olympics, Inc. is to provide year-round training in a variety of Olympic-type sports for all mentally retarded children and adults. Through its sport programs, Special Olympics, Inc. provides mentally retarded individuals with continuing opportunities to develop physical fitness, demonstrate courage, experience joy, and share their skills and friendships with family members, other Special Olympians, and their communities (Songster, 1986).

The original goals of the Special Olympics, Inc. program were to increase public awareness of the need for sports programs for mentally

retarded individuals and to actually create such programs (Orellove, Wehman, & Wood, 1982). Basically, these goals have remained constant over the past 20 years. The only significant changes from the original intent are that the Special Olympics program infiltrates sports' facilities and provides quality programs (Songster, 1986). Presently, with the program expanding to include 22 different official sports, emphasis is being directed to more than just basic competition (Sherrill, 1986).

Numerous studies of Special Olympics, Inc. have been conducted over the past 20 years. According to Songster (1986), national director of Special Olympics, Inc., studies have been relatively limited in scope for several reasons: (a) the Special Olympics program is still relatively new, having been started in 1968; (b) Special Olympics is based on human principles and spiritual values as opposed to attendance or track records; and (c) worldwide studies of the program are logistically impractical. Most of the research has involved reactions and opinions of the program and concentrated on the impact of the program on the athletes, their parents, and their communities (Barnes, 1983; Datelle, 1977; Huettig, 1982; King, 1981; Smits, 1981; Vermeer, 1988).

In the past, Special Olympics, Inc. and the Kennedy Foundation have commissioned a number of research projects on the Special Olympics program. In 1971, Parick (1978) assessed the impact of Special Olympics on participants, schools, and community programs by studying the programs in two metropolitan areas.

Rarick developed and utilized four interview techniques with parents, coaches, teachers, and administrators/civic leaders in the San Diego and Seattle areas. Information obtained from the interviews was related to how the four groups viewed the impact of the Special Olympics program on their own child or the child under their supervision and the effects of the Special Olympics program on physical activity and recreational programs within the community.

A total of 270 interviews were conducted by five trained interviewers in the two metropolitan areas. The results of the investigation were presented in table form as to the frequency of responses to the posed questions. The data were not appropriate for statistical treatment. However, the investigator reported the following findings:

1. Over 70% of the respondents indicated that schools were the primary medium for introducing children to Special Olympics.
2. Parents mentioned that the aims of Special Olympics were physical fitness, improved self-concept, and community awareness.
3. Parents, teachers, and coaches were in general agreement on the effects of the participants. The positive effects were pride in competition, increased interest in physical activities, improved peer acceptance, and improved attitude toward school work. On the negative side, respondents indicated there was a feeling of frustration on the part of the participants, overemphasis on winning, inappropriate grouping for competition, and inadequate safety precautions.



4. More than one-half of the parents, teachers, and coaches were of the opinion that Special Olympics had brought about improvements in the school physical education program. The majority saw little change in community recreation programs for mentally retarded individuals.

5. Parents of the participants and their teachers expressed satisfaction with the level of coaching provided. The majority of coaches were experienced and said they assisted as part of their job, while others indicated that they assisted because they were interested volunteers.

6. There was evidence that the children who were successful in qualifying for the more advanced meets were those receiving more training.

7. Respondents who were civic leaders indicated that they felt that Special Olympics had done a great deal to awaken communities to improve physical activity programs for the mentally retarded individuals.

Rarick concluded that the coaches, parents, and teachers reacted very favorably to Special Olympics. A major weakness of the program was in the inadequate training programs of the participants.

Bell, Kozar, and Martin (1977) followed Rarick's lead by conducting a more up-to-date study on the impact of Special Olympics on 224 selected participants, their parents, and the citizens of their communities. This study was conducted over a 3-year period with headquarters at Texas Tech University.

An experimental study was conducted on the impact of Special Olympics using four communities, two in Texas and two in New Mexico, that had no Special Olympics programs. The design of the study was to accumulate

baseline data in all four areas, establish Special Olympics programs in two of the areas, and continue to collect data in all areas for a 3-year period to see if any changes would occur as a result of a Special Olympics program.

The research design consisted of a two group comparison (experimental and control) with two communities per group. In one experimental community, a full year Special Olympics program was initiated, while in the other community, only a half-year program was developed. Data were collected from parents of the participants in each program on three occasions: (a) prior to the initiation of Special Olympics programs, (b) after the first year of the project, and (c) on the subsequent year. On the first occasion, a sample of parents was interviewed and the remainder were sent questionnaires through the mail. All parents received questionnaires on the second and third occasions. Return rates were 115 for the first data collection period, 98 for the second collection, and 92 for the third collection.

Data were analyzed only on those parents who completed the questionnaire on both the first and third occasions. Different scores between the first and third collections were computed for six summary scores in the following areas: the child's self esteem, recent improvement in self esteem, the parents' behavior toward the child, recent improvement in parental behavior, the child's physical skills, and recent improvement in physical skills. Comparisons were then made between parents of Special Olympics participants and control group parents.

Significant improvement was found for parents of Special Olympics participants compared with control group parents regarding the behavior of the parent toward the child ( $t[40] = 1.84, p < .05$ ) and the child's recent improvement of progress in physical skills ( $t[38] = 2.25, p < .05$ ). The differences between groups was also significant in ratings of the child's current self esteem ( $t[43] = 1.61, p < .07$ ). The other three summary scores showed positive change for the experimental group compared with the control group; however, the group differences were not statistically significant.

It was concluded that mentally retarded children in communities where Special Olympics programs had been established participated in a greater variety of physical education activities than did children in the control communities. This study gave further support to Parick's (1978) findings.

Lapriola (1973) presented detailed information about projects and activities of the Joseph P. Kennedy Jr. Foundation in its attempts to encourage use of physical education and recreation programs as a medium through which mentally retarded persons could achieve their potential in mental and physical growth. Specific sections dealt with demonstration projects, leadership conferences, research activities, affiliations with other agencies and organizations, training and leadership development activities, international awards, special fitness awards programs, and Special Olympics.

More recently, Caparosa and Williams (1988) conducted a survey to determine the perception of public school special education administrators or their staff on Special Olympics. The subjects for this study were 125

administrators or their staff in the State of Kansas. A questionnaire was developed by a research team at Special Olympics International and modified by the State Office of Kansas. The questionnaire was sent to 251 respondents with a reply of 49%. The questionnaire was designed to determine: (a) the extent to which schools were participating in Special Olympics programs, (b) the nature of the participants, (c) the nature of involvement of athletes, (d) the medium by which the public heard about Special Olympics, (e) the reasons for lack of support for the program in public schools, and (f) the views as to whether the program was worthwhile.

Data for the study were not appropriate for extensive statistical treatment; however, the results were presented in tabular form as the percentage of respondents answering questions to the six specific areas. The survey indicated that there was a difference among communities with regard to extensiveness of Special Olympics programs. Forty-four percent of the public schools offered programs two or three times a year, 34% of the schools offered Special Olympics more than five times a year, and 11% of the schools offered the program four to five times a year.

In regard to the number of Special Olympics sports activities offered by the school, 13 different sports out of the 22 official sports offered were provided through the Kansas Public Schools. The most prevalent sports provided were track and field (100%), basketball (73%), and bowling (63%). Other sports receiving noticeable participation were swimming, volleyball, and softball with participation rates of 49%, 43%, and 39%, respectively.

The results on age of Special Olympics participants indicated that 58% of the schools have programs for mentally retarded individuals at all ages. Forty-three percent of the respondents reported having programs for athletes between the 12 and 21 years, and 26% had programs for youth between ages of 8 and 11 years. The younger and older athletes received only 9% and 7% program opportunities, respectively.

Another area investigated was sources in communicating information to the public about Special Olympics. It was reported that the three highest communication sources were the school (72%), television (73%), and the newspaper (69%). The radio and mail were used less frequently as methods of communication with 49% and 31%, respectively.

When asked for reasons for marginal support of Special Olympics by the school districts, the main reasons listed by 37% of the respondents were discrepancies in ideological beliefs about segregated activity and principles of normalization. Twenty-four percent of the respondents indicated financial cost for less support of the program.

The survey reported that the two most important elements of a good Special Olympics program were initiatives and coordination by special education teachers (88%) and strong support from parents (74%). Strong administrative support was cited by 55% of the respondents as being a key element for a successful program.

In conclusion, the results of the survey indicated that 100% of the respondents viewed Special Olympics as a worthwhile program. Caparosa and Williams (1988) reported that this study supported Rarick's (1978) findings of favorable impressions by parents and teachers.

A number of researchers believe that there is a relationship between participation in a sports training program and self-concept measures. Two studies have been conducted that reported the impact of Special Olympics on self-concept of mentally retarded participants.

Wright and Cowden (1986) investigated changes in self-concept and cardiovascular endurance of mentally retarded youth ( $n = 25$ ) after participating in a Special Olympics swim training program, while the control group ( $n = 25$ ) adhered to their normal daily living activities. The Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1964) was used to collect data on self-concept and the 9-Minute Run/Walk was used to collect data on cardiovascular endurance of each subject. To determine if there were any significant differences between the groups for the pretest and posttest values, an analysis of variance, using a two-factor fixed design with repeated measures on one factor was used. The Scheffé test was used as a subsequent test for mean comparisons when significant  $F$  ratios were reported in the analysis of variance.

The results of the analysis of variance for the self-concept scores revealed that the between-group differences,  $F(1,48) = 7.18$ ,  $p < .05$ , the between-trial differences,  $F(1,48) = 23.05$ ,  $p < .05$ , and the group-by-trial interaction  $F(1,48) = 23.37$ ,  $p < .05$ , were significant. The mean

comparisons of the two groups over the two trials, as yielded by the Scheffé test, indicated that the mean of the self-concept posttest for the experimental group was significantly higher than the mean of the pretest for that group, and also significantly higher than the means of both pretest and posttest for the control group.

The results of the analysis of variance for the values of the 9-Minute Run/Walk Test revealed that between-group differences,  $F(1,48) = 6.75$ ,  $p < .05$ , between-trial differences,  $F(1,48) = 10.43$ ,  $p < .05$ , and the group-by-trial interaction,  $F(1,48) = 17.66$ ,  $p < .05$ , were significant. The subsequent Scheffé test indicated that the 9-Minute Run/Walk posttest mean for the experimental group was significantly higher than its pretest mean as well as of the pretest and posttest means of the control group. It was concluded that participation of mentally retarded children in a 10-week Special Olympics swimming program contributed to a significant increase in self-concept and cardiovascular endurance.

Edminston (1988) investigated the influence of participation in a 1-week Special Olympics Sports Camp training program on the self-concepts of educable mentally retarded (EMR) athletes, aged 12 to 21 years. Sixty-two EMR athletes (39 males and 23 females) from the 20 Area Special Olympics Chapters throughout Pennsylvania participated in this investigation. Each athlete was administered the Piers-Harris Children's Self-Concept Scale prior to and concluding the training program.

Analysis of the test results included utilization of a paired  $t$ -test for within group comparison for the total sample to determine self-concept

change from pretest to posttest of all the athletes. The investigator gave no factual data, but did report that the paired t-test results revealed no significant difference at the .05 level of probability in the entire sample (N = 62) of Special Olympics athletes between the pretest and posttest self-concept.

An analysis of variance was utilized to analyze among subgroup self-concept scores in order to determine whether differences existed between the subgroups prior to and/or following participation in the Special Olympics Sports Camp training program. The investigator reported there were no significant differences at the .05 level among the various athlete subgroups at the beginning of the sports camp training program.

Edminston concluded that participation in a 1-week Special Olympics Sports Camp training program did not have an influence on self-concept of EMR athletes. The investigator noted that such programs need to be conducted for longer periods of time before differences or changes in self-concepts are made.

Special Olympics, Inc. (1983) stated that to properly guarantee the benefits of participation, quality training programs and guidance to persons involved in the preparation of athletes for competition and those individuals that organize the events must be provided. Therefore, the Special Olympics Training Committee developed an instructional program that would improve the quality of Special Olympics and increase participation in training and sports competition through better prepared volunteers. The general objectives of the Training Committee are to (a) provide information



and knowledge about Special Olympics, Inc. and mental retardation for coaches, officials, volunteers, and families of Special Olympians; (b) provide instruction and skill training information for coaches, officials, volunteers, and families of Special Olympians; and (c) provide a system for qualification and recognition of Special Olympics coaches, officials, volunteers, and families (Special Olympics, Inc., 1983).

A recent research study conducted by Johnson, Sundheim, Santos, and Couzzo (1988) provided a standard for which effectiveness of training schools can be measured. Johnson et al. determined the effectiveness of a coaches training program in track and field through the measurement of improved performance by mentally retarded athletes.

The personnel who were training to become Special Olympics track coaches were enrolled in a course at Kansas State University for 1 to 3 credits. There were 31 prospective track coaches coming from undergraduate special education, physical education, and recreation programs. The Special Olympics training program had an 8-week duration with three, 1-hr practice sessions each week. The coaches were trained using the track and field sport skill instruction guides of Special Olympics, Inc., and followed the Special Olympics, Inc. training procedures.

Twenty-two EMR and trainable mentally retarded (TMR) males between the ages of 8 and 23 years participated in the study. The athletes were coached in two events, with repeated measures taken on their performance each week. The data for the study were analyzed for improved performance of the athletes by determining the difference of the score obtained on the

initial week and the best performance score during the last three weeks of the training program. The sample of the study did not meet random selection criterion. Therefore, the Wilcoxon Rank Sum Signed Rank Test was administered to determine significant differences. Without factual data, the results of the study indicated that there were significant differences at the .01 level in the 50-m dash, the standing long jump, and running long jump; these were in favor of the experimental group. There was a significant difference at the .025 level of significance in the 100-m dash in favor of the experimental group over the controls.

All subjects in the experimental group improved their performance scores as a result of training. Johnson et al. (1988) concluded that mentally retarded athletes did, indeed, benefit from the Special Olympics coaches' training program.

There is abundant literature reporting positive effects of the Special Olympics, Inc. program; however, there has been one consistent criticism. The strongest argument against Special Olympics, Inc. comes from those who support the principle of normalization (Brickey, 1985; Orelove & Mbon, 1984; Orelove, Weiman, & Wood, 1982; Followay & Smith, 1978; Wolfensberg, 1972). These advocates believed there is a need for more involvement of nonhandicapped participants with the handicapped athletes.

The ultimate goal of sports and physical activity for the mentally retarded individual is participation in natural community programs. Special Olympics, Inc. has initiated several research projects that have investigated the development of an integration system in which mentally

retarded and nonmentally retarded individuals participate in sport activity (Songster & Donerty, 1988).

From this research, a new program, Special Olympics International Unified Sports League, has emerged. The unified or integrated environment consists of an equal number of mentally retarded and nonretarded individuals on a team. To reach the objectives of the Unified Sports League, certain procedures must be followed that have been described by Oberle (1988). These procedures involve (a) an integration process of mentally retarded individuals with the nonretarded, (b) an adaptation of the abilities of the athletes to the demands of the physical task, (c) an accommodation of sport and physical activity that serves all ages and abilities, (d) a development of physical and recreational activities for today's lifestyles, (e) a provision for program continuity so that there can be sustained development of physical and social abilities of the individual, (f) a procedure for coordination of programs among other social agencies and institutions in the community, and (g) a process of generalizing the Unified Sports League into other areas of social and recreational life where integration can occur.

To systematically implement the unified sports league, Oberle believed it was necessary to identify the component parts of the total system. By doing so, each component part had to be monitored and controlled to maximize the benefits for the mentally retarded and nonmentally retarded participants of league play. The specific components consisted of (a) the coordination of community institutions with the league, (b) the development of sports curriculum, (c) the recruitment of volunteers, (d) the recruitment

of nonmentally retarded participants who will play on the mixed teams, (e) the training of personnel who will conduct the integrated sports activities, (f) the facilities that are needed for participation of activities, and (g) the financial resources that are needed to conduct the Unified Sports League. Oberle concluded by stating that carefully planned support systems must be utilized for integrated sport activity.

There are current studies which have not been published at the time of this investigation that lend support to the feasibility of the unified sports league. Budoff (1987) studied the benefits to mentally retarded persons when they were permitted opportunities to participate in mixed integrated softball leagues.

The Massachusetts Special Olympics program piloted the Unified Sports Program concept in team softball. A 12-team tournament using regulation softball rules was conducted at the Chapter Games. Several teams were composed of integrated teams where half the players were Special Olympians and the other half were nonmentally retarded athletes, while other teams were comprised of all normal athletes.

Several advantages were noted as a result of this pilot study. The following results were reported:

1. The integrated teams were competitive in a regular sports league.
2. The nonmentally retarded athletes assisted in improving the skills of the Special Olympics athletes on the team.
3. The integrated sports league provided a positive reinforcement in

regard to the mainstreaming issue as well as provided an opening for Special Olympians to enter normalized sports programs.

Although no statistical data were provided, the findings from observations and interviews with the coaches and nonmentally retarded players indicated that Unified Sports softball achieved a successful mixing of mentally retarded and nonmentally retarded athletes. Two conditions seemed to occur on the integrated team in which the players showed development in playing and understanding. They were (a) the commitment of the coach and the nonmentally retarded athletes to teaching and support and (b) the active role of the nonmentally retarded athletes as models on the field. Budoff concluded that there was no doubt of the individual development observed in play and sense of the game among mentally retarded players on the integrated teams.

Ricci (1988) reported on a model project that included both mentally retarded and nonmentally retarded persons involved in a competitive bowling activity. This model league was developed and conducted in New Jersey. The population that participated in the Unified Bowling Sports League were 20 bowlers, 13 who were mentally retarded and 7 nonmentally retarded adults. The nonmentally retarded participants were primarily parents. The teams consisted of two mentally retarded bowlers, one mentally retarded bowler and a friend, or a mentally retarded bowler and parent. All the bowlers were experienced bowlers with 90% of the mentally retarded bowlers possessing 10 or more years of bowling experience.

The program was conducted on a weekly basis for 32 weeks. Each bowler's bowling average was kept on a week by week basis so that current team standings and handicaps could be posted throughout the season. A Wilcoxon Rank Sum Test was used on the data collected from the scores of each game. The data were then compared with the gains in average scores of the mentally retarded individuals who were participating on all handicapped teams and those who were participating on mixed teams.

No statistical data were provided; however, Ricci stated that participation in an integrated competition improved bowling performance of the mentally retarded athletes. Ricci's study also verified the criterion established for conducting a Unified Bowling Sport League.

#### Videotaping and Its Use in Training Teachers/Volunteers

The videotape recorder has been in commercial use only since 1956 (Tyler, 1980). A review of literature reveals numerous studies utilizing the videotape recorder as a source of media for instruction. In this section, literature will be presented pertaining to (a) use of videotape in education and (b) use of videotape in inservice training.

#### Use of Videotape in Education

The first reported project in education cited in the literature was the Stanford project conceived by Dwight Allen and Robert Bush at Stanford University in 1959. They developed a microteaching method that decreased the amount of time, the size of the class, and the amount of teaching behavior to be developed. This Stanford project involved short videotapes

of 5- to 10-min in length which were presented to small groups of four to six teacher trainees. The data received from this program indicated no significant differences between the control and the experimental groups (Allen & Ryan, 1969; Biberstine, 1971; Kallenback & Gall, 1969).

Much of the early research utilizing the video recorder was a spin-off from Stanford's microteaching project, from which Fortune, Cooper, and Allen (1967) reported that in a television feedback versus no feedback design, the trainees in the television group had behavioral changes significant at the .05 level. A few years later microteaching was adopted as an inservice training technique. Both beginners and experienced teachers reported microteaching a safe, realistic setting in which to develop professional competencies (Allen & Ryan, 1969). The review of available literature verifies the use of videotape in teacher education. The following section will present research studies on videotape methods versus conventional methods used in the preparation and training of teachers.

Many empirical studies have been done on microteaching since its inception in 1963. Dugas (1967) studied the effects of microteaching as a medium for retraining foreign language teachers. Dugas' objectives were (a) to establish how effective microteaching might be in retraining experienced teachers, (b) to learn how adaptable this concept might be to advanced-level courses where the subject matter is still only vaguely defined, and (c) to discover what could be learned from recording of better-than-average teaching. Dugas stated that microteaching was effective in retraining

experienced teachers. Those involved in retraining and evaluation saw a noticeable improvement in the participants' teaching.

The efficacy of two basic kinds of modeling has been investigated. These two basic kinds of modeling are perceptual and symbolic. A perceptual model in teacher education refers to a videotaped teaching episode which exaggerates a specific teaching behavior. A symbolic model is a written description of the specific teaching behavior to be acquired by the teacher. Researchers investigating the effectiveness of perceptual and symbolic modeling have reported conflicting results.

