

OPERATIONAL GUIDELINES FOR THE DEVELOPMENT AND  
IMPLEMENTATION OF ADAPTED PHYSICAL EDUCATION  
PROGRAMS FOR THE ORTHOPEDICALLY  
HANDICAPPED IN NIGERIAN  
SCHOOLS

By

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Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements of  
the degree of  
DOCTOR OF EDUCATION  
May, 1984

Thesis  
1984D  
A2280  
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## ACKNOWLEDGMENTS

The writer is specially grateful to Dr. Steven Edwards, the committee chairman and thesis adviser for his suggestions, corrections, and research expertise which helped to improve this dissertation considerably. Appreciation is also extended to other members of the committee, Dr. Betty Abercrombie, Dr. Connie Joy, and Dr. Moses Frye for their interest, assistance and encouragement and for their input in approving the dissertation. Nico Futterer, a visiting professor from Holland has also been a source of inspiration to the writer. His professional experience is acknowledged.

The writer's indebtedness will be incomplete without specific appreciation to Dr. Vicky McKeeman, whose ideas, support, and directions were most helpful in the choice of the dissertation title. To a professional colleague, Dr. Jayne White, who provided very useful information and shared her professional thoughts, the writer is most grateful. Recognition goes to the Director and Staff of the National Rehabilitation House, Oklahoma State University, for allowing the use of their invaluable library.

Very special appreciation goes to the writer's wife, Hadijat Adebisi without whose support, endurance, patience and encouragement the dissertation would not have been completed. To the writer's children, Hakeem Ayodele, Kafilat Olayemi, and Aminat Adekunbi for giving the writer the peace of mind to pursue his studies.

Finally, thanks to Nancy Maness for typing this dissertation.



## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION. . . . .	1
Rationale for the Study. . . . .	1
Statement of the Problem . . . . .	6
Delimitations. . . . .	6
Limitations. . . . .	7
Assumption . . . . .	7
Functional Definition of Terms . . . . .	7
Methods and Procedures . . . . .	11
II. REVIEW OF THE LITERATURE. . . . .	13
Introduction . . . . .	13
History and Status of Special Education Services for the Handicapped in Nigeria . . . . .	13
United States Public Law 94-142 and Implications for Physical Education . . . . .	21
Legal Aspects of Tort Liability Involving Handicapped Students in Physical Education and Athletics. . . . .	32
Psychological and Social Problems of Physical Handicap . . . . .	37
Characteristics of Orthopedic Handicapping Conditions . . . . .	46
Muscular Dystrophy . . . . .	57
Summary. . . . .	72
III. OPERATIONAL GUIDELINES. . . . .	75
Introduction . . . . .	75
Philosophy, Goals, and Objectives. . . . .	75
Program Design . . . . .	83
Adaptation and Modification of Activities and Facilities . . . . .	97
Individualized Education Program . . . . .	104
Mainstreaming. . . . .	115
Least Restrictive Environment. . . . .	124
Assessment . . . . .	126
Alternative Strategies . . . . .	133
Physical Education Opportunity Program for Exceptional Learners (PEOPEL). . . . .	134
Administration of Physical Education Services For the Orthopedically Handicapped . . . . .	146