Orme (1966) investigated six modeling protocols used in a microteaching form with interns in the Stanford Secondary Teacher Education program. Interns taught three 5-min lessons, each one to a different group of five pupils. Between teaching sessions, the interns received training on specific teaching behavior via a different modeling protocol. The six modeling protocols utilized combinations of viewing symbolic and perceptual modeling with and without a supervisor's critique. Orme reported that teachers viewing a model alone did not significantly change their behavior even if they used a written guide.

In Young's (1969) investigation of the relative effectiveness of perceptual and symbolic modeling, it was reported that teachers viewing a perceptual model incorporated more of the modeled teaching behavior into subsequent teaching than when studying a symbolic model. It was concluded that the most effective modeling protocol was a combination of specific illustration model, and a complete model with contingent focus on videotape.



Young also reported that self-instructional models, both audio and/or video (White, 1968), offer an opportunity for teachers to supplement and compliment the training of preservice and inservice teachers alike. Microteaching continues to be investigated over the years.

Moronna (1979) studied the feasibility of introducing microteaching with videotape feedback in preservice secondary school teacher education programs in Bombay. Eleven student teachers from H. J. College of Education and Smt. Kapilaben Khandwala College of Education in Bombay participated in the microteaching with videotape workshop. The 11 student teachers practiced three skills involving (a) fluency in questioning, (b) reinforcement, and (c) silence and nonverbal cues in a single lesson plan. Each student followed the typical microteaching cycle of play, teach, critique, replan, reteach, and recritique (Allen & Ryan, 1969).

Two supervisors, one from each of the participating colleges, observed and rated the performance of each student teacher at the teach and reteach sessions. During the critiquing sessions student teachers received feedback on their performance from (a) videotape replay of their performance, (b) peer group, and (c) supervisor. The supervisor's observations of the student teacher's performance on the components of each skill during the teach and reteach sessions were recorded on observation schedules designed for each skill. Each student's teach scores were then compared with their reteach scores, providing data related to achievement.

Data related to attitude were collected from the student teachers who participated in the microteaching workshop and teacher educators. The

attitudes of student teachers to the microteaching workshop were recorded on a questionnaire calling for YES/NO responses. The attitude of the 11 student teachers were recorded on a 5-point rating scale ranging from "strong agreement" to "strong disagreement" with each of the 36 statements. Informal interviews were also conducted by the investigator to record attitudes on the possibility of introducing microteaching with videotape in Bombay. Interviews were conducted with the 11 student teachers, the two supervisors, and faculty members and administrators of teacher education at the two colleges.

Student teachers' performance on achievement improved after feedback on initial performance of a skill and practice of the skill during the reteach session. Student teachers who participated in this study indicated that the skill of reinforcement was more difficult to acquire than the skills of fluency in questioning, and silence and nonverbal cues. Student teachers showed loss of achievement level in another component of the same skill when concentrating on one or two components of a skills.

Data on attitudes indicated that microteaching with videotape was received with enthusiasm among student teachers as well as teacher educators. Although teacher educators reacted favorably to the program, there was some resistance because of the cost factor. Cost feasibility showed that a simple videotape recording unit was too expensive for the regular budget of teacher education colleges. The investigator reported an alternative means of introducing videotaping without too much expense.

It was concluded that microteaching with a videotape does produce the desired change in the teaching behavior of student teachers. This method of training was received favorably by both student teachers and teacher educators. The investigator also reported that it is possible to introduce videotape in microteaching without incurring exorbitant costs when purchasing equipment.

There have been several attempts to summarize the research on videotaping (Biberstine, 1971; Cypert & Andrews, 1967). Not all reports agreed on the degree of significance in using videotape as an instructional method.

Roush (1971), in summarizing the review of research on the effectiveness of videotapes as a teaching device, questioned the less than favorable results. Although there may be faults with the equipment used, contributing factors are more likely to be with inadequate research designs, a lack of creativity on the part of the researchers, or the limitations in the instruments employed for measurement. Roush advocated the continued experimentation in the use of videotapes as a tool in the area of teacher training. More research is needed that has an influence on practice in the field.

Conen, Ebeling, and Kulik (1981) described a statistical integration of findings from 74 studies of visual-based college teaching. Seventy-four percent of the studies on student achievement showed no significant difference between visual-based and conventional teaching. It was reported that 76% of the studies showed significant differences favoring visual-based

instruction over conventional instruction. Findings from several other effects of visual media on achievement, retention, student ratings, and course completion were included.

Cohen et al. (1981) reported that the effect of visual-based instruction on the correlation between aptitude and achievement was negligible. Attitudes of students taught using visual media did not differ from students taught conventionally on quality, nor were attitudes toward subject matter different in the two groups of students. Withdrawal rates were similar in both classes with approximately 13% of the students failing to complete course work.

Little relationship between methodological features of experiments and achievement outcomes were reported. Regardless of study features (quasi-experimental and true experimental) investigators produced similar results. Ecological conditions of studies did not substantially influence the findings. The investigators also reported that whether or not the study was published did not relate to achievement outcomes.

The data received from the meta-analysis indicated a significant relationship in the control of instructor/instructors effect. In studies in which different instructors taught visual-based and conventional sections of a course, differences were more pronounced and more in favor of the visual-based classes. Differences were less pronounced in which a single instructor taught both experimental and conventional classes.

In analyzing the year in which studies were conducted, a trend was evident. Studies published prior to 1960 showed little effect of

visual-based methods. Studies published early to mid 70s showed results which were more favorable to visual media. Later studies seemed to produce significant differences in favor of visual-based instruction. Major themes in research were also reported. The most popular implementation of visual-based instruction included closed-circuit television.

Conen et al. (1981) indicated that more studies should reflect the use of videotape for the purpose of feedback. It was concluded that the overall effect of videotaping has had a positive effect as an educational media.

A more recent meta-analysis was conducted by Clark (1983) who reviewed other studies of media's influence on learning. No factual data were presented other than citing research findings such as Kallenbach and Gall (1969) which generalized that there are no learning benefits to be gained from employing any specific medium to deliver instruction. Clark stated there was abundant research showing performance or time-saving gains from one or another medium. However, these gains were shown to be vulnerable to compelling rival hypotheses concerning the uncontrolled effects of instruction method and novelty. The study showed advantages and problems with current media attributes, described symbolic system theories, and offered suggestions for more promising research directions involving media.

#### Use of Videotape in Inservice

Traditionally, inservice training has been used to update skills and to introduce innovation into education. The most successful inservice activities that have been reported use materials that are tailor made and

prepackaged for the participants. Such models offer early success and active participation and allow self-directed, self-initiated learning (Rude, 1978). In this section, literature pertaining to the use of videotape models for providing training is reviewed.

With the implementation of PL 94-142 the major thrust of inservice training has dealt primarily with teacher training as has been the evidence of research in use of videotape as a teaching modality of teacher and counselor training. Several investigators have reported the need to instruct parents, paraprofessionals, and staff personnel in training techniques for working with individuals who are handicapped (Ames, 1982; Folsom-Meek, 1984; Horvat, 1982).

Bower (1978) investigated the effects of two training models on personnel who worked with moderately and severely mentally retarded children. Specific purposes of the study were (a) to compare the effectiveness of an experimental model and a didactic model in preparing personnel to deliver cues and reinforcers when working with moderately and severely retarded children and (b) to examine the relationship between the trainees' effectiveness of delivering cues and reinforcers to a group of moderately and severely retarded youngsters and the on-task behavior of those students.

The subjects for this study included 18 teachers, 18 aides, and 26 volunteers ( $N = 62$ ) who worked with the moderately and severely mentally retarded pupils in two large metropolitan school systems. The subjects were randomly assigned to one of the two training models. Subjects trained

using the didactic model consisting of audiotapes and handouts on learning theory which specifically described cueing and reinforcing followed by a discussion on the topic led by a supervisor. The experimental group's training consisted of videotapes and handouts on operant conditioning techniques followed by a discussion presented by a supervisor on the topic. In addition, subjects in the experimental group were observed once by a supervisor and given immediate feedback.

Two Test Research Observational Instruments were utilized to measure trainees' behavior modification skills. Four trained observers were used to administer pretest and posttest measures for the trainees' competencies in applying operant conditioning techniques in both group and one-to-one instructional situations. The posttest was administered to all subjects in both groups within 1-week after the last training session. Following the posttest, all participants completed a self-evaluation of the training models.

A multivariate analysis of covariance was utilized to compare the two training models with respect to the staff's ability to use operant conditioning techniques in individual and group situations. There were no significant differences at the .05 level in either model between the adjusted posttest scores. There was a significant difference between the experimental and didactic models in cueing ability favoring the one-to-one teaching situation,  $F(2,57) = 3.85$ ,  $p < .05$ .

A correlation analysis was utilized to determine the relationship between the personnel's ability to cue and reinforce and the students' on-task behavior. Fifteen intercorrelations between 12 dependent variables were significant at the .005, one-tail level.

Bower concluded that the experimental model was superior in teaching trainees to cue in a one-to-one teaching situation. Trainees indicated that they preferred the simulated techniques and verbal feedback, which denotes that the experimental model may foster certain kinds of incidental learning such as physical mannerisms and visual cues. Bower recommended that, in future, studies of staff behavior need to be assessed periodically to determine whether performance has deteriorated over time.

Staples-Dorn (1978) used a within-subject counterbalanced design to study the effects of three different training procedures on parents' proficiency in using behavioral techniques. The purpose of the training program was to teach parents the behavioral management skills necessary to carry out a home-based training program for their mentally retarded child. Parents received discrimination training in scoring particular behaviors and then scored tapes of their performance.

Six parents, along with their children, participated in the 20-ur program. The mean age of the parents, all mothers, was 33 years. All children were concurrently enrolled in special education programs for learning problems.

Parents received didactic instruction as well as direct behavioral skill training in behavior modification principles and techniques. The



content of the instructional material included (a) observation and recording, (b) reinforcement, (c) correctives, and (d) shaping and prompting. Parents practiced behavioral techniques in sessions that were videotaped. Following each practice session, parents watched their videotape performance while the instructor gave praise for progress and corrective feedback in the form of prompts and suggestions for improvement. The supplementary training methods, directed to parents' individual work with their child, were systematically varied among parents and constituted the three experimental conditions: (a) discrimination training and self-scoring, (b) discrimination training alone, and (c) instructor feedback. Each session of parent-child interactions was videotaped; the response measures were taken from these videotapes.

A response measure, the Parent Proficiency Rating, was developed for use in this study. The measure was functionally related to the training procedures and assessed parent behavior in terms of its appropriateness to conditions existing at the time. Parents averaged an accuracy level of 89% by the end of the program. The relationship between a parent's accuracy in self-scoring and proficiency in using the self-scoring training method to learn behavioral techniques was assessed. The rank-order (rno) correlation between parent's accuracy rating and their proficiency change scores for the self-scoring condition was not significant,  $r_{no}(4) = .59, p < .10$ .

A composite proficiency change score for each parent was analyzed to assess the relationship between increased knowledge of behavioral techniques and improved proficiency in the use of behavioral techniques. A

rank-order correlation between composite proficiency change scores and change scores on lecture tests reported a rho of .64 ( $p < .10$ ), which was not significant.

Staples-Dorn reported that the self-scoring procedure produced greater gains on measures of skill transfer than did instructor feedback or discrimination training alone. When compared with instructor feedback, self-scoring was less "costly" in terms of professional time because performance monitoring was done by the parents themselves.

Several studies have indicated using videotapes as a means of modifying attitudes toward the handicapped. Research findings showed that videotape presentations had a significant effect on attitudes.

Donaldson (1976) investigated the effect of various types of presentations in modifying attitude toward physically disabled individuals among university students. Ninety-six students currently enrolled in an introductory psychology courses at the University of Kentucky served as subjects in this study. Subjects were randomly assigned to four groups: (a) live, (b) video, (c) audio, and (d) control with an equal number of males and females in each group.

A 50-min panel discussion on specific physical disabilities was staged. Panel members included 3 males and 3 females with visible physical impairments who reported on their feelings, values, and goals as a handicapped individual. Each experimental group was presented the panel discussion according to their assigned modalities. The live group viewed the panel discussion live. The video group viewed a videotape presentation

of the panel discussion and the audio group listened to an audiotape of the panel discussion. The control group did not receive the panel discussion treatment.

A posttest-only design was used in all treatment groups with the subjects responding to the measurement instrument immediately following the presentation. The Attitude Toward Disabled Persons Scale (Yuker, Block, & Young, 1970) was used to assess attitude.

A 2 X 4 (sex X treatment) fixed effect factorial design for analysis of variance with disproportional cell frequencies was used on the collected data. The findings indicated no significant interaction effects for the sex X treatment ( $p < .05$ ). However, a significance was reported for the main effects of treatment,  $F(4,93) = 7.24$ ,  $p < .05$ . A Scheffé test was calculated to compare group means. Significant differences were indicated between (a) live and video groups, (b) live and audio groups, (c) live and control groups, and (d) video and control groups. The live treatment condition recorded significantly more positive attitudes than the video treatment. No significant differences were indicated between (a) video and audio groups and (b) audio and control groups.

Donaldson concluded that both live and videotaped presentations were effective in modifying attitudes toward physically disabled individuals. It was recommended that further research on long-term or behavioral effects on attitudes be investigated.

Donaldson and Martinson (1977) assessed the effects of modifying attitudes toward disabled persons via a panel discussion by individuals

with visible physical disabilities. The investigators also studied the differential effects of three modalities in altering attitudes of nonhandicapped university students ( $N = 120$ ) in an introductory psychology course. Subjects were randomly assigned into four experimental groups with 15 males and 15 females assigned to either a live, video, audio, or control group.

The live presentation was a panel discussion on views and perceptions of physical disability presented by a group of young adults with visible disability conditions. Video and audio groups attended a video and audio presentation of the same panel discussion. The control group did not participate.

The Attitude Toward Disabled Person Scale (Yuker, Block, & Young, 1970) was used to assess attitudes on a posttest-only design. Subjects in all treatment groups responded to the measurement instrument immediately following the presentation.

A  $2 \times 4$  (sex  $\times$  treatment) fixed effect factorial design for analysis of variance with disproportional cell frequencies was used. Hypotheses were tested at the .05 alpha level. Results of the data indicated the main effect of sex was not significant; however, the main effect of treatment was significant,  $F = 7.24$ ,  $p < .0004$ . A Scheffé test indicated that the live group demonstrated more positive attitudes than (a) video group,  $F(2,118) = 7.50$ ,  $p < .05$ ; (b) audio group,  $F(2,118) = 10.7$ ,  $p < .05$ ; and

(c) control group,  $F(2,118) = 15.2$ ,  $p < .05$ . The only other significant difference occurred between video versus audio group presentation,  $F(2,118) = 7.66$ .

Donaldson and Martinson concluded that a live presentation is more effective in promoting positive attitudes of university students toward physically disabled individuals. Further research to determine the effectiveness of this design when used with other populations such as in psychology and sociology classes or in industrial setting was recommended.

Dailey and Halpin (1981) investigated the effectiveness of video presentations in enhancing attitudes of university students toward handicapped individuals in an introductory special education course. Fifty-two subjects, either special education or education majors, were randomly placed into two groups. One group received instructional information concerning various handicapping conditions accompanied by 3-mm video presentations of each handicapping condition. The non-video group received the same instructional information without the video presentations.

The Attitude Toward Disabled Persons Scale (Yuker, Block, & Young, 1970) and the Special Vocational Needs Attitude Scale (Mears, 1977) were used as pretest and posttest measures to assess attitudes toward handicapped individuals. An analysis of covariance was applied to each dependent measure.

Based on the results, there was a significant interaction,  $F(2,50) = 4.39$ ,  $p < .05$ , of treatment and major on attitudes toward the

handicapped as measured by the Special Vocational Needs Attitude Scale. According to these results, video presentations were more effective in positively modifying attitudes of education majors toward the handicapped; whereas, nonvideo presentations were more effective for special education majors. Results, with respect to data on the Attitude Toward Disability Scale, indicated education majors had significantly more positive attitudes ( $p < .05$ ) toward handicapped individuals than did special education majors.

Dailey and Halpin concluded that video presentations of handicapping conditions were effective in enhancing attitudes of university students toward disabled individuals; this was true regardless of academic major. It was recommended that video presentations be used in preservice training.

Another form of videotape presentation consists of program packages which contain a comprehensive set of print and audio-visual materials. The utilization of videotaping in this medium is virtually untapped.

Rodriguez (1980) compared the effectiveness of two methods of instruction in teaching motor performance assessment procedures for handicapped individuals. There were two parts to the study, the first part included the development of two instructional learning packages (individualized and conventional) and a measurement tool for assessing knowledge about motor performance assessment for the handicapped. The second phase of the study involved administering both the testing tool and the instructional packages, and collecting and analyzing the data.

The subjects consisted of 40 undergraduate physical education major students enrolled in an introductory adapted physical education class at

California State University, Long Beach. A pretest was given and the students were assigned to matched pairs after the males' and females' scores were separated. One member of each pair was randomly assigned to an experimental group and to a control group.

The control group received information regarding motor performance assessment using the Basic Motor Ability Test-Revised (BMAT-R) through the conventional teacher-directed approach. Information was distributed for two, 2-hr class periods within one week. The experimental groups received the same information; however, it included a videotaped review and several other alternate learning modes. The individualized instruction group was allowed an unspecified amount of time for one week to learn the same content on their own. At the conclusion of the two instructional methods, all students were given a posttest. The data were then gathered and the pretest and posttest mean knowledge scores were analyzed using a repeated measures analysis of variance at the .05 level of significance.

The 50-item knowledge test regarding the instructional content was developed by the investigator. The validity of this instrument was established by three authorities in adapted physical education who were knowledgeable about the BMAT-R. To determine internal consistency reliability, the odd-even scores were scored separately and a Pearson correlation coefficient between the two scores was calculated ( $r = .86$ ).

Based on the findings of the study, the mean knowledge scores improved significantly from the pretest to the posttest for both groups, indicating that learning took place within both methods of instruction. However, the

difference in the mean knowledge scores of the pretest and posttest scores between students and the improvement within groups was not significant. This indicated that students attained similar achievement levels using either method of instruction.

Rodriguez concluded that individualized learning packages have the potential to supplement present conventional programs in disseminating motor performance assessment. These findings were consistent with the findings of similar studies cited in the review of literature.

Anes (1982) designed and developed a pilot training module in the use of behavior modification techniques with moderately, severely, and profoundly mentally retarded adolescents and adults. The purposed usage of such a module was for the training of parents, paraprofessionals, college students, technicians, and professionals working with the mentally retarded adults.

The training module consisted of eight videotapes which demonstrated a selected number of specific behavior modification techniques and their application for developing a new functional behavior in mentally retarded adults. Techniques that were presented included (a) the identification of a target behavior, (b) the selection and use of effective reinforcers, (c) the distinction of stimulus control training, (d) the generalization of behavior, and (e) the use of shaping, chaining, and fading. An accompanying manual provided questions and fill-in statements related to the material in each videotape. A glossary of technical terms, an answer key, and an annotated bibliography were included in the manual.



Ames provided a detailed description of the development of the instructional module. On completion of the project, the doctoral committee and a professional advisory committee critiqued the training module and offered several suggestions to enhance the module. The committees were unanimous in the opinion that such a self-teaching module would be a useful training instrument for training parents, college students, paraprofessionals, technicians, and professionals in the use of behavior modification techniques with mentally retarded individuals.

Morrison (1982) constructed an instructional unit to help elementary school teachers analyze basic skills of throwing, catching, and striking by applying principles of movements. The inservice teachers ( $n = 53$ ) were full-time employees of the Provo and Nepo School Districts in Utah. Undergraduate students ( $n = 48$ ) enrolled in an upper level physical education class at Brigham Young University constituted the preservice teachers.

The subjects were randomly placed into two groups (control and experimental). All subjects were given two criterion tests. The criterion tests involved either a single child performing the skills (individual test) or a group of children performing the skills (group test). The control group was not shown the instructional unit prior to taking the criterion tests. Two days after completion of the instruction unit, both groups were given the first posttest followed by a second posttest two months later.

The instructional unit was constructed using the three gross motor skills. Correction and teaching cues were derived from fundamental movement principles. Criterion tests were developed using groups of children or one child at a time. Content validity for the test was determined by a panel of five elementary school specialists. Test reliability was determined by using a test-retest procedure. The reliability coefficient for the individual test was .72 and for the group test it was .73. Objectivity in scoring was obtained by standardizing the scoring keys used in the testing of skills.

Data were collected and analyzed from the criterion test raw scores for the first and second posttest. A multivariate analysis of variance (MANOVA) was performed on the first posttest for the group and individual tests. The only significant factor was method of instruction at the .01 level. Those viewing the unit scored higher. The second posttest analysis using a MANOVA revealed method as the only significant factor,  $F(2,172) = 11.81, p < .001$ .

A univariate analysis of variance using the factors of kinds of teachers, method of instruction, and test were used to determine if the change in score from the first posttest to the second posttest was significant. Method was the only factor that was significant,  $F(1,184) = 62.84, p < .001$ .

A univariate analysis of variance was used to determine if the amount of learning change from the first to the second posttest was significant. The change in scores for both the experimental and the control group was not significant at the .05 level.

Morrison concluded that the use of an instructional unit was effective in teaching preservice and inservice teachers to identify and correct errors of groups of children or of an individual child. The ability to identify and correct performance errors was retained for at least 8 weeks after instruction.

Bowers and Klesius (1986) reported on a 3-year project designed to provide leadership training for physical education and special education university professors and state and local education agency personnel in the I'M SPECIAL Program. The instructional modules of the I'M SPECIAL series were designed as part of preservice or inservice education programs for teachers responsible for conducting physical education programs for handicapped students.

In five regional seminars, 245 educators representing 46 state or other educational agencies were trained. The greatest number of participants by role were physical educators (72%) followed by special educators (15%) and other program personnel, e.g., Special Olympics (13%). The state department of education participation was almost equal for physical (8%) and special education (7%) personnel.

The I'M SPECIAL Instructional Modules were designed to develop positive attitudes and increase the competency level of teachers

responsible for providing physical education programs for handicapped children. The series was developed at the University of South Florida as a result of a United States Department of Education, Office of Special Education and Rehabilitative Services grant funded from 1979 to 1982. The modules consisted of a series of 15 color-sound videotapes and instructional booklets. The content coverage of these videotapes included: (a) information to influence attitude about handicapped children, (b) explanation of the developmental physical education approach, (c) modification in the play environment, and (d) game experiences for handicapped children. An analysis of the frequency of the use of the videotape modules revealed that the five most frequently used videotapes were (a) Handicapped or Handicapable, (b) Principles and Practices, (c) Places to Play, (d) Name of the Game, and (e) Appropriate Challenge. A total of 232 sets of the I'M SPECIAL Instructional Modules were distributed during the 3-year project.

A further accomplishment of the I'M SPECIAL network presented by Bowers and Klesius (1986) was the development of state plans for the coordinated delivery of preservice and inservice training experiences for teachers of physical education students within the participating educational agency. Six recommendations were made both with regard to the I'M SPECIAL Project and projects generally relating to professional preparation in physical education for handicapped students. One recommendation was the establishment of a Center for Research and Education in Physical Education for Handicapped Students.

Rodriguez (1986) reported on a 3-year project to develop and determine the effectiveness of an individualized educational program to train teachers on the job in the motor performance assessment of handicapped students. Learning modules were developed using manuals and videotapes narrated in the three languages of English, Spanish, and Vietnamese. Assessment topics covered included: (a) procedural placement, (b) IEP design, (c) material selection, and (d) methods for recording student progress in motor ability, physical fitness, skill development, and perceptual motor functioning.

The subjects selected to participate in the project were individuals involved in the education of handicapped persons and were responsible for, or assisting with, the motor performance assessment of handicapped students. The control group consisted of undergraduate and graduate students ( $n = 37$ ) majoring in adapted physical education at California State University, Long Beach. The experimental group consisted of 131 teachers who participated in inservice workshops conducted in seven locations in California.

The two principle learning activities for the experimental group were reading and viewing videotaped presentations. This group received a brief orientation to acquaint trainees with the procedures for utilizing the individualized learning program. Subjects were familiarized with and instructed in the use of all multimedia teaching aids. The teachers were allowed to study the information according to their own learning style with

no restrictions on time made. However, the experimental group was required to maintain a journal recording time spent learning from the individualized learning modules.

A prepared lesson was the instrument from which information was disseminated to the control group. The material presented was the same as the individualized instructional module. This group received a series of lectures and testing demonstrations by the investigator. They were also required to record the amount of time spent studying outside of class.

A 100-question test regarding the instructional content was used to measure learning achievement of the subjects participating in the inservice and preservice program. The criteria used for the selection process of the test items included the mechanics of test administration, general information, and comprehensiveness of all areas related to the Basic Motor Ability Test, the AAHPERD Health Related Test, and the Bruininks-Oseretsky Test of Motor Proficiency. The validity of this instrument was established by a panel of five authorities in adapted physical education. To determine internal consistency reliability, the odd-even scores were scored separately and a Pearson correlation coefficient between the two sets of scores was calculated ( $r = .86$ ).

A pretest was administered to both groups prior to instruction. On completion of the instructional methods, the posttest was administered. The same test was given for the follow-up consultation inservice workshop sessions.

The findings showed that the  $F$  values between the adjusted posttest mean scores for both the experimental and control group was significant. A repeated measures analysis of variance indicated that significant learning took place with both methods of teaching,  $F(1,131) = 130.63$ ,  $p < .05$ . When comparing the improvement by teaching methods, the findings indicated a significant group effect by time,  $F(1,131) = 7.40$ ,  $p < .05$ . The statistical analysis reported a significant variation in the improvement gains within the group of students,  $F(1,131) = 30.45$ ,  $p < .05$ .

A  $t$ -test was used to evaluate the posttest scores of the trainees and the scores they received in the follow-up sessions. The  $t$ -test value of 8.59 ( $p < .05$ ) indicated that there was a significant improvement with the scores obtained in the follow-up consultation sessions.

Rodriguez concluded that selected motor performance assessment information can be taught through an individualized learning package which incorporates various learning modes. These learning packages should be incorporated at the inservice and preservice levels.

Shaw (1986) addressed the use of videotape as a method for training individuals to measure skinfolds. Eight test administrators using Lange skinfold calipers assessed body skinfold measurements on 95 adult subjects ranging in age from 18 to 41 years. Two measurement sites at the subscapular and the triceps brachii were taken. The measurements were conducted according to the guidelines for skinfold assessment in the Health Related Physical Fitness Test (HRFT) (AAHPERD, 1980).

The skinfold test administrators consisted of six novice and two experienced test administrators. All six novice test administrators who had not had any previous training in taking skinfold measurements were randomly assigned to one of two training groups ( $n = 3$ ). The first group was provided a copy of the "Sum of Skinfold Fat" section of the HRFT manual 6 days prior to testing. The reading group was instructed to read descriptions of the measurement procedure and to study pictures of the location sites. No verbal feedback was provided to the readers; however, Lange skinfold calipers were provided for practicing.

The second group of novice test administrators were trained using a videotape which described a step-by-step process for taking skinfold measurements. A handout summarizing the videotape was given to this group prior to the 22-min videotape presentation. After viewing the videotape, test administrators were allowed to practice using the Lange caliper. The test administrators could offer suggestions to each other on how to take the measurements, but no verbal feedback was given by any other personnel.

The experienced test administrators ( $n = 2$ ) served as a control group to ascertain the accuracy with which the novice test administrators measured the skinfolds. Each test administrator had at least 10 years of experience in administering skinfold measures in both field and research settings.

Testing took place for 2 hr on three separate afternoons. Each of the eight test administrators took three skinfold measurements at each of the two designated sites. The median score was recorded by the test



administrator on an index card with the subject's identification number. Data analyses were performed on the collected data to determine the reliability and validity of skinfold measures taken by the novice test administrators.

Alpha reliability coefficients were calculated for test administrators within each training group. The Spearman-Brown Prophecy Formula was utilized to determine the expected reliability coefficient for a single test administrator within each group. Reliability coefficients for the reading group ranged from .83 to .88 depending upon the site measured. The reliability estimates for the videotape group varied from .91 to .97. The experienced test administrators' reliability coefficients were higher than the novice test administrators (.95 to .98). The predicted reliabilities of a single test administrator from the reading group ranged from .62 to .71. The videotape test administrator was predicted to have a reliability ranging from .78 to .91, whereas the experienced test administrator ranged from .90 to .96. Fisher's Z-transformation was used to determine the average of the reliabilities for each method (.655 for reading group and .865 for the video group). The two mean reliabilities were reported to differ significantly ( $p < .01$ ) with the videotape group significantly more reliable than the reader group.

The standard error of measurement (SEM) was also calculated for a single test administrator within each group, with the reading group reporting a larger potential for inaccurate measures. The SEM for a test administrator from the reading group ranged from 2.5 mm at the men's

triceps brachii site to 5.3 mm for the females' sum of skinfolds. The SEM for the videotape test administrator ranged from 1.6 mm to 2.9 mm, respectively. The lowest SEM was reported for the experienced test administrator, 1.1 mm to 2.8 mm.

An analysis of variance was utilized to test the mean difference among the three groups of test administrators for each site. Results of the quasi  $F$ -ratios to evaluate the mean difference among the three groups of scores were statistically significant. For the men's triceps brachii,  $F'(2,4) = 20.98$ ,  $p < .01$  was reported and for the men's sum,  $F'(2,4) = 16.76$ ,  $p < .05$ . For the women's triceps brachii,  $F'(2,3) = 4.43$ ,  $p < .10$  and for the women's sum,  $F'(2,3) = 13.66$ ,  $p < .05$ . Test of group mean differences were not performed because of the low power of the test and the differences were practically significant.

Shaw concluded that individuals trained using the videotape method were more reliable in taking skinfold measures than those trained by reading written material. All three groups of test administrators were reported to elicit reliable skinfold measures.

### Summary

In this chapter, the investigator provided research studies regarding Special Olympics, Inc. and the use of videotaping. Although Special Olympics, Inc. history is relatively new and research in this area is rather limited, several studies were presented to inform the reader of the research related to the impact of Special Olympics on the athletes,

parents, and communities (Bell, Kozar, & Martin, 1977; Parick, 1978) as well as current research methods Special Olympics, Inc. is developing within its training program (Edminston, 1988; Johnson, Sundheim, Santos, & Couzzo, 1988; Wright & Cowden, 1986). The literature review also revealed several studies using videotape as an instructional method in training teachers (Anes, 1981; Bower, 1973; Bowers & Klesius, 1986; Morrison, 1982; Rodriguez, 1980; Shaw, 1986). Although some studies were not able to establish the distinct superiority of videotape methods over conventional methods, investigators have reported that videotape modules are useful in the teaching medium (Clark, 1983; Cohen, Eberling, & Kulick, 1981; Moronha, 1979).

## CHAPTER III

### PROCEDURES

The purpose of this study was to determine the effectiveness of a practicum and a videotape method of training Special Olympics volunteers to coach and provide developmental bowling skills to mentally retarded individuals. In this chapter the description of the procedures used in this study are presented under the following headings: (a) Preliminary Procedures, (b) Selection of the Subjects, (c) Development of the Videotape, (d) Development of the Knowledge Test, (e) Conducting the Inservice Training Workshop, (f) Collection of the Data, (g) Organization and Treatment of the Data, and (h) Preparation of the Final Report.

#### Preliminary Procedures

Prior to the implementation of this study, the investigator outlined a number of preliminary procedures. A tentative outline of the proposed study was developed and presented to the dissertation committee for suggestions and corrections. The outline was revised in accordance with the committee's recommendations and filed in the form of a Prospectus in the Graduate School at Texas Woman's University. This study was exempt from approval by the Human Subjects Review Committee because it involved research conducted in an educational setting where on-going training and

evaluation are part of the procedure. Related literature was surveyed, studied, and assimilated verifying that no study of the exact nature had been previously conducted. Reviews were written and Chapter II was completed.

### Selection of the Subjects

The population selected for this study were 39 special educators, paraprofessionals, physical educators, preservice students in the area of special education and physical education, parents, and other volunteers within Area 7 in Arkansas. During the first few weeks of the fall semester, a list of special education and physical education teachers in the area was obtained from the State Office of Education in Little Rock. A letter was sent to each of the 15 school districts and 4 handicapped service centers within the Area 7 district. Letters explaining the Special Olympics Coaches Training Workshop in the sport of bowling were distributed to special educators, paraprofessionals, and physical educators within these programs. See Appendix J for content of this letter. Preservice students were recruited from introductory special education and adapted physical education courses. The remaining volunteers responded to a flyer circulated by the Area 7 Special Olympics Board (see Appendix J).

A total of 26 subjects attended the bowling workshop on November 12, 1988 at Arkansas State University, Jonesboro. The subjects consisted of special educators, physical educators, paraprofessionals, preservice students in the area of special education and physical education, parents,

and other volunteers. The workshop participants were randomly placed into either a practicum training program or a videotape training method program. The control group consisted of 13 undergraduate special education majors enrolled in an introductory special education course.

### Development of the Videotape

In order to ascertain what material would be included in the videotape and lecture workshops, it was necessary to obtain a training school format from Special Olympics, Inc. From these guidelines, a script was written with an outline of activity shots to be included.

The investigator and two media technicians met for a series of discussions and planning sessions to determine how to proceed in the videotaping program. The first phase in videotaping involved several hours reviewing the script and planning the action shots. Videotaping of the first session, "Overview of Special Olympics," began in the fall of 1987. The routine that was followed included videotaping various sessions of the training workshop until all sequences were completed.

Two Special Olympics coaches, five college students, and a college instructor volunteered to be videotaped in scenes demonstrating coaching techniques and basic bowling skills. The mentally retarded individuals in the film were students from John T. Gray Memorial School for the Handicapped. Additional footage was obtained by the investigator at the 1987 International Summer Special Olympics Games in South Bend, Indiana,

and televised coverage presented by ABC Wide World of Sports. Permission to use sanctioned Special Olympics, Inc. footage was obtained from the national office (see Appendix J).

The next phase in the videotape presentation was the editing of the videotaped sessions. The investigator and the two media technicians viewed all the taped materials, catalogued all the information, and developed an outline to be followed in the editing process. The videotapes were edited so that only selected scenes remained. The first videotape training model was completed and reviewed by the doctoral committee. Recommendations for modifying the script and scenes were made and a final version was developed.

Content validity of the videotape was established by having a committee view the videotape while following alongside the written script. This committee consisted of the dissertation chairperson and four professionals in the area of special education, physical education, and adapted physical education. The entire videotape script was studied to ascertain that the videotape and written script did include the same information. A copy of the written script with content validity verified is presented in Appendix A.

The end result was one 45-min videotape entitled "Training to be the Best". The first 13-min of the videotape program, "Overview of Special Olympics," was selected for viewing by both the experimental groups. The remainder of the videotape was designated to be viewed only by the videotape method group.

### Development of the Knowledge Test

A knowledge test was developed by the investigator to measure the learning achievement of the subjects participating in the study. The knowledge test was a paper and pencil test covering the more relevant information regarding coaching certification, coaching techniques, skill progression, rules, scoring, and teaching strategies utilized in bowling for Special Olympians.

A list of 50 questions was submitted to the five doctoral committee members who were asked to evaluate each question for content validity and to suggest inclusion or deletion of any question. The content validity of each test question was established initially by citing the page number within the videotape script where the information was presented. This information is included in Appendix B. In addition, a pilot test was given to determine needed modification. Five volunteer coaches who participated in the pilot study were administered the pretest, viewed the videotape, and received the posttest. Any test question that was missed in both the pretest and posttest by three or more of the volunteers was deleted from the knowledge test. From the question analysis and pilot test, the investigator selected 45 multiple-choice questions for the pretest and posttest measurement (see Appendix C).

The reliability of the knowledge test was determined by the test-retest method. Undergraduate students ( $n = 35$ ) enrolled at Arkansas State University during fall of 1988 served as subjects for this phase of



the study. The test was administered twice within a week to each student enrolled in an introductory special education class. Raw data from the test-retest reliability study were included in Appendix H.

The Pearson product-moment correlation coefficient was calculated to determine reliability of the instrument. A test-retest reliability coefficient of .84 was determined to be acceptable. An alpha coefficient was computed to check for internal consistency. A reliability coefficient of .71 was determined.

#### Conducting the Inservice Training Workshop

The training workshops were presented to the participants following the format specified by Special Olympics, Inc. for training schools. Request to provide a training workshop has to be approved by both the Arkansas Chapter Special Olympics office in Little Rock and the national office in Washington, D.C. The following methods were utilized for presentation of the practicum training workshop content: (a) lecture-demonstration, (b) active audience participation, and (c) overhead projector visuals. The videotape model consisted of audiovisual productions and active audience participation.

The training workshops were conducted at Arkansas State University at Jonesboro, in the Physical Education Complex and lasted 3 to 4 hr in length. Based on registration, the subjects received training packets with information regarding certification procedures, a Sports Skills Instructional Program Guide booklet on bowling, a bowling assessment card,

and handouts for lead-up games and bowling activities (see Appendix G for selected materials). The workshops were completed in four training sessions.

Session I of the training workshop included collection of pretest data and personal background information. A videotape presentation provided general information regarding the history and purpose of Special Olympics, Inc. Additional information about mental retardation and its causes, participation of the athletes, and volunteers were covered in this session.

Information in Session II was related to coaching certification and strategies. Specific information included coaching duties, responsibilities, roles, and conduct. Methodologies in working with mentally retarded individuals and teaching suggestions were also presented.

The content in Session III covered teaching progression in the sport of bowling. Information regarding preparation, bowling skill progression, common faults and corrections, rules, and scoring were presented. Modifications and adaptations were also included. At the conclusion of this session, posttest data were collected.

Session IV consisted of a coaching practicum with mentally retarded individuals. Each coach received practical experiences in teaching bowling skills to a Special Olympian. This session was concluded with a question and answer session and collection of training program evaluations.

A prepared outline was followed in the presentations of the four training workshop sessions (see Appendix F). A narration of the

information presented may be found in the videotape script located in Appendix A. The actual words of the presenters in the practicum workshop were spontaneous, but the same general information was covered.

At the completion of Session I, the videotape group adjourned to another classroom setting for the remainder of their training. Two videotapes, "Coaching Strategies" and "Bowling Skills" were viewed by the group. Under supervision of a Special Olympics Area Trainer, the videotape group proceeded to the gymnasium area where bowling equipment was available for their use to practice the bowling skills, techniques, and adaptive equipment presented in the videotapes. A coaching practicum session lasting 1 hr involved working with 12 mentally retarded clients from the Jonesboro Human Development Center. During this session each coach was responsible for taking one client through the various bowling progressions, using the information provided during the training workshop. The coaching practicum session was concluded with a question and answer session.

#### Collection of the Data

Data were collected for the study from the knowledge test which was given as a pretest and posttest. The first administration of the knowledge test occurred at the start of the first workshop session. Raw demographic data concerning sex, age, professional status, educational background, and previous experience with Special Olympics were collected from all subjects

at the time of the pretest (see Appendix D). Posttest data were collected at the conclusion of Session III. Raw data for the pretest and posttest are included in Appendix H.

### Organization and Treatment of the Data

Raw scores were tabulated and prepared for inclusion in the Appendix I. Descriptive statistics including frequencies, ranges, means, standard deviations, standard errors of the means, and percentages were computed using the BMDP 2D program (Dixon, 1985). Tables with appropriate headings were developed and appear in Chapter IV.

A one-way analysis of covariance was used to test the hypothesis of the study. The BMDP 1V (Dixon, 1985) computer program was used to analyze the data collected via the knowledge test. Percentage ranks and mean ranks for the responses to the workshop effectiveness instrument were tabulated using the BMDP 2D (Dixon, 1985) computer program.

### Preparation of the Final Report

The preparation of the final written report included presenting its contents in chapters to be reviewed by members of the dissertation committee for suggestions and corrections. The final report was revised in accordance with the suggestions of the committee members. Conclusions were drawn and suggestions for further studies were included in Chapter V. Appendices and a reference list were developed to complete the report.

## CHAPTER IV

### PRESENTATION OF THE FINDINGS

The purpose of this study was to determine the effectiveness of a practicum and a videotape method of training Special Olympics volunteer coaches in the sport of bowling. The data collected and analyzed from this investigation are presented under the following headings: (a) Description of the Subjects and (b) Statistical Analysis of the Data.

#### Description of the Subjects

A total of 39 individuals took part in this investigation. On the day of the workshop, 26 subjects were randomly placed into one of two experimental programs, either a practicum or a videotape training program. The control group consisted of 13 students enrolled in an introductory special education course.

The practicum training group ( $n = 13$ ) attended a 4-hr training program presented by the investigator and two other clinicians. The videotape method training group ( $n = 13$ ) watched a videotape and independently participated in the training program.

Demographical data regarding the subjects was obtained from the Descriptive Data Sheet (see Appendix E). An analysis of these data was

performed using the BMDP 2D Program (Dixon, 1985). Frequency and percentage of responses by the subjects were computed and appear in Table 1.

Table 1

Description of the Subjects by Sex, Age, and Degree

Variable	Group					
	Practicum		Video		Control	
	Freq.	%	Freq.	%	Freq.	%
Sex						
Male	2	15.4	2	15.4	5	38.5
Female	11	84.6	11	84.6	8	61.5
Age in Years						
20-25	3	23.1	6	46.2	8	61.5
26-30	0		3	23.1	2	15.4
31-35	4	30.8	1	7.7	1	7.7
36-40	2	15.4	2	15.4	0	
41-45	3	23.1	1	7.7	1	7.7
46-50	1	7.7	0		0	
51-55	0		0		1	7.7
Degree						
None	2	15.4	1	7.7	0	
High School	3	23.1	8	61.5	9	69.2
Bachelors	2	15.4	3	23.1	2	15.4
Masters	6	46.2	1	7.7	2	15.4

Note.  $n = 13$  per group.