Chapter	Page
Program Evaluation . . . . .	154
IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS . . . . .	159
Summary. . . . .	159
Conclusions. . . . .	161
Recommendations. . . . .	162
REFERENCES . . . . .	164
APPENDICES	
APPENDIX A - STATISTICS OF EXISTING SPECIAL EDUCATION FACILITIES IN NIGERIA, 1975. . . . .	182
APPENDIX B - SPECIAL EDUCATION INSTITUTIONS FOR THE HANDICAPPED IN NIGERIA, 1978-79. . . . .	184
APPENDIX C - RESULT OF QUESTIONNAIRE ON HOW IMPORTANT IT IS THAT SPECIAL EDUCATION IN NIGERIA SHOULD INCLUDE ADEQUATE PROVISION FOR SOME CATEGORIES OF THE HANDICAPPED. . . . .	186
APPENDIX D - RESULT OF QUESTIONNAIRE ON RATING COURSE EXPERIENCES IN SPECIAL EDUCATION WHICH SHOULD BE MADE COMPULSORY FOR ALL SPECIAL EDUCATION STUDENTS . . . . .	188
APPENDIX E - A REVIEW OF SELECTED FEDERAL LEGISLATIONS IN UNITED STATES THAT HAVE AFFECTED THE HANDICAPPED. . . . .	190
APPENDIX F - SPECIFIC ACTIVITY GUIDELINES FOR TEACHING/ LEADING PROGRAM PARTICIPANTS WITH ORTHOPEDIC PROBLEMS. . . . .	201
APPENDIX G - GUIDELINES FOR OBSERVING BEHAVIORS DURING THE ASSESSMENT PROCESS . . . . .	213
APPENDIX H - DESCRIPTION OF PHYSICAL EDUCATION OPPORTUNITY FOR EXCEPTIONAL-HANDICAPPED LEARNERS (PEOPEL). . . . .	219
APPENDIX I - AAHPERD GUIDELINES FOR ADAPTED PHYSICAL EDUCATION. . . . .	226
APPENDIX J - SAMPLE LETTER TO PARENTS FROM THE PHYSICAL EDUCATION TEACHER. . . . .	235
APPENDIX K - CHECK LISTS FOR EVALUATING INSTRUCTIONAL MATERIALS. . . . .	237

## LIST OF TABLES

Table	Page
I. Characteristics of Types of Cerebral Palsy. . . . .	55
II. Teacher Consultant Operational Model. . . . .	142

## LIST OF FIGURES

Figure	Page
1. Left: Upper Extremity Amputations; Right: Lower Extremity Amputations . . . . .	65
2. Sample Medical Referral Form (Side One) . . . . .	89
3. Sample Medical Referral Form (Side Two) . . . . .	90
4. Individualized Education Program Form . . . . .	111
5. The IEP Process . . . . .	114
6. The Relationship Between Testing, Measurement, Assessment, and Evaluation. . . . .	129

## CHAPTER I

### INTRODUCTION

The need for the development and implementation of adapted physical education for all kinds of handicapping conditions has been identified by many physical educators and recreators (Arnheim, Auxter and Pyfer, 1981; Fait, 1978; Cratty, 1969; and Masters, Mori and Lange, 1983). However, very little effort has been made to recognize or consciously include any type of organized physical education specifically for the orthopedically handicapped in Nigerian public schools. Other forms of handicapped conditions, particularly deafness, blindness, and mental retardation have received some consideration within special education, but less concern has been shown for the orthopedically handicapped. This has traditionally resulted in either an unguided recess period for the orthopedically handicapped or excuse from participation in any organized physical education or recreation activity. The detrimental effect of such lack of purposeful movement on the child's self esteem, physical development, socialization, and healthful experiences has been clearly demonstrated by Royer (1976), Swiren and Bar-or (1975), Singer (1980), Groves (1979), and Rvosteenoja and Karvonen (1956).

#### Rationale for the Study

Apart from marked physical and social developmental deficiencies resulting from lack of organized play and sports, the orthopedically

handicapped exhibit some personality problems as a result of the interplay of conditions between the individual and the environment. Any condition which sets the individual apart from the environment such as an extreme difference in physical condition or appearance, may contribute to the development of a personality deviated to a marked degree by comparison with others. Adapted physical education programs could help the orthopedically handicapped to cope better with the environment (Pinter, Eisen and Stanton, 1971).

Realizing the importance of physical education for handicapped children in Nigerian schools, Ndama (1980) lamented that the handicapped children in Nigeria are being denied the right to achieve their fullest possible development within the broad scope of a modern physical education curriculum. He therefore suggested that physical education is the most important part of the handicapped child's education.

Nwaogu (1979) also concluded that the physically crippled constitute a large number that need special provision in Nigeria's special education programs. In the United States of America, a careful examination of the country's public law 94-142 (Education for all Handicapped Children Act, 1975), reveals that physical education is the only curriculum area mentioned specifically in the law.

Researchers have found that not only does the disabled child lag behind the non-disabled child in almost all aspects of development, but without intervention, the child's abilities deteriorate further with increasing age (Adelson and Fraiberb, 1974; and Dicks-Mireaux, 1977). Early intervention through programs of physical education, recreation and sensory stimulation could help the disabled child in making developmental gains characteristic of his age level as well as

impede further deterioration (White, 1983).

Fafunwa (1980), referring to the status of special education in Nigeria, asked, "When are we going to equalize educational opportunities for all our children, their disabilities notwithstanding?". He further asserted that Nigeria is not short of policies on special education but the will to implement.

There exists then a need to provide guidelines to assist educators in the development and implementation of physical education programs for the orthopedically handicapped, one of the most neglected handicapping conditions.

The concept of the total education of the child in Nigeria and anywhere in the world would be non-existent if there were no guidelines or theoretical frameworks to assist in planning, implementing, teaching, organizing, and evaluating physical education programs adapted to the needs, interests, capabilities, and limitations of the orthopedically handicapped.

An operational guideline for implementing an adapted physical education program could also hold very important implications for administrative, organizational and teaching-learning concerns. The result of which will improve the physical development, health, social competence, and movement behaviors of the orthopedically handicapped, especially if activities are adapted to suit their disabilities, interests, and needs (Shephard, 1971).

For instance, for the cerebral palsied school age children, the treatment and management of cerebral palsy should definitely include an adaptive physical education (Masters, Mori, and Lange, 1983). Fait (1972) reports that physical education for the cerebral palsied pa-

tients is an educational activity related to physical therapy. It is not, according to her, a duplication or a substitute for the physical therapy program. It is rather, a complement, a valuable adjunct. Furthermore, for the cerebral palsied child, there are specific problems in motor development areas that result from impaired mobility, and the presence of a physical deviation may produce at least two separate conditions: delayed motor development, and inaccurate motor functioning (Best, 1978). Another example of early delayed development of a cerebral palsied child has been provided by Apgar and Beck (1974) who said that the delay, which continues throughout the development years of the cerebral palsied child, may result in a lag in the emergence of specific activities and skills, and reduce the quantity and quality of experiences available.

Also, the amputee needs an early fitting with a prosthesis in addition to proper physical exercises, particularly around the amputation, and therefore, adaptive physical education might be crucial to the amputee. Additionally, given appropriate opportunity by an adapted physical educator, amputees could participate and even excel in physical education and sports (Masters et al., 1983; Grove, 1976; and Gearheart, 1980).

Furthermore, positive outcomes for the orthopedically handicapped could be achieved through a multidisciplinary and inter-disciplinary programming approach, as evidenced by many research reports that point to the broad support of the need for a collaborative inter-disciplinary approach to accomplish all that must be done in providing services to any handicapped person (Holm and McCartin, 1978; Chin, Drew, and Logan, 1979; Wallace and McLoughlin, 1979; and Mori and



Masters, 1980). For example, Stelmach (1979) contends that physical education needs to pursue a broad and flexible and multidisciplinary framework with a perspective which improves the relationship between theory and application. Additionally, Long (1977) states that physical education experiences for handicapped children will necessitate and include a wide range of educational and professional disciplines. Calhoun and Hawisher (1979) describe a multidisciplinary approach as consisting of interactions among and input from many fields concerned with the development of handicapped children because of the complex nature of the problems faced by handicapped persons and their families. Powers (1982), and Sherrill (1980) also favor multidisciplinary and inter-disciplinary approaches to physical education programming techniques for the handicapped. Johnson and Magrab (1976) mention disciplines like social work, physical and occupational therapy, psychology, and special education as offering expertise in assisting the handicapped in their all round development.

A recent inter-disciplinary approach by Masters, Mori, and Lange (1983) included professions, specialists and significant others like the physicians, physical therapists, communication disorder specialists, regular teachers, adapted physical education teachers, parents or gaurdians, and nurses, as possible contributors to programming strategies for the handicapped.