Freq. means frequency.

A total of 30 females and 9 males served as subjects in this study. Similar findings were found regarding percentage of males ( $n = 2$ ) and females ( $n = 11$ ) in the two experimental groups. The number of males ( $n = 5$ ) versus females ( $n = 8$ ) were more evenly distributed in the control group. Subjects ranged in age from 20 years to 55 years. The practicum group was fairly equally distributed in the age ranges with 30.8% of the group between the ages of 31 to 35 years of age. Both the videotape group and the control group had a larger percentage of subjects between the age of 20 to 25 years, with the control group having 61.5% and the videotape group 46.2%.

Educational background of the subjects was identified by the highest degree earned. Six subjects in the practicum group had achieved the masters degree, representing 46.2% of the group. Three subjects, 23.1%, received a high school diploma and 2 subjects, 15.4%, did not complete high school. In the videotape group, 61.5% of the subjects had only completed high school, whereas 23.1% had completed the bachelors degree. This group also had 1 subject who completed the masters degree and 1 subject who had not completed high school.

The control group consisted of students currently enrolled at Arkansas State University in an introductory special education class. Therefore, 69.2% of the subjects had received a high school diploma. In addition to college students, the control had 2 subjects (15.4%) who completed the bachelors degree; and 2 subjects (15.4%) who completed the masters degree.

Table 2

Description of the Subjects by Teaching Position and Type of Program

Variable	Group					
	Practicum		Video		Control	
	Freq.	%	Freq.	%	Freq.	%
<b>Position</b>						
Special Education	4	30.8	4	30.8	2	15.4
Physical Education	0		1	7.7	1	7.7
Recreational Therapist	1	7.7	0		0	
Institutional Staff	0		1	7.7	0	
Speech Therapist	1	7.7	0		1	7.7
Resource Room	2	15.4	0		0	
Teacher Aide	2	15.4	3	23.1	1	7.7
College Student	1	7.7	2	15.4	7	53.8
Volunteer	1	7.7	0		0	
Other	1	7.7	2	15.4	1	7.7
<b>Type of Program</b>						
Elementary	2	15.4	0		1	7.7
Junior High	0		0		1	7.7
High School	2	15.4	1	7.7	1	7.7
College	1	7.7	2	15.4	7	53.8
Sheltered Workshop	1	7.7	1	7.7	0	
Private Organization	1	7.7	0		0	
Other	5	38.5	8	61.5	3	23.1
No Response	1	7.7	1	7.7	0	

Note. n = 13 per group.

Freq. means frequency.



The description of the subjects' teaching positions and type of program affiliation is presented in Table 2. With regard to type of teaching position, the higher percentage of the subjects were identified as either special educators or college students.

Both the practicum group and the videotape group had 4 subjects (30.8%) who indicated special education as their teaching position. The control group consisted of predominately college students, representing 53.8% of the subjects. All three groups were represented by teacher aides; 2 subjects, 15.4%, in the practicum group; 3 subjects, 23.1%, in the videotape group; and 1 subject, 7.7%, in the control group. It is of interest that 3 subjects attending the coaching workshop were either a parent or family member of a mentally retarded individual.

All subjects were asked to indicate the type of educational program in which they were affiliated. The possible responses were (a) elementary schools, (b) junior high schools, (c) high schools, (d) colleges, (e) sheltered workshops, (f) private organizations, or (g) other programs.

The practicum group had an even distribution of several different program affiliations. Thirty-nine percent of the subjects indicated other programs, but with further investigation, it was found that two of the subjects worked for a day care center, and 3 subjects worked in a combined elementary and junior high school program with trainable mentally retarded students.

The videotape group also had a high percentage (71.5%) of the subjects who indicated other programs. Further investigation identified 5 subjects

who were involved with a day care center and 2 subjects were either a parent or family member of a mentally retarded individual. Two subjects (15.4%) were college students.

All of the subjects in the control group were currently enrolled in an introductory special education course. Seven subjects (53.8%) were full-time college students and were not affiliated with any mentally retarded individuals other than what the college setting provided. Three of the 13 subjects had experience with handicapped individuals; 2 subjects were associated with state educational programs, and 1 subject worked with a day care center for the physically handicapped population.

The remainder of the descriptive data information pertained to the subjects' level of experience. Each subject was asked questions that related to (a) bowling experience, (b) coaching/teaching bowling skills, (c) years involved in the Special Olympics program, and (d) number of mentally retarded athletes within the program. The results were computed and are presented in Table 3.

Inspection of Table 3 shows that the majority of the subjects either had no previous bowling experience or had bowled in a recreational setting. Seven subjects (53.8%) in both the practicum group and the videotape group reported some type of recreational bowling experience, whereas only 5 subjects (38.5%) in the control group had any bowling experience. Each group indicated that over thirty percent of the subjects had no previous bowling experience (38.5% in the practicum group, 30.8% in the videotape group, and 38.5% in the control group).

Table 3

Description of Subjects' Level of Experience

Variable	Group					
	Practicum		Video		Control	
	Freq.	%	Freq.	%	Freq.	%
Bowling Experience						
High School	0		0		1	7.7
College	1	7.7	2	15.4	2	15.4
Recreational	7	53.8	7	53.8	5	38.5
None	5	38.5	4	30.8	5	38.5
Coaching/Teaching Experience						
High School	1	7.7	0		0	
College	0		0		0	
Recreational	4	30.8	1	7.7	6	46.2
None	8	61.5	12	92.3	7	53.8
Years in Special Olympics						
1-2	2	15.4	4	30.8	5	38.5
3-4	3	23.1	2	15.4	1	7.7
5-6	0		2	15.4	0	
7 +	6	46.2	3	23.1	3	23.1
None	2	15.4	2	15.4	4	30.8
Number of Special Olympians						
1-5	0		1	7.7	2	15.4
6-10	7	53.8	1	7.7	2	15.4
11-15	1	7.7	2	15.4	0	
16-20	1	7.7	5	38.5	0	
21 +	3	23.1	1	7.7	3	23.1
None	1	7.7	3	23.1	5	38.5
No Response	0		0		1	7.7

Note. n = 13 per group.

Freq. means frequency.

In regard to coaching/teaching experience in the sport of bowling, all groups reported a high percentage of no experience at all. Eight subjects (61.5%) in the practicum group, 12 subjects (92.3%) in the videotape group, and 7 subjects (53.8%) in the control group responded that they had no prior experience in coaching/teaching the sport of bowling. For the control group, 46.2% of the subjects reported that they had some experience coaching/teaching on a club or recreational level, whereas the practicum group indicated 30.8% had some experience in coaching/teaching bowling.

The subjects were asked to respond to the number of years of experience each had within the Special Olympics program. The practicum group had 6 subjects (46.2%) who had been involved in the Special Olympics program for 7 or more years. The largest category for both the videotape group and the control group was 1 to 2 years experience (30.8% and 38.5%, respectively). The control group had the largest percentage (30.8%) of no experience with the Special Olympics program.

The final question relative to level of experience was the number of mentally retarded athletes each subject coached. A large percentage of the practicum group (53.8%) worked with 6 to 10 mentally retarded athletes. The videotape group's largest percentage, 38.5%, served between 16 to 20 athletes, whereas the control group had 38.5% who indicated no work with mentally retarded athletes.

### Statistical Analysis of Data

Descriptive statistics including the range, means, standard deviation, and standard error of the mean were computed by use of the BMDP 2D Program (Dixon, 1985). These statistics are presented in Table 4.

The scores on the knowledge pretest for the practicum group ranged from 17 to 35 for a range of 18 points. The standard deviation for this group was 4.87. The score for the videotape group on the knowledge pretest ranged from 18 to 33 with a difference of 15 points. The standard deviation was 4.36. Scores for the control group ranged from 19 to 33 points on the knowledge pretest with a standard deviation slightly lower than the other two groups.

The range of scores of the knowledge posttest was the same, 28 to 40, for both the practicum group and the videotape group. The standard deviations were 3.82 and 3.85, respectively. The knowledge posttest scores for the control group ranged from 17 to 32 with a difference of 15 points and a standard deviation of 3.96.

The mean value on the knowledge pretest for the practicum group was 25.92, the mean value for the videotape group was 26.23, and the mean value for the control group was 26.38. The practicum group and the videotape group achieved a mean posttest value of 34.61 and 35.15, respectively, whereas the control group achieved a mean posttest value of 26.00 on the knowledge test.

Table 4

Descriptive Statistics for the Knowledge Test Scores

Group	<u>n</u>	<u>Range</u> min - max	<u>M</u>	<u>SD</u>	<u>SEM</u>
Practicum					
Pre	13	$\frac{18}{17 - 35}$	25.92	4.87	1.35
Post	13	$\frac{12}{28 - 40}$	34.61	3.82	1.06
Video					
Pre	13	$\frac{15}{18 - 33}$	26.23	4.36	1.21
Post	13	$\frac{12}{28 - 40}$	35.15	3.85	1.07
Control					
Pre	13	$\frac{14}{19 - 33}$	26.38	3.91	1.08
Post	13	$\frac{15}{17 - 32}$	26.00	3.96	1.10

Note. Highest possible score = 45.

The pretest, posttest, and adjusted means for each group on the knowledge test are presented in Table 5. The adjusted group means represent the statistical estimate of scores the three groups would have actually obtained if the groups had been initially equal in their levels of knowledge (Huck, Cormier, & Bounds, 1974).

The practicum group adjusted mean was 34.79; this was a slight increase from the posttest mean of 34.61. The adjusted posttest mean of the group trained by the videotape method remained virtually the same, 35.15 on the posttest and 35.12 on the adjusted posttest mean. The control group adjusted posttest mean decreased from an actual posttest mean of 26.00 to an adjusted value of 25.86.

Table 5

Pretest, Posttest, and Adjusted Posttest Means

Groups	Means		
	Pretest	Posttest	Adjusted
Practicum	25.92	34.61	34.79
Video	26.23	35.15	35.12
Control	26.38	26.00	25.86

Note. n = 13 per group.

The hypothesis for this study was that there were no significant differences among the groups on the basis of the adjusted posttest scores on the knowledge test. A one-way analysis of covariance (ANCOVA) was selected because it is able to control statistically for any initial differences on pretest among the subjects which may have been present and confound differences between the three groups on the posttest measures.

When using covariance some basic assumptions must be met: (a) a common slope (b) the common slope different from zero, and (c) linearity (Huck, Cormier, & Bounds, 1974). Common slope was indicated on the BMDP 1V computer program (Dixon, 1985) printout as equality of slopes. The assumption of a common slope was met if the  $F$  ratio for equality of slopes was not significant. This assumption was met for this analysis ( $F[2,33] = .99, p = .38$ ).

That the common slope was different from zero was also indicated by an  $F$  ratio for the zero slope. The assumption was met if the  $F$  ratio was significant. This assumption was met ( $F[1,35] = 61.01, p < .01$ ). Linearity between the covariate and the variate was deemed appropriate on the basis of the scatter plot output from BMDP 6D (Dixon, 1985).

The relationship between the covariate and the dependent variable was computed by using the BMDP 7D Program (Dixon, 1985). The Pearson product-moment correlation squared was .25. This value indicated that ANCOVA was an appropriate technique to use in treating the data.

The BMDP 1V Program (Dixon, 1985) was used to compute the ANCOVA statistics. This information is presented in Table 6. A significant



difference among the groups was found,  $F(2,35) = 63.71$ ,  $p < .001$ . The null hypotheses was rejected; therefore, it was necessary to perform a post-hoc analysis on the data to determine where the differences were. A Tukey A post-hoc test was performed using a computer program developed by Schleiffers (1983). The adjusted posttest means in Table 5 were used in the post-hoc analysis.

Table 6

Analysis of Covariance Summary Table

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Group	2	717.68	358.84	63.71	.001 *
Error	35	197.14	5.63		

The results of the Tukey A post-hoc test are presented in Table 7. A study of this table reveals that both the practicum group and the videotape group scored significantly higher than the control group. There was no significant difference between the practicum group and the videotape group.

Table 7

Tukey A Post-Hoc Test

Contrast Groups	Mean Difference
Practicum vs. Video	0.322
Practicum vs. Control	8.940 *
Video vs. Control	9.262 *

\*  $C \geq |2.50|$

## CHAPTER V

### SUMMARY, DISCUSSION, CONCLUSION, AND RECOMMENDATIONS FOR FURTHER STUDIES

The purpose of this investigation was to determine the effectiveness of a practicum and a videotape method of training Special Olympics volunteer coaches. The problem of this study was to develop, present, and evaluate the two methods of training volunteers in coaching and providing developmental bowling skills to mentally retarded individuals.

#### Summary

Twenty-six subjects attended an inservice training workshop held at Arkansas State University in Jonesboro, Arkansas. Subjects were randomly placed in one of two training methods. One method involved a 4-hr intensive practicum setting, while the other method involved a 3-hr session which required viewing two videotape modules and participating in a practicum setting. Thirteen subjects randomly selected from an introductory special education class served as subjects for the control group. The control group received no instructional training.

Both training methods used the same content which consisted of materials provided by Special Olympics, Inc. and materials compiled by the investigator. The workshop material was presented in four training

sessions: (a) an overview of Special Olympics, Inc.; (b) a series of coaching strategies; (c) a progression of bowling skills; and (d) a coaching practicum.

An evaluation instrument, consisting of a 45-item multiple choice test, was developed to assess the subjects' knowledge in teaching bowling skills to mentally retarded individuals. The content validity of the knowledge test was determined by citing the page number within the videotape script where the information was presented. The five members of the investigator's dissertation committee evaluated each test item. The reliability of the knowledge test was determined by the test-retest method. A Pearson product-moment correlation of .84 ( $p < .01$ ) was computed. An alpha coefficient of .71 indicated that the evaluation tool was reliable in measuring the subjects' knowledge.

Pretest and posttest data were collected from all subjects. Using the BMDP 1V computer program (Dixon, 1985), a one-way analysis of covariance was computed using the pretest scores as the covariate. The basic assumptions concerning use of analysis of covariance relating to common slope, zero slope, linearity, and covariate-variate relationship were met (Huck, Conner, & Bounds, 1974). The Pearson product-moment correlation squared was .25, confirming that analysis of covariance was the appropriate statistical technique. It was found that there was a significant difference,  $F(2,35) = 63.71$ ,  $p < .001$ , among the adjusted posttest means of the knowledge test scores. The null hypothesis was rejected; therefore,

the Tukey A post-hoc test (Schleiffers, 1983) was computed to determine where the differences were. Both the practicum group and the videotape group scored significantly higher than the control group.

### Discussion

The usefulness of videotapes for education is largely dependent on the quality of programs available. The evolution of low cost video recording equipment in the 1970s expanded the potential and educational applications of videotapes (Plaza, 1986; Tyler, 1980). Few studies have been conducted using videotape presentations as a means of training personnel in education. Bower (1973) and Ames (1982) utilized an experimental model using videotapes and handouts to teach behavior modification techniques to personnel who work with moderately, severely, and profoundly mentally retarded children and adults. Bowers and Klesius (1986) and Rodriguez (1986) both reported that videotape instructional learning packages were effective in training preservice and inservice teachers responsible for conducting physical education programs for handicapped students. No known efforts prior to this study have been made to develop lessons which address the training needs of Special Olympics volunteer coaches.

Results of the analyzed data indicated there were no significant differences in training methods when comparing traditional instruction to videotape instruction. This finding was consistent with the findings cited by Shaw (1986) and Rodriguez (1980) who reported that students achieved similar levels of performance using either the traditional lecture method of instruction or under the experimental videotape method of instruction.

These results further support the use of the videotape recorder as a source of media for instruction as recommended by Conen, Ebeling, and Kulik (1981).

The investigator asked both groups to evaluate the content of the workshop materials. Overall, the subjects in both training programs responded favorably. One subject commented that this workshop was more intensive and detailed than a previous training workshop attended in another state. This comment reinforced the investigator's efforts to provide a uniform and quality workshop.

There may be other factors that may be responsible for the results. Over 30% of the subjects in each group had no previous bowling experience. Over 60% had never coached or taught the sport of bowling. Therefore, the newness of the information presented could have some consequence on the findings. In addition, bowling is a rather easy sport to achieve a minimum level of performance. The subjects showed an ability to recognize the skill progressions and common bowling errors after one 3- to 4-yr instructional period.

Another factor that could have influenced the results of this investigation was the selection of subjects. Subjects attending the workshop were randomly placed into one of the two experimental groups. The control group consisted of a purposive sampling of students enrolled in an introductory special education class. Without random sampling, the control group's differences may have been a result of the initial selection bias rather than a result of the treatment. Besides the lack of randomization,

there may have been other predictor variables involving levels of experience such as (a) previous bowling experience, (b) coaching/teaching experience, (c) number of years involved in Special Olympics, and (d) the number of mentally retarded athletes each subject coached that may have been important to the selection of subjects. Attempts should be made to have all groups enter the study with similar levels of experience.

Although the priority and emphasis given to training volunteer coaches is well justified and warranted (Johnson et al., 1988), it also creates a need for trained personnel to conduct the workshops. Because of the lack of personnel with training in special education, physical education, and recreation, untrained volunteers are used to provide services to assure compliance with Special Olympics, Inc. (Broadhead, 1986; Datelle, 1977; Karper, 1980). The transfer of responsibilities to untrained coaches has led to frustration and created a critical need for inservice training in sport skills.

Videotape modules may provide a system which will enable Special Olympics, Inc. to grow and reach their maximum effectiveness. Felitti and Curley (1985) reported that world class competitors conducted training clinics for both coaches and athletes at the Third International Winter Special Olympics Games in Park City, Utah. Only those elite coaches and athletes that attended received benefits. Through videotape modules, trained professionals and world class competitors can share their knowledge with all Special Olympics coaches and athletes.

It is hoped that this study may serve as an impetus for Special Olympics, Inc. to take a closer look at the coaches training program. Presently, monies are provided by Special Olympics, Inc. for outreach programs serving the mentally retarded individual. Perhaps funds could be awarded for developing quality videotape training programs.

### Conclusion

Within the delimitations of this study, it can be concluded that a videotape module developed and evaluated in this study is as effective as a practicum setting for training volunteers to coach and teach developmental bowling skills to mentally retarded individuals.

### Recommendations for Further Study

As a result of this investigation, the following recommendations for further study are suggested.

1. Replication of this study with greater control on the subjects' level of bowling and coaching experience.
2. Replication of this study using other Special Olympics sports related skills in areas such as volleyball, aquatics, or athletics (track and field).
3. Replication of this study allowing the videotape module to be mailed to subjects and viewed at the subjects' convenience with an on-site visitation by the investigator to evaluate the Special Olympics training program.



4. Replication of this study in different geographical locations, with volunteers representing different Special Olympics Chapters.

5. Long-term field testing be conducted to determine whether volunteer coaches will continue to use the training methods presented at the training workshop.

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APPENDIX A  
VIDEOTAPE SCRIPT

**"TRAINING TO BE THE BEST"**  
Overview of Special Olympics

ANNOUNCER  
LOOKING AT  
CAMERA

OPENING: Hello, I'm Cindy Albright, an Area Trainer for Special Olympics and welcome to the growing ranks of individuals who choose to give their time and efforts as Special Olympics volunteers. You have taken on a vital and exciting role in the promotion of physical health, achievement, and enjoyment of life by mentally retarded individuals. The dedication and unselfish efforts of many volunteers who, like yourself, have contributed to the Special Olympics organization, are a major key to the success of many programs and opportunities for mentally retarded individuals.

We are here today to discover the true meaning of Special Olympics and how you can best aid in support of this program. This video presentation is divided into three parts. The first part is to acquaint you with what Special Olympics is all about. In the second session, you will learn coaching strategies that will be helpful when working with special athletes. The third session introduces specific sport skills training programs. By the end of this video presentation, you will be qualified to serve as a volunteer coach and provide your time and knowledge to a very special group of individuals.

VOICE OVER  
FILM  
FOOTAGE

PROGRAM: Special Olympics is the world's largest program of sports training and athletic competition for mentally retarded children and adults. Almost one million mentally retarded individuals take part in the Special Olympics program.

VOICE OVER  
CHART

Special Olympics has a very definite mission:

- \* to provide year-round training and athletic competition in a variety of well-coached, Olympic-type sports for mentally retarded individuals;
- \* to provide mentally retarded individuals with continuing opportunities to develop physical fitness;
- \* to prepare mentally retarded persons for entry into school and community sports programs;
- \* and to express courage, experience joy, and participate in the sharing of gifts, skills, and friendships with their families, other Special Olympians, and the community.

ANNOUNCER  
ON CAMERA

PURPOSE: Success on the playing field often carries over into the classroom, the home, and the job.