All of the disciplines mentioned could have very useful operational information for deverloping an adapted physical education program for the orthopedically handicapped in Nigerian schools.

### Statement of the Problem

The purpose of the study was to identify operational guidelines for the development and implementation of adapted physical education programs for the orthopedically handicapped in Nigerian schools.

Specifically, the study defined the importance of physical education for the orthopedically handicapped within the total education process, and identified and constructed an operational process necessary to assist in the designing of physical education programs for the orthopedically handicapped.

### Delimitations

1. The study analyzed source materials from the disciplines of special education, rehabilitation counseling, general education, physical education, recreation, and therapeutic recreation to identify the operational guidelines.

2. Information was obtained in regard to program philosophy, goals and objectives, program design, assessment and evaluation, facilities and program adaptations, least restrictive environment and individualized educational program, program evaluation, programming physical education services, and administration of physical education services for the orthopedically handicapped.

3. Although there are various forms of orthopedically handicapping conditions, this study focused on selected handicapping impairments, namely, crippling conditions, amputations, muscular dystrophy, and cerebral palsy, because these are conditions encountered most in public schools (Best, 1978).

### Limitations

1. The study did not present a curricular model of physical education for the orthopedically handicapped.
2. The operational guidelines identified and constructed did not constitute the only organizational and administrative design for the physical education of the orthopedically handicapped.

### Assumption

It was assumed that resources are abundant in physical education, special education, rehabilitation, and recreation, but there is an uncoordinated effort to identify operational guidelines for programming an adapted physical education for the orthopedically handicapped.

### Functional Definition of Terms

The following terms have been defined as they were employed in this study:

#### Adapted Physical Education

Adapted physical education, as defined by Sherrill (1980) is the science of identifying problems within the psychomotor domain and developing instructional strategies for remediating these problems and preserving ego strength. It entails diagnosis, evaluation, and remediation of perceptual-cognitive-motor problems. The Bureau of Education for the Handicapped (1978) also views Adapted Physical Education as a diversified program of developmental activities, games,

sports, and rhythms suited to the interests, capabilities, and limitations of students with disabilities.

### Physically Handicapped

The California Administrative Code (1977) described a minor "physically handicapped" if he comes within either of the following descriptions:

1. He has a physical illness or physical condition which makes attendance in regular day classes impossible or unadvisable.
2. He has a physical impairment so severe as to require instruction in remedial physical education (California Administrative Code, 1977, Section 3600).

Physically handicapped pupils include the following as classified by California Education Code (1976):

1. The deaf or hard hearing
2. The blind or partially seeing
3. Orthopedic or health impaired
4. The aphasic
5. The speech handicapped
6. Multihandicapped (California Education Code, 1976, Section 56701).

### Adapted Physical Educator

The Adapted Physical Educator is responsible for providing appropriate physical education programs for those children unable to function in a mainstreamed or regular setting. Dependent upon the strengths,

weaknesses, and abilities of the child, the adapted physical educator adapts certain activities, games, or sports to meet the individual needs of the child, or provides physical education of a unique nature that meets the particular needs of each child (Masters, Mori, and Lange, 1983, p. 13).

### Orthopedic Disabilities

Orthopedic disabilities, as defined by Kraus (1973) are those disabilities which prevent individuals from properly performing the motor and locomotor functions of their body and limbs. Such disabilities may be concerned with the functions of joints, muscles, tendons, bones, nerves, or peripheral blood vessels, and may be caused by trauma, congenial conditions, or infection. Stephen, Blackhurst, and Wagliocca (1982) specifically refer to disability as the re-education of function, or the absence of a particular body part or organ. Best (1978) described orthopedic disabilities as disabilities relating to the structural-skeletal and muscular-capacity of the individual to maintain him/herself in a straight and normal condition. The California Administrative Code (1977) declared that a minor is orthopedic or health impaired if a licensed physician and surgeon finds in his diagnosis that the minor has a serious impairment of his locomotion or motor function and that the impairment was caused by crippling due to one of the following:

1. Cerebral palsy
2. Poliomyelitis
3. Infection, such as bone and joint tuberculosis and  
osteomyelitis

4. Birth injury, such as Erb's palsy or fractures
5. Congenital anomalies, such as congenital amputation, clubfoot, congenital dislocations, or spina bifida
6. Trauma, such as amputations, burns, or fractures
7. Trauma, such as bone tumors, or bone cysts
8. Developmental diseases, such as coxa plana or spinal osteochondritis
9. Other conditions, such as fragile bones, muscular atrophy, muscular dystrophy, Perthes' disease, hemophilia, uncontrolled epilepsy, or severe cardiac impairment
10. Drug dependency
11. Some other cause described in the physician's written diagnosis. (California Administrative Code, 1977, Section 3600)

### Mainstreaming

Mainstreaming has been defined by Reinert (1980) as the inclusion of handicapped children in regular classrooms with non-handicapped children.

### Individualized Education Program

Individualized Education Program refers to written statements regarding the child's present level of educational performance; annual goals, including short term instructional objectives; specific educational related services to be provided to the child and the extent to which the child will be able to participate in regular educational

programs. The Individualized Education Program (IEP) also includes written statements on the projected dates for initiation of services and the anticipated duration of the services. It also provides appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether the short term instructional objectives are being achieved, or not (Wessel, 1977, p. 3).

### Handicap

Handicap, according to Stephen et al. (1982) is a degree of disability that makes performance usually difficult.

### Methods and Procedures

The methods and procedures used by Powers (1982) were modified and used for the study.

A literature substantiated descriptive and analytical investigation was used to identify and construct operational guidelines for the development and implementation of adapted physical education for the orthopedically handicapped for Nigerian schools. The study used a significant amount of referenced documentation of appropriate literature from physical education, special education, recreation, educational administration, and related disciplines in identifying and constructing the operational guidelines.

Specifically, the study employed the following procedures:

1. The study reviewed related literature to expand upon the context and background of physical education activities for the ortho-

pedically handicapped, and provided subsequent development of a rationale for adapted physical education.

2. The study abstracted from the operational processes of physical education, special education, recreation, and educational administration to establish an understanding of the intra-relationship among physical education, special education, recreation, and educational administration specifically in terms of program philosophy, goals, and objectives; adapted physical education design; program implications; adaptation of activities and facilities; and physical education assessment and evaluation. Other abstractions were also related to programming physical education services for the orthopedically handicapped such as Individualized Education Programming, Least Restrictive Environment, and Mainstreaming.

3. The study also classified at the abstract level intra-related processes among various disciplines to identify and construct administrative, and evaluative operations for adapted physical education necessary for the orthopedically handicapped.



## CHAPTER II

### REVIEW OF THE LITERATURE

#### Introduction

This chapter provides vital information on a history and status of special education in Nigeria; the United States Public Law 94-142 and implications for physical education; and legal aspects of tort liability involving handicapped students in physical education. A literature review on the psychological and social problems of physical handicaps and information on the characteristics and type of orthopedic handicapping conditions is also part of this chapter.

#### History and Status of Special Education Services

##### for the Handicapped in Nigeria

The history of western education in Nigeria could be traced to the advent of Christian missionaries in Nigeria. Western education in the country has been identified with evangelization (Amadi, 1976). In his account of the development of western education in Nigeria, Lewis (1965) reported that the first missionary contact in Nigeria was made on the 24th of September, 1842 when Reverend Thomas Freeman and Mr. and Mrs. DeGraft of Wesleyan Methodist Mission in the Gold Coast (Ghana) arrived at Badagry. They started a mission and built schools. A few months later the next group of church missionary society members arrived in Nigeria wherein the educational efforts of the missionaries

was primarily directed to making Nigerians "People of the Book". Additionally, it provided the initial education of the men who later were to become school masters for the school, priests for the churches, and clerical assistants for commerce and government (Amadi, 1976).