ACTION SHOTS

Special Olympics is a sport in its truest sense. The goal is not to win, but to try; to experience, not to conquer. Special Olympics is unique in that everyone has a chance to win, since competition is based on not only age and sex divisions, but also by ability. No time is too slow, no distance too small, to earn a medal, a ribbon, a hug, or a sincere "well done". No records are broken in Special Olympics—except those for COURAGE, DETERMINATION, and SPORTSMANSHIP.

ANNOUNCER  
ON CAMERA

SPONSOR: In 1946, the Joseph P. Kennedy, Jr. Foundation was established by Ambassador and Mrs. Joseph P. Kennedy, in honor of their eldest son who died in World War II. The foundation created the Special Olympics program with two firm objectives:

- \* to seek the prevention of mental retardation by identifying its causes and
- \* to improve the means by which society deals with its citizens who are already retarded.

In July of 1968, Senator Ted Kennedy announced the establishment of Special Olympics, Inc. Eunice Kennedy Shriver, President of Special Olympics, Inc., is the motivational force behind the Program, and is still active at all levels of the organization.

EUNICE SHRIVER  
GIVING SPEECH

"You are the stars and the world is watching you. By your presence you send a message to every village, every city, every nation. A message of hope. A message of victory. The right to play on any playing field, you have earned it. The right to study in any school, you have earned it. The right to hold a job, you have earned it. The right to be anyone's neighbor, you have earned it."

ACTION SHOTS

GAMES: A key feature of Special Olympics is a series of Olympic-type events held annually at each organizational level. Games provide all the pageantry and excitement of regular International Olympic games—OPENING and CLOSING CEREMONIES, AWARDS, PRESENTATIONS, and CULTURAL ACTIVITIES.

There are three organizational levels of competition. LOCAL games are held year-round at area levels. CHAPTER games are usually scheduled in May and June of each year. INTERNATIONAL games are held every four years.

ANNOUNCER  
ON CAMERA

TRAINING: Preparation and training are crucial to Special Olympics. Almost all local, area, chapter/national Special Olympics programs offer year-round training programs.

Quality training has always been one of the principle goals with Special Olympics with the emphasis on educating VOLUNTEERS, TEACHERS, and COACHES.

ACTION SHOTS

SPORTS: Special Olympics offers 16 official sports such as track and field, swimming and diving, ice skating, basketball, volleyball, poly hockey, bowling, Frisbee disc, wheelchair events, and winter sports such as alpine and nordic skiing.

Special Olympics sports and events are divided into two categories: TEAM PLAY and INDIVIDUAL SKILLS COMPETITION.

ANNOUNCER  
ON CAMERA

COMPETITION: Athletes are divided into competition divisions based on their AGE, SEX, and ABILITY. The following age groups are used for ALL Special Olympics Games and competition:

VOICE OVER  
CHART

Individual sports consist of:

Youth	8-11 years
Junior	12-15 years
Seniors	16-21 years
Masters	22-29 years
Senior Masters	30 & up years

Team sports divisions are:

Junior	8-15 years
Senior	16-21 years
Masters	22 & up years

ANNOUNCER  
ON CAMERA

Coed teams can compete when there are not enough all men or all women teams.

ACTION SHOTS  
OF MENTALLY  
RETARDED  
INDIVIDUALS

PARTICIPATION: Special Olympics is open to mentally retarded individuals 8 years of age or older. Most participants generally have an IQ of 75 or less.

Persons who have multiple handicaps may participate in Special Olympics but they must also meet the intellectual and adaptive behavior standards.

Participants must adhere to the rules of Special Olympics, Inc. and abide by the rules of the International Sports Federations.

ANNOUNCER  
ON CAMERA  
CHART

Eligible participants are those persons who, according to the local classification based on ASSESSMENT, EVALUATION, or DIAGNOSIS by the appropriate EDUCATIONAL AGENCY, or qualified PHYSICIAN or PSYCHOLOGIST, have been determined to be mentally retarded and recommended for participation in programs to meet the needs of mentally retarded persons. Diagnosis should have been based on formal determination of significantly SUBAVERAGE GENERAL INTELLECTUAL FUNCTIONING and ADAPTIVE BEHAVIOR with some flexibility left to local, area, chapter or national Special Olympics organizations.

EXAMPLE OF  
FORMS

Any person wishing to participate in Special Olympics must first have completed the necessary forms required by the National Office. Such forms consist of a MEDICAL/PARENTAL RELEASE FORM and an ATLANTOAXIAL SUBLAXATION FORM.

Examples of these forms are in your packet, see forms A and B.

These forms must be correctly and completely filled out, processed by state office personnel, and on file in the state office prior to competition.

ACTION SHOTS

Individuals with Down's Syndrome are not allowed to participate in Special Olympics sports training or competition activities until they have been examined by a physician for atlantoaxial subluxation, which is a malalignment of the cervical vertebrae C-1 in the neck. Individuals diagnosed as having this condition are restricted from participating in certain events that might cause severe injury.

ANNOUNCER  
ON CAMERA

Individuals who are members of regular interscholastic or intramural teams are not eligible for Special Olympics since "graduation" of Special Olympians into regular sports programs is the principal objective.

VOICE OVER  
DEFINITION

MENTAL RETARDATION: According to Public Law (PL) 94-142, mentally retarded means "significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period which adversely affects the child's educational performance."

## CHART

The range of possible retardation has been divided into four areas:

- \* MILD (IQ 52-68) EDUCABLE
- \* MODERATELY (IQ 36-51) TRAINABLE
- \* SEVERELY (IQ 20-35) INSTITUTIONAL
- \* PROFOUND (IQ below 19)

ACTION SHOTS  
OF MENTALLY  
RETARDED  
INDIVIDUALS

MILDLY retarded persons are very similar to their nonretarded peers, but they learn more slowly. This group may relate very well to other persons; however, their daily conservation and vocabulary will be more concrete and below average for their age level. They can learn basic academic skills and prevocational skills.

MODERATELY retarded persons may be more obvious. Their retardation is usually evident before they enter school as they may be significantly delayed in learning to walk or in acquiring language skills such as math and reading.

SEVERELY retarded persons may also have physical handicaps. They may be very slow in motor development. Severely retarded persons have their educational situations and living arrangements closely supervised.

About 1 and 1/2 percent of all retarded persons are PROFOUNDLY retarded. The retardation is usually accompanied by other physical disabilities. This group can perform simple work activities in a very highly structured and supervised setting.

ANNOUNCER  
VOICE OVER  
CHART

CAUSES: There are two primary causes of retardation:

- \* MEDICAL causes such as infections, intoxications, trauma, or chromosomal abnormalities and
- \* SOCIAL causes such as psychiatric disorders or environmental influences.

ANNOUNCER  
ON CAMERA

VOLUNTEERS: The success of Special Olympics has been made possible by the love and dedication of thousands of volunteers.

# ACTION SHOTS OF VOLUNTEERS

Over 450 thousand volunteers provide the manpower for Special Olympics. They come from high schools, colleges and universities, service groups, parent groups, and various major organizations and corporations.

The needs of Special Olympics are still great. Less than 15% of the individuals who could benefit from the program are being reached.

Special Olympics needs YOUR help:

- \* To serve as coaches, guides, huggers, organizers, publicists, fund raisers, parade marshalls, entertainers, sports officials, and other workers;
- \* We need to provide sports facilities, sports equipment, transportation, lodging, meals, and other "in-kind" assistance; and
- \* To provide operating funds which can be used at the local level.

# ANNOUNCER ON CAMERA

Without the help of people like yourself, millions of special boys and girls would have continued to stand on the sidelines.

# ACTION SHOTS OF VOLUNTEERS

"Who speaks Chinese?"

"Everywhere you turn around there is another person you want to hug or who wants to hug you. It really is a great time.

"Once you get involved with Special Olympics you can not leave it. It's wonderful."

"What do you get out of this?"

"Whole lot of tears, a whole lot of reward. It is just wonderful. It is the best feeling in the world."

# ANNOUNCER ON CAMERA

CLOSING: Now you know what Special Olympics is all about. The second and third part of this video presentation will cover coaching strategies and specific methods for teaching and coaching bowling.



"TRAINING TO BE THE BEST"  
Coaching Strategies

ANNOUNCER  
LOOKING AT  
CAMERA

OPENING: This next session will prepare you to become a successful Special Olympics volunteer coach. You will find out how to become a certified coach, the duties of a coach, successful coaching techniques, and ways to adapt your program to meet the needs of your athletes.

One of the most important areas of a volunteer is that of a COACH.

Successful coaches are those who can learn new skills, who are flexible enough to change old ways when change is needed, who can adapt to constructive criticism, and who are able to critically evaluate themselves.

CERTIFICATION: Certification of coaches is the system used by Special Olympics to encourage more coaches to attend clinics, learn new skills and adaptable methods from professionals, and then carry them back to share with their Special Olympians.

Coaches' certification is required of a coach of any team wishing to compete in a STATE or AREA meet or any individual wishing to be selected as a coach for the INTERNATIONAL GAMES.

VOICE OVER  
CHART

The purpose of the Coaches Certification Training Schools is to provide coaches, volunteers and interested individuals with:

- \* updated information to the Special Olympics Program;
- \* a thorough overview of the state and national Special Olympics program;
- \* skill, teaching and coaching expertise in one specific sport including the equipment and safety involved in scoring and skill analysis, and teaching and coaching techniques.

ANNOUNCER  
ON CAMERA  
VOICE OVER  
CHART

To meet coaching certification, the following must be done:

- \* attend a four-hour coaches certification training school conducted by a certified area trainer;
- \* complete a 10-hour practicum of on-hands experience of working with mentally retarded individuals;
- \* and submit the necessary certification forms.

ANNOUNCER  
ON CAMERA

Each coach attending a training school will receive training materials that will be helpful in making them effective coaches in that sport.

Once you become a certified coach, you are ready to go out and form your own Special Olympics program.

VOICE OVER  
CHART

DUTIES: Once you assume the responsibility of being a coach, there are certain duties that one must be willing to perform. These duties are listed in detail on Form C in your packet. They include such things as:

- \* setting up training programs for the athletes;
- \* meeting entry form deadlines;
- \* knowing Special Olympic procedures;
- \* coordinating volunteers to help assist in whatever nature; and
- \* attending meetings and training clinics.

ANNOUNCER  
ON CAMERA  
VOICE OVER  
CHART

ROLE OF COACH: Your role as a coach for the mentally retarded athletes is to:

- \* set meaningful, realistic goals;
- \* make use of materials available to you; and
- \* adapt the materials to suit the individual needs.

ANNOUNCER  
ON CAMERA

As coaches, we often assume that our athletes have had past experience or knowledge of a skill, when in fact the athletes are uncertain of what is expected of them. We should never assume anything. However, do not underestimate the ability of an athlete either.

INTRODUCTION: Now let's go out into the field and meet one of our Special Olympic coaches. Donnell Hill is a volunteer coach for a sheltered workshop group in Wynne, Arkansas. Donnell will discuss the conduct of a coach and some characteristics that he feels are essential to become a successful coach.

DONNELL  
ON CAMERA

CONDUCT: The coach acts as a MODEL for the athlete. It is imperative that the coach conduct himself/herself in an acceptable manner, and demonstrate sportsmanship at all times.

The coach must also accept the responsibility for the behavior of his/her athletes, parents, and spectators both in and out of the competitive arena during Special Olympics events.

INTERVIEW

CHARACTERISTICS: "Donnell, what characteristics make a good coach?"

DONNELL  
ON CAMERA

- \* KNOWLEDGE of the sport.
- \* MOTIVATION to be a good coach.
- \* EMPATHY to understand athletes' emotions of joy, frustration, anxiety, and anger.
- \* Being REALISTIC in setting goals for the athlete's progression and move on to different levels of achievement.

INTERVIEW

WORKING WITH MENTALLY RETARDED INDIVIDUALS:

"What techniques, Donnell, as a coach do you use to create a positive environment for your athletes?"

DONNELL  
ON CAMERA

"Cindy, it is very important that you have certain OBJECTIVES and GOALS for the athlete."

- \* DISCIPLINE is a very important part of any program. Consistency in your expectations for discipline is a key to success.
- \* It is also important that the athletes are in good CONDITION so that they may apply their energies to learning and perfecting the necessary skills.
- \* Every athlete should be encouraged to COMPETE, even if it is with themselves. Keep accurate records of their progress.
- \* ACKNOWLEDGE and REWARD for the efforts of your athletes. This helps to bolster their self image.

INTERVIEW

METHODS OF INSTRUCTION: "Donnell is there a special method in working with mentally retarded individuals?"

DONNELL  
ON CAMERA

"Cindy, there are various methods of instruction are helpful in getting information across to the mentally retarded athlete."

ACTION SHOTS

First VERBALIZE what you want the athlete to do. Secondly, DEMONSTRATE the skill so that the athlete may see what is expected of them. And thirdly, use PHYSICAL ASSISTANCE to move the athlete through a desired movement. Remember, the mentally retarded can learn, but REPETITION is a key part toward accomplishment.

In teaching sports skills, use a PROGRESSIVE pattern. Break sports skills into the smallest part and progress to the complete skill.

ANNOUNCER  
ON CAMERA

RESPONSIBILITIES: It is very important that coaches are adequately prepared to deal with the athletes for an extended period of time since most events occur for a long duration. Here are some helpful procedures that should simplify your job.

VOICE OVER  
CHART

1. The coach is responsible for the athlete during the sporting event.
  - \* Be sure athletes warm-up properly.
  - \* Take precautions to avoid sunburn and heat exhaustion.
  - \* Be sure athletes receive adequate rest.
  - \* Be sure athletes eat properly.
  - \* Be aware that excitement of an event may encourage inappropriate behaviors.
2. The coach should be aware of the athlete's possessions.
3. The coach is responsible for ensuring that the athlete is on time for all events and also has an opportunity to participate in special activities.
4. The coach is expected to have a copy of valid Medical/Parental Release Forms for all athletes.
5. The coach should be familiar with medical conditions of each athlete and that medications, if necessary are administered properly.

ANNOUNCER  
ON CAMERA

COACHING STYLE: The first and most important question each coach faces is determining what coaching STYLE works best with his/her group of Special Olympians.

ACTION SHOTS

There are four basic coaching styles:

- \* COMMAND referred to as a "hard-nose" whereby the coach makes all the decisions;
- \* SUBMISSIVE reflects the "easygoing" type coach who makes as few decisions as possible;
- \* EXECUTIVE style indicates the "business-like" coach where everything runs like clockwork; and the
- \* COOPERATIVE style portrays the "intensive" coach who shares with the athletes in making decisions.

ANNOUNCER  
ON CAMERA

COACHING TIPS: Finally, the following teaching suggestions may be helpful to you in understanding how to work with the mentally retarded athlete.

VOICE OVER  
CHART

- \* Keep the athletes ACTIVE.
- \* Keep verbal communications BRIEF.
- \* Be PATIENT.
- \* Keep all practices SHORT and FUN.
- \* Know your athletes' ABILITIES, INTERESTS and GOALS.
- \* Choose activities that CHALLENGE the individual.
- \* Be FLEXIBLE.
- \* Be POSITIVE.
- \* Teach ONE skill at a time.
- \* New skills should be taught at the BEGINNING of the session.
- \* Establish a good RAPPORT with the athletes.
- \* Each day set a GOAL at the beginning of practice.
- \* Set up special AWARDS, i.e., most improved worker, hardest worker.
- \* Give the athlete CONFIDENCE—use your face and voice to express yourself.
- \* Do NOT OVER-COACH.
- \* Focus on ABILITY not disability.

ANNOUNCER  
ON CAMERA

CLOSING: This session has dealt with strategies of what it takes to become a coach with Special Olympics and how to work with the mentally retarded athlete. The final session of this video presentation will involve how to teach specific sport skills.

"TRAINING TO BE THE BEST"  
Bowling Skills

ANNOUNCER  
ON CAMERA

OPENING: This last session is what coaching Special Olympics is all about; teaching specific sport skills for the mentally retarded individual. Before we begin, I would like to discuss modifications and adaptations for bowling.

MODIFICATIONS: Special Olympians are often denied the opportunity to learn new skills or participate in sports activities because they are not physically able to perform the skill or because the environment does not accommodate their handicap. The coach may modify the skills, equipment or the environment of any activity so that all athletes are able to participate.

To learn the basic fundamentals of bowling, a bowling alley is not essential. The school offers many areas that may be adapted to serve as a bowling lane. The cafeteria, the classroom, the hallway or any flat, paved playground area meet the qualifications for a bowling lane. If the activity becomes too noisy due to balls bouncing and pins falling, a carpet strip can be used to silence the noise.

Obtaining the necessary bowling equipment may present a problem, thus discouraging the offering of the sport. Here are some suggestions that may be helpful in starting or adapting your bowling program.

USE OF  
EQUIPMENT

- \* Many bowling alleys dispose of old, chipped pins. As Special Olympic coaches, bowling centers frequently donate used pins for the program.
- \* Plastic bowling pins and balls such as these may be purchased from sport equipment dealers.
- \* Many retail stores carry miniature bowling sets which would be ideal for the lower functioning individual.
- \* If funds are not available, then empty tennis cans and rubber playground balls may be substituted during the early progressions of bowling.

By adapting the size and type of ball, most Special Olympians can successfully participate in bowling.

- \* Nerf balls are soft so that the athlete can grip the ball.
- \* Playground balls come in many sizes so that individuals with little or no grip strength can push the ball forward.
- \* Plastic balls are lighter than the regulation 8 to 15 lb bowling ball.

It is obvious that athletes with upper-limb impairment could not be able to bowl without assistive devices. Various types of adapted equipment have been developed.

\* The BOWLING FRAME UNIT

This device is used for those athletes who cannot lift a bowling ball. The device is centered in front of the lane and an assistant places the ball onto the frame.

The athlete need only give the ball a slight push for it to roll down the frame toward the bowling pins.

This device is commonly located at most bowling alleys. Ask the attendant for assistance in setting up the device.

\* The ADAPTER-PUSHER DEVICE

This piece of equipment can be used in two positions. In the front position, the device is positioned directly in front of the wheelchair, and the bowler uses both hands to push the ball down the lane. In the side position, the device is used with one hand at the side of the wheelchair.

VOICE OVER  
CHART

In competition, it is important that the rules not be changed to meet all the needs of each athlete. However, there are other ways to accommodate athletes' special needs. For example:

- \* the weight of the ball may be lowered for athletes with lower extremity weakness;
- \* bowl three balls per frame;
- \* do not utilize a foul line;
- \* bowl three frames at a time before changing bowlers;  
or
- \* shorten the lane.

ANNOUNCER  
ON CAMERA

Regardless of what type of sport or activity you are using remember modifications and adaptations allow every one an opportunity to participate.

INTRODUCTION: There are certain preparations that are essential when participating in the sport of bowling. Here is Dr. Jake Darby, Assistant Instructor at Arkansas State University to explain the steps in preparing to bowl.

DR. DARBY  
ON CAMERA  
ACTION SHOTS

CLOTHING: "Thank you Cindy." The athlete should wear comfortable clothing that allows for freedom of movement. Proper fitting bowling shoes are essential. The size of bowling shoes should correspond to the athlete's regular shoe size.

Some teaching suggestions are:

- \* Point out the advantages and disadvantages in various types of clothes which can be worn;
- \* Clothing should be loose to allow freedom of movement and not distracting or restricting;
- \* Write the athlete's shoe size on a card and leave at the bowling alley; and
- \* Wear tennis shoes when practicing bowling in a gymnasium.

ATHLETES  
PERFORMING  
EXERCISES

WARM-UP EXERCISES: Before participating in bowling, athletes should WARM-UP properly to allow them to perform at the best of their ability as well as to possibly prevent injuries. The following basic exercises are essential for beginning bowlers:

- \* Wrist circles
- \* Arm circles
- \* Arm swings
- \* Toe touches

In performing toe touches, stand with feet slightly apart and flat on the ground. Bend from the waist and reach as far down as possible, keeping legs slightly bent. Try to touch the toes or, if possible, the floor. Hold stretch for 5 seconds. Repeat exercise 5 times, gradually increasing to 10 times.



\* Windmill exercise

In performing the windmill exercise, place feet shoulder-width apart, arms held out to the side with legs straight. Twist the trunk to the left and bend down at the waist, bringing the right hand to left foot. Try and touch the toes. Return to starting position and repeat movement to the opposite side. Repeat the exercise 5 times.

\* Body bends

Caution should be taken when doing this exercise! Stand with feet slightly apart, extend the arms, and reach high overhead. Bend from the waist and arch backward as far as possible, then bend forward as far as possible swinging arms forward and trying to touch ground with the hands. Return to starting position. Repeat 4 times.

DR. DARBY  
ON CAMERA

CHOOSING CORRECT BOWLING BALL: A bowler must use a ball which properly fits the hand to attain any degree of enjoyment and success. Fitting the ball includes a correct FINGER SPAN, proper THUMB and FINGER HOLE SIZE, and a comfortable WEIGHT.

A Special Olympian may need a lighter ball. The selection of a ball is a matter of personal choice and comfort. A properly fitted ball, no matter what grip, will help increase accuracy and begin to raise bowling scores.

ATHLETE  
DEMONSTRATING  
BALL  
SELECTION

The following suggestions may help in making the proper ball selection.

- \* The THUMB HOLE should be comfortably loose. Place the thumb in the thumb hole and pull it in and out; the thumb should come out easily.
- \* FINGER HOLES should be comfortably snug to fit the middle finger and ring finger. The second joints should come to the edge of the finger holes.
- \* FINGER SPAN is measured by placing the thumb in its hole and placing the hand across the ball but do not put fingers into the finger holes. The knuckles of the middle two fingers should be directly over the inside edge of the finger holes.
- \* And the WEIGHT of ball should be determined by the heaviest ball that the athlete can handle with accuracy. Generally an 8 to 12 lb ball is recommended.

## ACTION SHOTS

Some teaching suggestions are:

- \* If a bowler constantly drops the ball at the foul line, the ball is too HEAVY;
- \* If the ball is lofted onto the lane, or speed is too great, the athlete is using too LIGHT a ball;
- \* Make sure athletes can identify their own ball; and
- \* If the athlete is having difficulty with proper finger placement, try marking those fingers with fingernail polish, magic marker, or stars to further remind them.

ATHLETES  
DEMONSTRATING  
INCORRECT AND  
CORRECT  
METHOD

PICKING UP THE BALL: To prevent smashed fingers, dropping the ball or pain in the wrist, the Special Olympian needs to learn the proper way to pick up a ball. The individual should place both hands on either side of the ball. Then lift the ball with both hands and then place the fingers and thumb into the ball. Hold the ball waist high with elbows bent, supporting the weight with the non-bowling hand.

A teaching suggestion is do not allow the athlete to pick up the ball by putting fingers in the finger holes. Hand fatigue and loss of control will result from such activity.

INTRODUCTION  
OF ANNOUNCER

BOWLING PROGRESSION: "Thank you, Dr. Darby." Now we are ready to begin bowling. There are many different styles and techniques in bowling. As a coach you must determine which technique best suits each individual athlete.

When working with special athletes, remember that you must find the technique that works best for them. You must start with the simplest skills and progress from there.

VOICE OVER  
CHART

The progression we will use in teaching bowling will be:

- \* Rolling
- \* Pendulum swing
- \* Push-away with pendulum swing
- \* One-step delivery
- \* Multi-step delivery

DEMONSTRATION  
BY ATHLETE

ROLLING THE BALL: The first step in the teaching progression is ROLLING the ball. Beginning bowlers may want to start from a sitting position on the floor or from a chair and then progress to a standing position.

From a standing position:

- \* Have the athlete face the pins, with feet apart.
- \* Place the ball on the floor between the athlete's feet.
- \* Have the athlete bend at the waist and relax the knees.
- \* Place both hands behind the ball, fingers slightly curled.
- \* Extend the arms forward, pushing the ball down the lane.
- \* If the athlete can lift the ball, have him grasp the ball underneath, extend the arms down, take a backswing between the legs, and then push the ball down the lane.

The coach may need to help the athlete to perform this. Stand behind the athlete. Help the athlete take the ball back and then push the ball forward between the legs.

ACTION SHOT

A teaching suggestion might be to set up targets by the athletes to roll the ball toward. You may use partners, colored shapes, cones, or bowling pins.

DEMONSTRATION  
BY ATHLETE

PENDULUM SWING: The second step in the teaching progression is the PENDULUM SWING. The correct grip has already been discussed.

Let's start with the STANCE.

- \* Have the athlete stand at the foul line.
- \* Right-handed bowlers should put left foot slightly forward.
- \* Bend the knees slightly to encourage relaxation.
- \* Extend the arm full length with the ball at approximately knee height.
- \* Tell the athlete to focus eyes on the pins down the lane.

On the ARM SWING:

- \* Have the athlete slowly "swing" the arm forward and backward three or four times and then release the ball.
- \* The ball should be swung forward to head level and then back in a natural arc past the hip.

VOICE OVER  
CHART

Points to remember:

- \* Where the arm goes, the ball goes.
- \* The arm swing is like a clock pendulum. The arm "swings" straight forward, straight back, and straight forward.
- \* Ball, arm, and elbow stay close to the body.
- \* Keep shoulders square with the target.

ACTION SHOT

In teaching this skill the coach may need to help the athlete by grabbing the wrist and helping swing forward and back.

ACTION SHOT

A teaching suggestion is to encourage proper foot placement would be to place a mat with footprints on the floor.

DEMONSTRATION  
BY ATHLETE

PUSH-AWAY: The third step in this progress is the  
PUSH-AWAY WITH PENDULUM SWING.

- \* Have the athlete place the feet in the proper position.
- \* The push-away will start at the right hip for right-handed bowlers.
- \* The ball is pushed out and away from the body with both hands at hip level.
- \* Push the ball forward and downward to the extended arm position.
- \* The arm then starts the pendulum swing and releases the ball.
- \* Follow-through with the arm at head level.

ACTION SHOT

Coaches may need to help the athlete push the ball away by help holding onto the wrist, pushing it out, letting the ball come back, and then pushing it forward.

ACTION SHOT

A teaching suggestion would be to count a RHYTHM for the pushaway and arm swing. "Out, down, back, and roll it easily down the lane."

DEMONSTRATION  
BY ATHLETE

ONE-STEP DELIVERY: The most commonly used approach for Special Olympians is the ONE-STEP DELIVERY.

- \* Have the athlete assume the proper stance.
- \* Right-handed bowlers will start with most of their weight on the right foot.
- \* The ball is at the right hip.
- \* The athlete pushes the ball out, away from the body, then starts the pendulum swing.
- \* As the athlete swings the ball back, he/she will step forward with the left foot and then release the ball.
- \* Follow-through with the arm swing, reaching for the target.
- \* The arm completes its swing at head level.

ACTION SHOT

The coach may need to stand behind the athlete to help them take the step. This may be done by either grasping the pant leg or pushing on the athlete's leg with your foot.

DEMONSTRATION  
BY ATHLETE

MULTI-STEP DELIVERY: The last step in the teaching progression is the MULTI-STEP DELIVERY. You may use a two, three, or four step approach, whichever suits your athlete. We will go through the three step approach for right-handed bowlers.

- \* On the push-away, Mike will take a step with the left foot.
- \* On the backswing, he steps with the right foot.
- \* And on the forward swing and follow-through takes a step with the left foot.

ACTION SHOTS

Points to remember:

- \* The approach must be natural walking STEPS. Do not run, skip or hop in the approach—walk!
- \* The ball must be pushed out on the first step and continue to move with the foot movement.
- \* Hips and shoulders must be square to the target as the ball is released.

ACTION SHOT

In teaching this progression, you may need to help push their legs so they get the proper sequence. If you can walk with the athlete it will help.

ACTION SHOT

Some teaching suggestions are:

- \* Emphasize the ball and foot action; they must move together.
- \* Give a RHYTHM: "Left, right, left."

ANNOUNCER  
ON CAMERA

BOWLING STYLES: These are the five steps in the progression of teaching bowling to the special athlete. Remember, everyone has their own bowling style. Now let's view some Special Olympians bowling.

SPECIAL  
OLYMPIANS  
BOWLING

The first progression is rolling the ball. This progression is ideal for those individuals who have poor wrist or arm strength. Next progression is the pendulum swing and there may be many variations to this style. Once the athlete has accomplished the pendulum swing the push-away is added. From this point on the athlete progresses at his/her own pace to the point where a multi-step approach can be used.

ANNOUNCER  
ON CAMERA

COMMON FAULTS AND HOW TO CORRECT THEM: There are four common errors in bowling. These involve the HAND, the ARM, the BODY, and TIMING. Mike and John will demonstrate both the incorrect and the correct procedures in each of these four situations.

DEMONSTRATION  
BY ATHLETE

With HAND ERRORS, most beginning bowlers twist their arm or wrist either clockwise or counterclockwise as they release the ball. This makes the ball curve to the right or left and generally misses the pins.

Normal bowling procedures teaches to have the thumb at the 10 o'clock position on release of the ball. With special athletes you may want to use the 12 o'clock position as a key for proper hand positioning.

Correction:

- \* Remember, there should be no twisting of the hand upon release of the ball. The wrist stays firm.
- \* Keep the thumb at 12 o'clock position.
- \* Go through the arm swing sequence without the ball and concentrate on keeping the thumb pointing to 12 o'clock.
- \* Look at the athlete's hand as he/she finishes the follow-through.
- \* Hand should be head-high with the thumb at 12 o'clock position.

DEMONSTRATION  
BY ATHLETE

With ARM ERRORS, beginning bowlers tend to allow their arm to swing across their body or swing away from midline and finish way left or right of straight ahead. The athlete must learn to swing straight ahead down the lane.

Correction:

- \* Learn to swing the arm in a straight line down the lane.
- \* Have the arm follow-through so the athlete can touch the ear on that side of the body with their arm.

DEMONSTRATION  
BY ATHLETE

With BODY ERRORS, body position at the moment of release affects the roll of the ball. If the shoulders are turned, the direction in which they are pointing is generally the direction in which the ball will go.

Correction:

- \* Keep shoulders square to the foul line.
- \* Try and maintain good balance.
- \* Non-bowling arm should be extended to the side to counterbalance the bowling arm.
- \* "Freeze" in the follow-through position and note the angle of the shoulders.

DEMONSTRATION  
BY ATHLETE

TIMING is the ability to coordinate the footwork and arm swing. With timing problems, many bowlers race to the foul line to release the ball. In doing so, much of the rotation of the ball is gone by the time the ball reaches the pins.

Correction:

- \* The ball should be laid out on the lane about 15-18 inches beyond the foul line.
- \* Push the ball out and down before starting the first step.
- \* Do not RUSH the foul line. Make the first step a snort one and then glide smoothly toward the target.

SHOT OF  
PACKET

COMMENT: Inside your training packet, Form D is a sample Analysis Chart. This might be useful in diagnosing bowling errors that we have just covered.

INTRODUCTION: By this time, the athlete should have developed a personal bowling style. We are now ready to bowl a game. Jake Darby will cover basic rules and etiquette to complete the sport of bowling.

DR. DARBY  
ON CAMERA

RULES: Special Olympics bowling adheres to the American Bowling Congress rules.

The following events may be offered in Special Olympics Bowling competition:

VOICE OVER  
CHART

- \* Individual
- \* Doubles
- \* Mixed Doubles
- \* Team Bowling (which consists of 4-person teams) and
- \* Developmental Bowling

ACTION SHOT

Athletes using RAMPS shall be placed in separate divisions from other bowlers. Ramp bowlers shall compete only with and against other ramp bowlers in team bowling competition.

ACTION SHOT

The following DEVELOPMENTAL EVENTS may be offered in Special Olympics bowling competition:

- \* Target Roll and
- \* Frame Bowling



VOICE OVER  
CHART

The following rules are basic for all bowling competition.

- \* A game consists of 10 frames.
- \* Generally THREE games are bowled and the average of the three scores constitutes the athlete's score.
- \* Only TWO balls may be bowled per frame unless in the tenth frame.
- \* And athletes will bowl as a GROUP requiring the athlete to wait between frames.

DR. DARBY  
ON CAMERA

ETIQUETTE: Bowling ETIQUETTE is based on common courtesy and consideration. The following are some important guides to good bowling manners:

ACTION SHOTS

- \* Put your bowling shoes on before you select your bowling ball. Dirt from street shoes should not be carried onto the lanes;
- \* Use your selected ball each time. It inconveniences other bowlers to have to wait because you are using his/her ball;
- \* Be ready to bowl when it is your turn;
- \* Generally, you should let the bowler to your right bowl first if you are both ready at the same time;
- \* Do not loft the ball. Throwing the ball upwards so that it bounces on the lane upon delivery is lofting the ball. This is not good bowling technique, and it damages the lanes;
- \* And control your temper. All of us experience disappointment at poor bowling. Use GOOD sportsmanship.

ANNOUNCER  
ON CAMERA

SCORING: A cumulative type of scoring is used for bowling. The total number of pins knocked down in each frame is added to the previous score and recorded as the final score.

VOICE OVER  
CHART

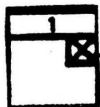
The number of pins knocked down with each ball is recorded immediately in the boxes of the frame except when a strike or spare occurs.

When all the pins are knocked down with one ball, this is referred to as a STRIKE. A strike is recorded by placing an "X" in the first box in the upper right corner of the frame. A strike scores ten points plus the total pins knocked down with the next two balls. The score can not be recorded until those two balls have been bowled. If a bowler strikes in the 10th frame, two additional balls are rolled before the score can be recorded for that frame.

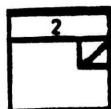
When all the remaining pins are knocked down on the second ball, a SPARE has been scored. A spare is indicated by placing a diagonal line (/) in the second box in the upper right corner of the frame. A spare scores ten points plus the pins knocked down with the next ball. The score can not be recorded until the first ball in the next frame has been bowled. If a bowler spares in the 10th frame, one additional ball is rolled before the score can be completed.

There is a system of symbols that must be learned in scoring. These symbols help to keep track of what is happening as an athlete is bowling. They are also helpful in analyzing the strengths and weaknesses of a game. The following are the most common symbols used for Special Olympians.

- \* STRIKE: All pins are knocked down with the first ball in a frame.



- \* SPARE: All pins are knocked down with the second ball in a frame.



- \* **MISS or ERROR:** Failure to bowl down all ten pins with two balls in a frame. A miss is designated by a dash (-) in the second box of the frame. No points are awarded for a miss.

3	4
-	

- \* **FOUL:** When any part of the body comes in contact with the foul line. A "F" is placed on the score sheet depending on where the foul occurred. No points are awarded for a foul.

5	6
F	

- \* **GUTTER BALL:** A ball that rolls off the alley into the gutter on either side before reaching the pins. A "G" is indicated in the scoring box. No points are awarded.

7	8
G	

SHOT OF  
PACKET

COMMENT: Now that we are familiar with the scoring symbols, let's practice our scoring skills. Form E in your packet is a sample score sheet. Take that form out and score the following demonstration game presented by Ross Friesen.

ACTION SHOTS  
OF A BOWLING  
GAME  
AND SCORING  
METHOD

First Frame: On his first ball, Ross knocks down FIVE pins. Place the number 5 to the left of the small box. On his second ball he picks up ONE. The number one is recorded in the second box. The total score for the First Frame is 6.

	1
ROSS	5 1
	6

Second Frame: The first ball of the 2nd Frame knocks down ONE pin. Record one in the first box. Second ball knocks down ONE pin again. Place one in the second box. Two is added to the First Frame and our total is 8.

	1	2
ROSS	5 1	1 1
	6	8

Third Frame: First ball knocks down SIX pins. On the second ball he picks up remaining pins causing a SPARE. The number 6 is recorded in the first box and a diagonal slash is placed in the second. We must wait until the next ball before scoring Frame Three. Remember 10 points plus one ball is awarded for a spare.

	1	2	3
ROSS	5 1	1 1	6 /
	6	8	

Fourth Frame: Ross knocks down SEVEN pins. Now we can add Frame 3, scoring 10 points for the spare plus 7 = 16. Seventeen added to Frame Three totals 25. On his second ball Ross only picks up TWO pins. Now score the Fourth Frame. Did you get a total of 34?

2	3	4
1 1	6 /	7 2
8	25	34

Fifth Frame: The first ball knocks down THREE pins. On the second ball he knocks down FOUR pins. Now add Frame Five, 41 is our total.

2	3	4	5
1 1	6 2	7 2	3 4
8	25	34	41

Sixth Frame: The first ball knocks down FIVE pins. On the second ball he picks up only ONE pin. Our score for Frame Six is 6, added to Frame Five gives us a total of 47.

3	4	5	6
6 2	7 2	3 4	5 1
25	34	41	47

Seventh Frame: All the pins are knocked down on the first ball. This is called a STRIKE. A strike is recorded by an "X" in the second box and scores 10 points plus the total of pins knocked down with the next two balls. We can not score this frame until the next two balls.

4	5	6	7
7 2	3 4	5 1	X
34	41	47	

Eighth Frame: Ross' first ball is a MISS. We record a miss by placing a slash in the first box. The second ball picks up FIVE. Now add 10 points for the strike plus 5 and record this number in Frame Seven. We have now completed Frame Eight as well, so we can score this frame. This brings our total to 67.

5	6	7	8
3 4	5 1	X	- 5
41	47	62	67

Ninth Frame: SIX pins are knocked down. The second ball is a MISS. Our score for Frame Nine is 6, added to our total gives us 73 points.

6	7	8	9
5 1	2	5	6
47	62	67	73

Tenth Frame: In our final frame, the first ball knocks down FIVE pins and the second ball MISSES all together. So we score 5 points in the Tenth Frame. We now have a complete game whose total score should be 78.

7	8	9	10	TOTAL
2	5	6	5	
62	67	73	78	78

ANNOUNCER  
ON CAMERA

CLOSING: This completes our scoring lesson and concludes our video presentation. You now have the basic information to become a successful Special Olympics coach for the sport of bowling. Thank you for your time and dedication to a very special cause. Good luck to you and your Special Olympians.

APPENDIX B  
CONTENT VALIDATION OF KNOWLEDGE TEST

## APPENDIX B

## CONTENT VALIDATION OF ITEMS FOR KNOWLEDGE TEST

DIRECTIONS: Please answer each of the following questions on the answer sheet provided. Read each question carefully and select the best answer. There is only one answer for each question. Do not mark on the test sheets!

NOTE: The following questions are designed for the mentally retarded bowler. All questions are also based on the bowler being a right-handed individual.

COACHING STRATEGY QUESTIONS

1. Who must be certified as a coach?
  - A. all volunteers.
  - B. individuals running sporting events/tournaments.
  - C. individuals who train Special Olympians.
  - D. parents of mentally retarded individuals.

(C is the correct answer: 106/ Certification)

2. What is the purpose of a coaches' training school?
  - A. to provide information about Special Olympics.
  - B. to provide skill and coaching techniques in a specific sport.
  - C. to stress adaptations and safety in sports training.
  - D. all of the above.

(D is the correct answer: 106/Certification)

3. Which of the following is necessary to become a certified coach?
  - A. attend a sports training workshop, a 10-hour practicum, and submit certification forms.
  - B. attend a sports training workshop, a 2-hour practicum, and take a group to State competition.
  - C. attend a sports training camp, submit proper forms, and pay membership dues.
  - D. attend a sports training workshop, coach a team for 6 to 8 weeks, and return certification forms.

(A is the correct answer: 107/Certification)



4. Which of the following is not a duty of a volunteer coach?
- A. organizing and conducting training programs for athletes.
  - B. completing all medical/parental release forms.
  - C. completing all entry forms and meeting entry deadlines.
  - D. attending coaches meetings and training clinics.

(B is the correct answer: 107/Duties)

5. During competitive events, the coach is responsible for whose conduct?
- A. his/her own athletes.
  - B. parents of his/her Special Olympians.
  - C. himself/herself.
  - D. all of the above.

(D is the correct answer: 108/Conduct)

6. What is the most important characteristic in being a successful coach?
- A. being realistic in setting goals for the athletes.
  - B. sympathizing with athletes' emotions.
  - C. having knowledge of the sport.
  - D. being a strong disciplinarian.

(A is the correct answer: 108/Characteristics)

7. Which of the following is a good technique to use when working with mentally retarded athletes?
- A. punish or ignore incorrect behaviors.
  - B. keep accurate records of athletes' progress.
  - C. use different methods for discipline with each athlete.
  - D. provide training sessions only when competitive events are scheduled.

(B is the correct answer: 108/Working with MRs)

8. What pattern of instruction is best with mentally retarded individuals?
- A. demonstrate skill, verbalize, physically assist individual, and progress to next sequence.
  - B. verbalize, physically assist individual, and use repetition.
  - C. verbalize, demonstrate skill, physically assist individual, and use repetition.
  - D. break skills down, progress one level at a time, and physically assist individual.

(C is the correct answer: 108-109/Methods)

9. During competition, which of the following is not a responsibility of a coach?
- A. athlete's performance during the event.
  - B. athlete's promptness and attendance at an event.
  - C. athlete's medication and its administration.
  - D. athletes' possessions.

(A is the correct answer: 109/Responsibility)

10. Which type of coach is portrayed as the "hard-nose," whereby the coach makes all the decisions?
- A. submissive.
  - B. command.
  - C. cooperative.
  - D. executive.

(B is the correct answer: 110/Coaching Styles)

11. Which of the following is a good coaching tip to remember when working with Special Olympians?
- A. initiate new skills at the end of practice.
  - B. teach to the athletes' abilities and interests.
  - C. develop a lesson and stick to it.
  - D. teach three related concepts during each practice.