Like the establishment of regular education in Nigeria, the inception of special education programs in Nigeria was not formally planned. Early provisions for the handicapped in Nigeria concentrated mainly on helping the blind and the deaf (Amadi, 1976). A report from the Special Education Center at Oji River (1976) stated that the Center was opened in 1958 by the church missionary society. It started as a vocational center for some blind adult ex-leprosy patients. The school itself officially started in 1960 as evening classes under a part-time teacher with five blind pupils and by 1964, the report (1976) added, the school grew to a full fledged primary (elementary) school.

This program for the deaf at the Special Education Center, Oji River, started as a practicing school in 1962 with thirteen deaf students. In 1963, the Commonwealth Society for the Deaf through its technical assistance program, trained three teachers for the deaf which gave an impetus to the center (Amadi, 1976). Government involvement came later as did the gradual concern for the handicapped. Government take over of the Special Education Center was gradual, beginning in 1970, with the administration of the program for the blind and ending with that of the whole center in 1974. The center has been claimed to be one of the popular establishments for the handicapped in Nigeria.

In Aduwo's (1980) report, it was stated that the earliest provisions for the education of the handicapped in Nigeria were the ef-

forts of voluntary or religious bodies who took on the education of the handicapped on purely humanitarian and/or missionary grounds.

For the lack of early concern for the handicapped by Nigerians themselves, the Commonwealth Secretariat (1972), pointed out:

Some would doubt the advisability of promoting the cause of the handicapped in developing countries, pointing to the great problems facing governments in their attempts to provide educational facilities for normal children. Faced by serious and growing problems of unemployed school learners, governments may easily consider that developments in special education must be delayed until a more appropriate time. However, interest in facilities for the handicapped should be shown as in the national interest, as well as in the interest of the sufferers and their families. Appeals for provision on behalf of the handicapped will be more effectively based on economic advantage to the country than on humanitarian grounds (p. 2).

The establishment of special education in many parts of Nigeria followed the patterns of the Special Education Center at Oji. That is, the initiative of establishing a special education program for the handicapped was either taken by a missionary body, other private agencies or an individual (Amadi, 1976).

A comprehensive report of Ibadan School for the Deaf (1976) stated that the school was founded by Mrs. A.O. Oyesola in 1963. It was known as "Home for the Young Deaf". The school was started with four children in a rented building and by 1968 it was sponsored by the Anglican Mission. In 1970, the school was moved to its present site with 40 children. In January 1974, the Ibadan Mission School for the Deaf, headed by Andrew Foster, was merged with the school and was renamed "Ibadan School for the Deaf". The enrollment became 138 under the proprietorship of the Anglican Mission. Among the objectives for establishing the school were:

1. To break the communication barrier between the deaf and the hearing world.

2. To train them to be useful citizens and to be able to take their places in the society.

3. To train them mentally, physically and morally.

4. To train the deaf to earn a livelihood through vocational training (Amadi, 1976).

Another report from Bendel State titled "Open Education Scheme in Bendel State, Nigeria", (1976), stated that the idea of training the blind first came to the state in 1972, when Dr. Andrew Foster, an American, based in Ibadan, visited the state. The purpose of his visit was to hold a conference about the founding of a school for deaf pupils in Bendel State. The Ministry of Education in Bendel State took action on Dr. Foster's visit by first conducting a survey of all forms of handicapped children in the state which revealed that there were 1,027 deaf and 373 blind children in a state whose population was 3 million. The state integrated system, known as the "Open Education Scheme" was introduced in Ishan Division of Bendel State, whereby teachers visited blind pupils in schools and homes to teach the blind pupils braille (Open Education Scheme, 1976).