(B is the correct answer: 110/Coaching Tips)

#### BOWLING QUESTIONS

12. Which of the following are methods that may be used to modify the sport of bowling so that all athletes can participate?
- A. adapt the rules.
  - B. adapt the size and types of balls and/or pins.
  - C. use assistive devices.
  - D. all of the above.

(D is the correct answer: 111-112/Modifications)

13. Which of the following assistive devices is likely to be available at most bowling alleys?
- A. guide rails.
  - B. adapter-pusher.
  - C. bowling frame unit.
  - D. all of the above.

(C is the correct answer: 112/Bowling Frame Unit)

14. Which of the following is appropriate clothing for bowling?
- A. street shoes.
  - B. tight fitting clothing.
  - C. distracting clothing.
  - D. casual clothing.

(D is the correct answer: 113/Clothing)

15. What warm-up exercises are best for bowling?
- A. arm circles, toe touches, and jogging in place.
  - B. wrist circles, body bends, and jumping jacks.
  - C. arm circles, wrist circles, and arm swings.
  - D. arm swings, toe touches, and sit-ups.

(C is the correct answer: 113-114/Warm-up Exercises)

16. What four factors are important in choosing the correct bowling ball?
- A. weight of ball, color of ball, finger hole size, and thumb hole size.
  - B. weight of ball, finger hole size, finger span, and thumb hole size.
  - C. weight of ball, wrist strength, finger hole size, and thumb hole size.
  - D. weight of ball, finger span, arm strength, and thumb hole size.

(B is the correct answer: 114/Choosing Correct Ball)

17. Which three fingers are placed in the bowling ball?
- A. thumb, index finger, and middle finger.
  - B. ring finger, little finger, and thumb.
  - C. middle finger, ring finger, and thumb.
  - D. index finger, thumb, and ring finger.

(C is the correct answer: 114/Finger Holes)

18. How does one determine the correct finger hole size?
- A. fingers should fit loose in each hole.
  - B. holes should come to the first finger joint.
  - C. holes should come to the second finger joint.
  - D. holes should come midway between the first and second finger joints.

(C is the correct answer: 114/Finger Holes)

19. What ball weight is generally recommended for a Special Olympian?
- A. 5 to 10 pounds.
  - B. 8 to 12 pounds.
  - C. 10 to 15 pounds.
  - D. 15 to 20 pounds.

(B is the correct answer: 114/Weight)

20. What is the problem if an athlete continually lofts the ball?
- A. ball is too light.
  - B. ball is too heavy.
  - C. wrong grip is being use.
  - D. wrong technique is being used.

(A is the correct answer: 115/Teaching Suggestions)

21. What is the correct method for picking up a ball from the rack?
- A. use both hands on either side of the ball and lift up.
  - B. use thumb and fingers in the proper holes and lift up.
  - C. use one hand and place it underneath the ball and lift up.
  - D. use one hand on the side of the ball with fingers in the holes and lift up.

(A is the correct answer: 115/Picking up the Ball)

22. Which of the following is the best progression pattern for teaching Special Olympians to bowl?
- A. rolling the ball, a one-step delivery, pendulum swing, then a multi-step delivery.
  - B. rolling the ball, a one-step delivery, a multi-step delivery, then pendulum swing.
  - C. pendulum swing, rolling the ball, a one-step delivery, then a multi-step delivery.
  - D. rolling the ball, pendulum swing, a one-step delivery, then a multi-step delivery.

(D is the correct answer: 116/Progression)

23. Which of the following terms best describes the arm action for the pendulum swing technique?
- A. "pushing" the ball into motion.
  - B. "swinging" the ball into motion.
  - C. "throwing" the ball into motion.
  - D. "pitching" the ball into motion.

(B is the correct answer: 117/Pendulum Swing)

24. What is the most commonly used delivery pattern for Special Olympic bowlers?
- A. one-step delivery.
  - B. two-step delivery.
  - C. three-step delivery.
  - D. four-step delivery.

(A is the correct answer: 118/One-Step Delivery)

25. What foot is the weight to be on for right-handed bowlers when starting the approach?
- A. on the right foot.
  - B. on the left foot.
  - C. evenly distributed on both feet.
  - D. none of the above.

(A is the correct answer: 118/One-Step Delivery)

26. What term best describes the foot action on a delivery?
- A. slide.
  - B. hop.
  - C. leap.
  - D. step.

(D is the correct answer: 119/Multi-Step Delivery)

27. Regardless of which delivery is used, what foot is forward for a right-handed bowler when the ball is released?
- A. right foot.
  - B. left foot.
  - C. both feet are together.
  - D. none of the above.

(B is the correct answer: 118-119/Deliveries)

28. What is a common hand error for most beginning bowlers?
- A. dropping the ball on the backswing.
  - B. swinging the ball across the midline.
  - C. twisting the arm or wrist on releasing the ball.
  - D. lofting the ball forward on releasing the ball.

(C is the correct answer: 120/Hand Errors)

29. What clock position should the thumb be pointing when releasing the ball?
- A. 10 o'clock.
  - B. 12 o'clock.
  - C. 1 o'clock.
  - D. 3 o'clock.

(B is the correct answer: 120/Hand Errors)

30. Where does the bowling arm follow-through to after releasing the ball?
- A. knee.
  - B. waist.
  - C. shoulder.
  - D. head.

(D is the correct answer: 118/Push-Away; 118/One-Step Delivery;  
120/Arm Errors)

31. Which of the following is a common error that affects the roll of the ball?
- A. not squaring the shoulders to the foul line.
  - B. allowing the arm to follow-through across the body.
  - C. twisting the arm or wrist upon releasing the ball.
  - D. all of the above.

(D is the correct answer: 119-121/Common Faults)

#### RULES/ETIQUETTE QUESTIONS

32. What rules govern Special Olympics bowling?
- A. Special Olympics International.
  - B. American Bowling Congress.
  - C. Amateur Bowling Federation.
  - D. National Bowling Council.

(B is the correct answer: 121/Rules)

33. How many events are offered in Special Olympics bowling competition?
- A. 3.
  - B. 4.
  - C. 5.
  - D. 6.

(D is the correct answer: 121/Rules)

34. In which competition divisions do ramp bowlers participate in?
- A. team bowling.
  - B. developmental bowling.
  - C. individual bowling.
  - D. ramp bowling.

(D is the correct answer: 121/Ramp)

35. Which of the following is used for developmental bowling?
- A. target bowl.
  - B. straddle bowling.
  - C. team bowling.
  - D. ramp bowling.

(A is the correct answer: 121/Development)

36. Which of the following answers constitutes a game?
- A. 10 strikes.
  - B. 10 balls.
  - C. 10 frames.
  - D. 10 pins.

(C is the correct answer: 122/Rules)

37. How many games are bowled in state/international competition?
- A. 1.
  - B. 2.
  - C. 3.
  - D. 5.

(C is the correct answer: 122/Rules)

38. Generally how many balls are bowled in a frame?
- A. one ball.
  - B. two balls.
  - C. 10 balls.
  - D. 20 balls.

(B is the correct answer: 122/Rules)

39. Which of the following indicates proper bowling etiquette?
- A. expressing one's anger for poor performance.
  - B. being ready to bowl when it is time.
  - C. using two balls to speed up bowling line.
  - D. practicing bowling form before delivering the ball.

(B is the correct answer: 122/Etiquette)

40. Which person bowls first when bowlers on adjacent alleys are ready to bowl at the same time?
- A. person on the right.
  - B. person on the left.
  - C. person who just scored a strike.
  - D. it does not matter.

(A is the correct answer: 122/Etiquette)

#### SCORING QUESTIONS

41. What symbol is placed on the score sheet to indicate a strike?
- A. a slash.
  - B. an "X".
  - C. a zero.
  - D. the letter "s."

(B is the correct answer: 123/Scoring)

42. How many balls are totaled together for a strike?
- A. one ball.
  - B. two more balls.
  - C. three more balls.
  - D. no balls, score completed.

(B is the correct answer: 123/Scoring)

43. How many points are awarded for a strike?
- A. 10 pins.
  - B. 10 points plus the score of the next ball.
  - C. 10 points plus the score of the next two balls.
  - D. 20 points.

(C is the correct answer: 123/Scoring)

44. Which of the following symbols indicates a "spare?"
- A. an X.
  - B. a zero.
  - C. a dash.
  - D. a diagonal slash.

(D is the correct answer: 123/Scoring)



45. How many points are awarded for a gutter ball?

- A. zero.
- B. one.
- C. zero, but an extra ball is bowled.
- D. none of the above.

(A is the correct answer: 124/Gutter Ball)

APPENDIX C  
KNOWLEDGE TEST

## APPENDIX C

## KNOWLEDGE TEST

DIRECTIONS: Please answer each of the following questions on the answer sheet provided. Read each question carefully and select the best answer. There is only one answer for each question. Do not mark on the test sheets!

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  - A. guide rails.
  - B. adapter-pusher.
  - C. bowling frame unit.
  - D. all of the above.
14. Which of the following is appropriate clothing for bowling?
  - A. street shoes.
  - B. tight fitting clothing.
  - C. distracting clothing.
  - D. casual clothing.
15. What warm-up exercises are best for bowling?
  - A. arm circles, toe touches, and jogging in place.
  - B. wrist circles, body bends, and jumping jacks.
  - C. arm circles, wrist circles, and arm swings.
  - D. arm swings, toe touches, and sit-ups.
16. What four factors are important in choosing the correct bowling ball?
  - A. weight of ball, color of ball, finger hole size, and thumb hole size.
  - B. weight of ball, finger hole size, finger span, and thumb hole size.
  - C. weight of ball, wrist strength, finger hole size, and thumb hole size.
  - D. weight of ball, finger span, arm strength, and thumb hole size.
17. Which three fingers are placed in the bowling ball?
  - A. thumb, index finger, and middle finger.
  - B. ring finger, little finger, and thumb.
  - C. middle finger, ring finger, and thumb.
  - D. index finger, thumb, and ring finger.

18. How does one determine the correct finger hole size?
  - A. fingers should fit loose in each hole.
  - B. holes should come to the first finger joint.
  - C. holes should come to the second finger joint.
  - D. holes should come midway between the first and second finger joints.
19. What ball weight is generally recommended for a Special Olympian?
  - A. 5 to 10 pounds.
  - B. 8 to 12 pounds.
  - C. 10 to 15 pounds.
  - D. 15 to 20 pounds.
20. What is the problem if an athlete continually lofts the ball?
  - A. ball is too light.
  - B. ball is too heavy.
  - C. wrong grip is being use.
  - D. wrong technique is being used.
21. What is the correct method for picking up a ball from the rack?
  - A. use both hands on either side of the ball and lift up.
  - B. use thumb and fingers in the proper holes and lift up.
  - C. use one hand and place it underneath the ball and lift up.
  - D. use one hand on the side of the ball with fingers in the holes and lift up.
22. Which of the following is the best progression pattern for teaching Special Olympians to bowl?
  - A. rolling the ball, a one-step delivery, pendulum swing, then a multi-step delivery.
  - B. rolling the ball, a one-step delivery, a multi-step delivery, then pendulum swing.
  - C. pendulum swing, rolling the ball, a one-step delivery, then a multi-step delivery.
  - D. rolling the ball, pendulum swing, a one-step delivery, then a multi-step delivery.
23. Which of the following terms best describes the arm action for the pendulum swing technique?
  - A. "pushing" the ball into motion.
  - B. "swinging" the ball into motion.
  - C. "throwing" the ball into motion.
  - D. "pitching" the ball into motion.

24. What is the most commonly used delivery pattern for Special Olympic bowlers?
- A. one-step delivery.
  - B. two-step delivery.
  - C. three-step delivery.
  - D. four-step delivery.
25. What foot is the weight to be on for right-handed bowlers when starting the approach?
- A. on the right foot.
  - B. on the left foot.
  - C. evenly distributed on both feet.
  - D. none of the above.
26. What term best describes the foot action on a delivery?
- A. slide.
  - B. hop.
  - C. leap.
  - D. step.
27. Regardless of which delivery is used, what foot is forward for a right-handed bowler when the ball is released?
- A. right foot.
  - B. left foot.
  - C. both feet are together.
  - D. none of the above.
28. What is a common hand error for most beginning bowlers?
- A. dropping the ball on the backswing.
  - B. swinging the ball across the midline.
  - C. twisting the arm or wrist on releasing the ball.
  - D. lofting the ball forward on releasing the ball.
29. What clock position should the thumb be pointing when releasing the ball?
- A. 10 o'clock.
  - B. 12 o'clock.
  - C. 1 o'clock.
  - D. 3 o'clock.
30. Where does the bowling arm follow-through to after releasing the ball?
- A. knee.
  - B. waist.
  - C. shoulder.
  - D. head.

31. Which of the following is a common error that affects the roll of the ball?
- A. not squaring the shoulders to the foul line.
  - B. allowing the arm to follow-through across the body.
  - C. twisting the arm or wrist upon releasing the ball.
  - D. all of the above.
32. What rules govern Special Olympics bowling?
- A. Special Olympics International.
  - B. American Bowling Congress.
  - C. Amateur Bowling Federation.
  - D. National Bowling Council.
33. How many events are offered in Special Olympics bowling competition?
- A. 3.
  - B. 4.
  - C. 5.
  - D. 6.
34. In which competition divisions do ramp bowlers participate in?
- A. team bowling.
  - B. developmental bowling.
  - C. individual bowling.
  - D. ramp bowling.
35. Which of the following is used for developmental bowling?
- A. target bowl.
  - B. straddle bowling.
  - C. team bowling.
  - D. ramp bowling.
36. Which of the following answers constitutes a game?
- A. 10 strikes.
  - B. 10 balls.
  - C. 10 frames.
  - D. 10 pins.
37. How many games are bowled in state/international competition?
- A. 1.
  - B. 2.
  - C. 3.
  - D. 5.
38. Generally how many balls are bowled in a frame?
- A. one ball.
  - B. two balls.
  - C. 10 balls.
  - D. 20 balls.



39. Which of the following indicates proper bowling etiquette?
- A. expressing one's anger for poor performance.
  - B. being ready to bowl when it is time.
  - C. using two balls to speed up bowling line.
  - D. practicing bowling form before delivering the ball.
40. Which person bowls first when bowlers on adjacent alleys are ready to bowl at the same time?
- A. person on the right.
  - B. person on the left.
  - C. person who just scored a strike.
  - D. it does not matter.
41. What symbol is placed on the score sheet to indicate a strike?
- A. a slash.
  - B. an "X".
  - C. a zero.
  - D. the letter "s."
42. How many balls are totaled together for a strike?
- A. one ball.
  - B. two more balls.
  - C. three more balls.
  - D. no balls, score completed.
43. How many points are awarded for a strike?
- A. 10 pins.
  - B. 10 points plus the score of the next ball.
  - C. 10 points plus the score of the next two balls.
  - D. 20 points.
44. Which of the following symbols indicates a "spare?"
- A. an X.
  - B. a zero.
  - C. a dash.
  - D. a diagonal slash.
45. How many points are awarded for a gutter ball?
- A. zero.
  - B. one.
  - C. zero, but an extra ball is bowled.
  - D. none of the above.

APPENDIX D  
ANSWER SHEET

## ANSWERS TO KNOWLEDGE TEST

- |              |              |              |
|--------------|--------------|--------------|
| 1. <u>C</u>  | 16. <u>B</u> | 31. <u>D</u> |
| 2. <u>D</u>  | 17. <u>C</u> | 32. <u>B</u> |
| 3. <u>A</u>  | 18. <u>C</u> | 33. <u>D</u> |
| 4. <u>B</u>  | 19. <u>B</u> | 34. <u>D</u> |
| 5. <u>D</u>  | 20. <u>A</u> | 35. <u>A</u> |
| 6. <u>A</u>  | 21. <u>A</u> | 36. <u>C</u> |
| 7. <u>B</u>  | 22. <u>D</u> | 37. <u>C</u> |
| 8. <u>C</u>  | 23. <u>B</u> | 38. <u>B</u> |
| 9. <u>A</u>  | 24. <u>A</u> | 39. <u>B</u> |
| 10. <u>B</u> | 25. <u>A</u> | 40. <u>A</u> |
| 11. <u>B</u> | 26. <u>D</u> | 41. <u>B</u> |
| 12. <u>D</u> | 27. <u>B</u> | 42. <u>B</u> |
| 13. <u>C</u> | 28. <u>C</u> | 43. <u>C</u> |
| 14. <u>D</u> | 29. <u>B</u> | 44. <u>D</u> |
| 15. <u>C</u> | 30. <u>D</u> | 45. <u>A</u> |

APPENDIX E  
DESCRIPTIVE DATA SHEET

## Descriptive Data Sheet

1. ID Number \_\_\_\_\_
2. Type of Program Affiliated With:
 

Elementary _____	Junior High _____	High School _____
College _____	Workshop _____	Private _____
Other (please specify) _____		
3. Type of Teaching Position:
 

Regular Classroom Teacher _____	Resource Room _____
Special Education Teacher _____	Teacher Aide _____
Physical Education Teacher _____	Volunteer _____
Recreational Therapist _____	ARC Staff _____
Institutional Staff _____	Student _____
Adapted PE Teacher _____	Nurse _____
Speech Therapist _____	Coach _____
Other (please specify) _____	
4. Age in Years:
 

20-25 _____	26-30 _____	31-35 _____	36-40 _____	41-45 _____
46-50 _____	51-55 _____	56-60 _____	61-65 _____	66 + _____
5. Sex:
 

Female _____	Male _____
--------------	------------
6. Highest Educational Degree Held:
 

None _____
High School diploma _____
Bachelor degree _____
Master degree _____
Specialist degree _____
Doctoral degree _____
7. Playing Experience in the Sport of Bowling:
 

High School _____
College _____
Club/Recreation _____
None _____

## 8. Coaching/Teaching Experience in Bowling:

High School \_\_\_\_\_  
College \_\_\_\_\_  
Club/Recreation \_\_\_\_\_  
None \_\_\_\_\_

## 9. Number of Years Working with Special Olympics:

1-2 years \_\_\_\_\_  
3-4 years \_\_\_\_\_  
5-6 years \_\_\_\_\_  
7 + years \_\_\_\_\_

## 10. Number of Students in Special Olympics Program:

1 - 5 \_\_\_\_\_  
6 - 10 \_\_\_\_\_  
11 - 15 \_\_\_\_\_  
16 - 20 \_\_\_\_\_  
21 + \_\_\_\_\_  
None \_\_\_\_\_

## 11. Is there a recreation program for mentally retarded individuals in the community?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, who is responsible for the supervision of this program?

APPENDIX F  
WORKSHOP OUTLINE

## APPENDIX F

## WORKSHOP OUTLINE

Session I

- A. Collection of Pretest Data
  - 1. Completion of descriptive data sheet
  - 2. Administration of pretest instrument
- B. Overview of Special Olympics
  - 1. Program
  - 2. Purpose
  - 3. Sponsor
  - 4. Games
  - 5. Training
  - 6. Sports
  - 7. Competition
  - 8. Participation
  - 9. Mental Retardation
  - 10. Causes
  - 11. Volunteers

Session II

- A. Certification Process
- B. Coaching Responsibilities
  - 1. Duties of a Coach
  - 2. Role of the Coach
  - 3. Conduct of Coaches, Players, and Spectators
- C. Characteristics of a Coach
- D. Coaching Strategies
  - 1. Working with Mentally Retarded Individuals
  - 2. Methods of Instruction
  - 3. Coaching Styles
  - 4. Coaching Tips



Session III

- A. Modifications and Adaptations
- B. Preparation for Bowling
  - 1. Clothing
  - 2. Warm-up exercises
  - 3. Ball selection
  - 4. Ball handling
- C. Bowling Skills Development
  - 1. Progression
  - 2. Common faults and corrections
- D. Rules
- E. Etiquette
- F. Scoring
- G. Collection of Posttest Data

Session IV

- A. Coaching Practicum with Mentally Retarded Individuals
  - 1. Application of skills assessment card
  - 2. Teaching bowling skills
- B. Question and Answer Session
- C. Closing and Evaluation Process

APPENDIX G  
SELECTED WORKSHOP MATERIALS

## **AGENDA**

### **Registration**

#### **Overview of Special Olympics**

- \* Games
- \* Eligibility
- \* Mental Retardation
- \* Volunteers

#### **Coaching Techniques**

- \* Certification process
- \* Coaching responsibilities
- \* Characteristics of a coach
- \* Coaching strategies

#### **Bowling Skills**

- \* Modifications and adaptations
- \* Preparation for bowling
- \* Bowling skills development
- \* Rules
- \* Etiquette
- \* Scoring

#### **Coaching Practicum**

#### **Closing**

- \* Certification forms
- \* Announcements

Physician and/or Nurse (signature)

## FORM B

**MEDICAL EXAMINATION FOR ATLANTOAXIAL  
SUBLUXATION CONDITION ON APPLICANTS  
WITH DOWN'S SYNDROME**

A Licensed Physician must complete all items and sign this section only if the applicant has not previously been examined for Atlantoaxial Subluxation. Refer to Section IV, Applicant Health Data for information indicating whether or not a previous exam and x-rays have been conducted.

Studies have shown that approximately 10% of persons with Down's Syndrome have the condition of Atlantoaxial Subluxation. Arkansas Special Olympics, Inc. requires cervical spine x-rays including full flexion and full extension views to rule out this condition.

-----

On examination of cervical spine x-rays including full flexion and full extension views, I find that the applicant has (check one):

- ☐ No evidence of Atlantoaxial Subluxation
- ☐ Positive or equivocal evidence of Atlantoaxial Subluxation

Signature of Physician: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_  
(printed)

Address: \_\_\_\_\_ City State Zip

**FORM C****Duties**

Duties of the head coach consist of:

1. Organizing and conducting a training program which:
  - A. Develops the necessary physical, mental, and social skills for Special Olympics competition.
  - B. Ensures each participant a positive experience geared to enriched personal growth.
2. Providing as many opportunities for competition as possible.
3. Obtaining and reading all necessary rules, forms, and materials needed to conduct training and registration of athletes for competition.
4. Completing all forms and meeting all deadlines which consist of:
  - A. Medical/Parental Release Forms
  - B. Area Registration Forms
  - C. Area Entry Forms
  - D. State Entry Forms
5. Attending Area and State coaches meetings and training clinics.
6. Encouraging parents and/or guardians to participate in local, area, and state Special Olympics events.
7. Keeping accurate records on all athletes and activities such as:
  - A. Applications for participation
  - B. Registration for Local, Area, and State Games
  - C. Training assessments, evaluations, and skill assessment test results.
8. Must be present with team during all competitions.

## FORM D

## BOWLER'S ANALYSIS CHART

NAME \_\_\_\_\_ Left Handed \_\_\_\_\_  
 Right Handed \_\_\_\_\_

BALL Weight \_\_\_\_\_

## STANCE

## Feet:

Straight to Intended line	Yes	_____	No	_____
Close	Yes	_____	No	_____
Fairly Close	Yes	_____	No	_____
Apart	Yes	_____	No	_____
Toes Together	Yes	_____	No	_____
Left Foot Ahead	Yes	_____	No	_____
Right Foot Ahead	Yes	_____	No	_____

## Weight Distribution:

Mostly Right	Yes	_____	No	_____
Mostly Left	Yes	_____	No	_____
Evenly Distributed	Yes	_____	No	_____

## Knees:

Both Bent	Yes	_____	No	_____
Right Bent	Yes	_____	No	_____
Left Bent	Yes	_____	No	_____
Straight	Yes	_____	No	_____

## Relative Height of Ball

Chest High	Yes	_____	No	_____
Waist High	Yes	_____	No	_____
Knee High	Yes	_____	No	_____

## Alignment of Ball:

Right of Shoulder	Yes	_____	No	_____
In Line with Shoulder	Yes	_____	No	_____
At Body Center Line	Yes	_____	No	_____
Between Shoulder & Center Line	Yes	_____	No	_____

## Elbow:

Tucked into Hip	Yes	_____	No	_____
Away from Hip	Yes	_____	No	_____

*Wrist:*

Straight	Yes	___	No	___
Fairly Straight	Yes	___	No	___
Bent	Yes	___	No	___
Locked	Yes	___	No	___

*Thumb:*

Relative Position on Clock \_\_\_\_\_

**APPROACH***Number of Steps:*

None	Yes	___	No	___
One-Step	Yes	___	No	___
Two-Step	Yes	___	No	___
Three-Step	Yes	___	No	___
Four-Step	Yes	___	No	___

*Length of Steps:*

Long	Yes	___	No	___
Moderate	Yes	___	No	___
Short	Yes	___	No	___

*Tempo:*

Fast	Yes	___	No	___
Moderate	Yes	___	No	___
Slow	Yes	___	No	___
Heel-Toe	Yes	___	No	___
Shuffle	Yes	___	No	___
Drift Right	Yes	___	No	___
Drift Left	Yes	___	No	___

*Armswing:*

Parallel	Yes	___	No	___
Outside-in	Yes	___	No	___
Inside-out	Yes	___	No	___
Bent Elbow	Yes	___	No	___

*Angles to Intended Line:*

Shoulders Facing	Right	___
	Left	___
Hips Facing	Right	___
	Left	___



*Backswing:*

Below Waist	Yes	___	No	___
Waist High	Yes	___	No	___
At Shoulder Level	Yes	___	No	___
Above Shoulder Level	Yes	___	No	___

---

*Wrist:*

Firm	Yes	___	No	___
Bent Back	Yes	___	No	___
Cupped	Yes	___	No	___

---

*Balance Line:*

Good Knee Bend	Yes	___	No	___
Too Much	Yes	___	No	___
Not Enough	Yes	___	No	___
Good Waist Bend	Yes	___	No	___
Too Much	Yes	___	No	___

---

**RELEASE***Palm:*

Down	Yes	___	No	___
Up	Yes	___	No	___
Right	Yes	___	No	___
Left	Yes	___	No	___

---

*Wrist:*

Firm	Yes	___	No	___	
Sagged	Yes	___	No	___	
Rotates	Right	Yes	___	No	___
	Left	Yes	___	No	___

---

*Fingers:*

Firm	Yes	___	No	___
Closed	Yes	___	No	___
Open	Yes	___	No	___

---

*Legs*

Smooth	Yes	___	No	___
Weak	Yes	___	No	___

---

**FOLLOW - THROUGH***Height:*

Waist	Yes	___	No	___
Shoulder	Yes	___	No	___
Head	Yes	___	No	___
Overhead	Yes	___	No	___
Inconsistent	Yes	___	No	___

---

*Direction to Target:*

In Line	Yes	___	No	___
Right of Target	Yes	___	No	___
Left of Target	Yes	___	No	___

---

**BALL ROLL***Action:*

Straight	Yes	___	No	___
Hook	Yes	___	No	___
Curve	Yes	___	No	___

---

*Hitting Power:*

Strong	Yes	___	No	___
Weak	Yes	___	No	___
Normal	Yes	___	No	___

---



## RULES

The following events may be offered in Special Olympics bowling competition:

- \* Individual
- \* Doubles
- \* Mixed Doubles
- \* Team bowling (4-person team)
- \* Ramp
- \* Developmental Bowling

Athletes using **ramps** shall be placed in separate divisions from other bowlers. Ramp bowlers shall compete only with and against other ramp bowlers in individual bowling competition.

Bowling Divisions are also based on **AGE**.

These divisions are:

- \* Youth               Ages 8 to 11 years
- \* Junior             Ages 12 to 15 years
- \* Seniors            Ages 16 to 21 years
- \* Masters            Ages 22 to 29 years
- \* Sr. Masters       Ages 30 and up

**DEVELOPMENTAL EVENTS** that may be offered in Special Olympics bowling competition are:

- \* Target Roll
- \* Frame Bowling

The following **RULES** are basic for all bowling competitions:

- \* A game consists of 10 **frames**.
- \* Generally **three** games are bowled and the average of the three scores constitutes the athlete's score.
- \* Only **two** balls may be bowled per frame unless in the 10th Frame.
- \* Athletes will bowl as a **group** requiring the athlete to wait between frames.

## MODIFICATIONS AND ADAPTATIONS

Special Olympians are often denied the chance to learn new skills or activities because they are not physically able to perform the skills exactly according to the coach or the sports rules. The coach may modify the skills involved in an activity so all athletes are able to participate.

In competition, it is important that the rules not be changed to suit each athlete's special needs. Some suggestions for accommodating special needs are:

- \* use a lighter weight ball for athletes with lower extremity weakness;
- \* use a guide line or speak in a loud voice for visually impaired athletes;
- \* bowl three balls per frame;
- \* do not utilize the foul line;
- \* use a plastic bowling set and shorten the lane distance;
- \* use Candlepin bowling for those with poor upper body strength.

It is obvious that athletes with upper-limb impairment could not be able to bowl without assistive devices. Various types of adapted equipment have been developed recently.

### **Bowling Frame Unit**

This device is used for those athletes who cannot lift a bowling ball. The device is centered in front of the lane and an assistant places the ball on the highest point of the frame. The athlete need only give the ball a slight push for it to roll down the frame toward the bowling pins.

### **Adapter-Pusher Device**

The adapter-pusher device was originally designed for the wheelchair bowler with insufficient upper-extremity strength to lift the ball. The adapter-pusher may be used with one or two hands on the handle to help push the ball down the lane. An assistant is needed to retrieve the ball from the return rack and place it on floor and hold the ball steady until the athlete is ready to push.

**Handlebar-Extension Accessory**

The handlebar-extension accessory is used with the adapter-pusher device by ambulatory bowlers unable to lift the ball.

**Handle Grip Bowling Ball**

This unique bowling ball has a built-in handle that snaps back instantly upon release. It is ideal for bowlers who have upper-extremity disability and for the spastic cerebral-palsied group who have difficulty with digital control.



More specific adaptations according to various impairments are as follows.

**Orthopedic Impairments**

- \* Use lighter bowling balls.
- \* Have athlete bowl from a chair.
- \* Use preliminary arm swing rather than traditional walking approach.
- \* Modify the approach by reducing the number of steps.
- \* Use a stable guide rail.
- \* Use special assistive equipment.

**Visual Impairments**

- \* Use a guide rail to help the individual locate the proper starting point and to assist on the delivery.
- \* Let the athlete feel the swing of the coach's arm.
- \* Have a sighted assistant tell the athlete which pins are standing.

**Auditory Impairments**

- \* Mark lane lines with brightly colored tape.
- \* Paint pins with a bright color.
- \* Use contact paper footsteps on the approach.

## DEVELOPMENTAL BOWLING

Within each official sport, Special Olympics, Inc. has established events which closely parallel the standard events which are of lesser difficulty and lead-up in nature. These events are to be conducted at the sports venue along with the official sport competition.

Generally the **Developmental Events** are designed to help athletes with low motor-ability to meet the requirements for entrance into the regular official sports programs. An athlete may choose to compete in any of the events listed under a particular sports heading.

The following rules are for Developmental Events in Special Olympics Bowling competition.

### Target Roll

#### Rules:

1. An athlete makes three attempts to roll the ball between the flag-sticks.
2. An athlete may use one or two hands to roll the ball.
3. An athlete may sit or stand while rolling the ball and must be behind the rolling line upon release of the ball.
4. The ball must be rolling when it passes through the flag-sticks to count as a legal roll.

#### Scoring:

1. Athletes receive five points each time the ball rolls between the flag-sticks without touching the sticks.
2. Athletes receive four points each time the ball hits a flag-stick and rolls between the sticks.
3. Athletes receive two points each time the ball hits a flag-stick but does not pass between the sticks.
4. Athletes receive one point each time the ball is rolled in the direction of the flag-sticks but misses everything.
5. Athletes receive five bonus points for rolling the ball between the flag-sticks without touching the sticks three times in a row.

6. The athlete's score shall be the total points scored from all three rolls.

**Set-up:**

1. Mark a **1 meter** long foul line with chalk or tape.
2. Set the two flag-sticks **1.5 meters** apart and **3 meters** from the rolling line. Mark the line between the flags. This is the goal line. The rolling line should be parallel to the line which should connect the two flags.

**Equipment:**

1. Two tall flag-sticks
2. Two flags
3. Three 30 cm (diameter) rubber playground ball

## **FRAME BOWL**

**Rules:**

1. Athletes roll two frames and take two rolls per frame to knock down the most number of pins.
2. Pins knocked down will be cleared away between the first and second roll. All pins are re-set for each new frame.
3. Athletes may sit or stand while rolling the ball and must be behind the foul line upon release of the ball.
4. Athletes may use one or two hands to roll the ball.

**Scoring:**

1. An athlete's score will equal the number of pins knocked down in two frames.
2. Athletes receive five bonus points when all pins are knocked down on the first roll of a frame (strike).
3. Athletes receive two bonus points when all remaining pins are knocked down on the second roll of the frame (spare).

**Set-up:**

1. Set the pins in the traditional, ten-pin triangular bowling formation.
2. Set the lead pin **5 meters** from the rolling line.
3. Mark a **1 meter** long foul line with tape or chalk.



**Equipment:**

1. 30 cm (diameter) rubber playground ball
2. 10 large plastic bowling pins

## LEAD-UP GAMES

### HORSE

*Space:* Classroom or playground

*Equipment:* One bowling pin or Indian club,  
milk carton, or eraser  
One ball to bowl with

*Formation:* Each bowler stands behind a restraining line (distance may vary according to athletes abilities)

*Directions:* The bowling pin is placed in a position in which the bowler attempts to knock it down. If the athlete fails on the first attempt, second and third attempts are made spelling out

**H - O - R - S - E.**

If the bowler is successful in knocking down the pin, reposition the pin to another position and continue until all three corners of the triangle have been knocked down.

The object is to bowl for all three positions in as few attempts as possible before spelling **HORSE**.

The pins should be positioned as diagramed.

**BOWL AND FETCH**

**Space:** Classroom or playground

**Equipment:** Three Indian clubs, erasers, bowling pins, or milk cartons  
One softball for each group

Place the clubs **4 inches** apart in a triangle formation at the front of each row with the apex of the triangle facing the bowlers.

**Formation:** The athletes are in single file at the back of the classroom, behind a restraining line approximately **20 feet** from the clubs.  
Each group forms a line by its row.  
The first bowler in each line has a softball.

**Directions:** Each bowler with the softball rolls (bowls) it down the aisle to try and knock down the clubs.  
Each bowler sets up any clubs he/she knocked down, retrieves his/her own ball, takes it to the next bowler in line, and then goes to the end of the line and sits down.  
Each player gets one roll.

**Scoring:** Two methods:  
A. The team that finishes with all their bowlers seated first wins.  
B. A bowler scores **2 points** for each club knocked down, **3 points** for two clubs, and **5 points** if all three clubs are knocked down.  
The team with the most points wins.  
Individual scores may also be kept to determine who has the highest score.

**STRADDLE BOWLING**

**Space:** Classroom, playground, or gymnasium

**Equipment:** Rubber playground ball or plastic bowling ball

**Skill:** Bowling for accuracy

**Directions:** One athlete is the bowling target and stands in straddle position with his/her feet wide enough apart so that the ball can pass through easily. (Might place tape 2 feet in length on floor and have target place feet on outside edges). Another athlete is the ball chaser and stand behind the target.

A foul line is drawn **15 to 25 feet** away from the target.  
The bowlers line up behind this line.

Athletes are given one chance or a number of tries (dependent on skill level) to bowl through the target.

When the bowler completes his/her turn, have them relieve the target and/or chaser.

**Scoring:** To score a point, the ball must go between the legs of the target.  
**Two** points may be awarded if the ball passes through the legs without touching.  
**One** point is awarded if the ball passes through the legs but touches.

**Variations:** Other targets can be used.  
A box lying on its side with the opening pointed toward the bowler is a good target.  
Two or three Indian clubs at each station make excellent targets.  
Set up 2 or 3 "people" targets for the ball to travel through.

**BOWLING ONE-STEP**

**Space:** Classroom, playground, or gymnasium

**Equipment:** Rubber playground ball or plastic bowling ball

**Skill:** Increasing distance in bowling

**Directions:** In groups of four or less, each of the athletes get a chance to bowl at an Indian club or bowling pin. A minimum distance is set up, short enough so most bowlers can hit the pin (**10 to 15 feet**). The athlete bowls, when he/she knocks down the target, they move back one step. The athlete keeps bowling until he/she misses.

The object is to take a step backward each time the pin is knocked down. The winner is the one who has moved the farthest back.

APPENDIX H  
TEST-RETEST RELIABILITY SCORES

## Appendix H

Test-Retest Reliability Scores On Knowledge Test

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Subject	Test 1	Test 2
<hr/>		
1	33	31
2	32	32
3	32	32
4	31	32
5	31	29
6	31	31
7	30	34
8	30	27
9	29	30
10	29	20
11	29	29
12	28	28
13	28	33
14	28	29
15	27	28
16	27	27
17	27	25
18	26	24
19	25	21
20	25	27
21	25	24
22	25	27
23	25	24
24	23	22
25	23	22
26	22	22

---

Note. Highest score = 45.

Test-Retest Reliability Scores cont.

Subject	Test 1	Test 2
27	22	22
28	21	20
29	18	21
30	17	17
31	12	17
32	10	17
33	22	21
34	21	23
35	30	36

Note. Highest possible score = 45.



## APPENDIX I

### RAW DATA

## Appendix I

Pretest and Posttest Scores on Knowledge Test

Group	Subject	Pretest	Posttest
Practicum	1	26	37
	2	21	34
	3	27	38
	4	22	30
	5	24	34
	6	24	34
	7	30	37
	8	35	40
	9	24	37
	10	25	28
	11	30	38
	12	32	36
	13	17	29
Videotape	1	28	36
	2	23	31
	3	26	40
	4	26	37
	5	26	39
	6	23	32
	7	28	36
	8	33	37
	9	33	38
	10	26	37
	11	18	28
	12	21	29
	13	30	37

Note. Highest possible score = 45.

Pretest and Posttest Scores cont.

Group	Subject	Pretest	Posttest
Control	1	26	28
	2	22	21
	3	33	30
	4	28	27
	5	32	32
	6	25	25
	7	29	26
	8	27	28
	9	25	23
	10	19	17
	11	23	25
	12	25	27
	13	29	29

Note. Highest possible score = 45.

## APPENDIX J

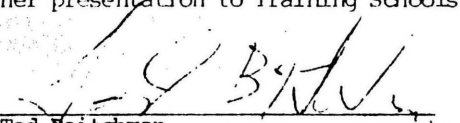
### LETTERS



1350 New York Avenue, N.W., Suite 500  
Washington, D.C. USA 20005

(202) 628-3630  
telex 650 • 284 • 1739 MCI

Special Olympics International hereby gives  
Cindy Albright the right to use the 1987 International  
Summer Special Olympics Games video to be used in  
her presentation to Training Schools.

  
Ted Weitchman  
Director of Public Affairs

11/12/87  
Date



## AREA SEVEN SPECIAL OLYMPICS

P.O. BOX 655  
STATE UNIVERSITY, AR 72467

**Arkansas**

## AREA 7 COACHES TRAINING WORKSHOP IN BOWLING

**WHAT IS A TRAINING SCHOOL? TIME & PLACE OF WORKSHOP?**

Certification of coaches is the system used by Special Olympics, Inc., and Arkansas Special Olympics to encourage more coaches to attend Certified Training Schools, learn new and adaptable skills from professionals, and then carry them back to share with their Special Olympians. The purpose is to combine knowledge of sport specific clinicians so that the Special Olympians in Arkansas can receive the best training available. By attending both a General Session and this training school, and completing a 10-hour practicum, a coach can receive National certification in the sport of **BOWLING**. You will receive an Arkansas Special Olympics Coaching T-Shirt and a coaching certificate in this sport.

**WHO SHOULD ATTEND?**

Anyone interested in improving their knowledge of and skills in coaching Special Olympians in the sport of **BOWLING**. Past participants have included active coaches who have not yet received certification, parents of Skills Special Olympians, special educators, physical educators and people who volunteer in other capacities. We welcome anyone who is sincerely interested in providing new challenges to our Special Athletes.

**When:** November 12, 1988  
Saturday, 8:30 a.m.  
**Where:** ASU PE Complex

**WHAT WILL BE PROVIDED?**

Each coach attending the Training School will receive a Sports Skills Instructional Program booklet which includes teaching suggestions, organizing practices, athlete skill assessment and charting, and much more. The Sports Skills Instructional Programs conform to the standards of PL 94-142 so that training in the classroom/physical education settings can be written into the IEP for the athlete.

**WHAT TO WEAR?**

The atmosphere is casual and relaxed. We recommend comfortable sports attire so that you can actively participate. **INVOLVEMENT IS THE KEY!**

**AGENDA**

8:30- 9:40 Registration  
9:40-10:00 Overview of  
Special Olympics  
10:00-10:30 Coaching Techniques  
10:30-11:30 Basic Bowling  
11:30-12:00 Coach with Coach  
12:00-12:45 Break  
1:00- 2:00 Coach with Athlete  
2:00- 2:15 SSIP Program  
2:15- 2:30 Certification  
Evaluation/Closing



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## AREA SEVEN SPECIAL OLYMPICS

P.O. BOX 655  
STATE UNIVERSITY, AR 72467

# SPECIAL OLYMPICS COACHES BOWLING CLINIC

**Who:** Anyone interested in becoming certified in teaching and/or coaching mentally retarded individuals to bowl

**What to Wear:** Sports clothing for active participation

**When:** Saturday  
November 12, 1989

**Where:** Arkansas State University  
Physical Education Complex

**Contact:** Cindy Albright  
PE Complex #229  
Phone 872-3066