Rehabilitation of the handicapped could be considered as an organized beginning of the involvement of the government in the concern for the handicapped and specifically, rehabilitation of the handicapped in Nigeria began with resettlement efforts after the second World War (Nwaogu, 1979). On this, Schram (1971) also stated:

At the end of the war 120,000 Nigerians were demobilized. A tremendous task of resettlement began. Two-

thirds registered with the Ministry of Labor for employment and with them were many thousands out of work from the tin mines and Cameroon plantations. In 1945 ex-servicemen's wards were built at Bida, Sokoto, Benin, Makurdi, Kano and Yola, but the most important center was that of Igbobi in Yaba. This center was handed over at the end of the war to the civil authorities and converted into the orthopedic hospital. The great majority of the disabled ex-servicemen were rehabilitated. The Employment of Ex-Servicemen's Ordinance, revised in 1948, resettled many, and the Nigerian Ex-Servicemen's Welfare Association dealt with 1,976 disabled men's pensions, 103 dating from the 1914 war, 1,873 from the 1939 war. Unemployability supplements were paid to ninety recipients in Lagos alone and money was raised by a poppy day, the poppy factory itself being run by the disabled (p. 261).

With the growing interest in special education services for the handicapped, in 1977 the Federal Republic of Nigeria National Policy of Education (1977) defined special education as the education of children and adults who have learning difficulty because of different sorts of handicaps, namely, blindness, partial sightedness, hardness of hearing, mental retardation, social maladjustment, and physical handicap. Also included in the definition are the specially gifted children who "are intellectually precocious and find themselves insufficiently challenged by the program of the normal school and who may take to stubbornness and apathy, in resistance to it" (p. 2).

In another effort to make special education a component part of regular education, the 1977 National Policy on Education (Special Education) made the following pronouncements:

1. The Federal Ministry of Education will set up a committee to coordinate special education activities in collaboration with the Ministries of Health, Social Welfare and Labor.
2. A census will be taken of all handicapped children and adults by age, by sex, by locality and by type; and schools will be obliged

to make yearly returns of children who could be classified as so highly gifted as to attract national attention as their potential beyond the granting of scholarship to them.

3. The government, realizing the importance of highly trained and efficient personnel in the area of special education, has already made a provision for the establishment of a National Teachers College for special education under the present plan. In the meantime the government has provided scholarships for those personnel who are being trained at Ibadan University or in institutions outside Nigeria. Mba (1978) commented that apart from the University of Ibadan, the University of Jos and Kaduna Polytechnic have introduced special education courses in their curricula.

4. As soon as feasible, all teacher training colleges will provide general and basic courses (in special education) to all prospective teachers who will teach in normal schools but who require such knowledge to identify and help handicapped children. In addition, the Ministries of Education will arrange crash courses of in-service training for all teachers of handicapped children.

5. Government has decided that integration is the most realistic form of special education since handicapped children are eventually expected to live in the society. Therefore, it has already been accepted that special classes and units would be provided in the ordinary schools, under the Universal Primary Education Scheme. Those would be well-staffed and equipped. However, special schools, where necessary, would be established for the severely retarded and other disabled children.

6. The Ministries of Education would, in consultation with the

appropriate bodies provide special programs for gifted children, but within the normal educational set up.

7. The education of handicapped and gifted children will be free at all levels up to the university level where possible.

8. Vocational schools would be made to reserve places for further education of handicapped children and adults. Other multi-purpose vocational schools would be established as needs arise. Government would provide suitable employment opportunities for handicapped workers, and the Ministry of Social Development, Youth and Sports would be requested to examine the possibilities of establishing sheltered workshops for those handicapped who after training cannot bid on equal terms with others for recruitment into commerce and industry. The Committee on Special Education and the National Council for the Rehabilitation of the Disabled will be fully involved in these plans.

9. Children's clinics will be attached to most hospitals, for early identification of handicapped children, and for curative measures and medical care before and after they reach the age for primary schooling.

10. Ministries of Health, of Education and Social Welfare, Social Development and Labor will work jointly on most programs for handicapped children, and the National Council on Special Education would be composed to reflect this collective responsibility (p. 10).

Although all ten plans by the Federal government are very advantageous for the handicapped in Nigeria, the government has fulfilled very few of its plans. In fact, several researchers and writers (Fafunwa, 1980; Nwaogu, 1979; Ndama, 1980; Mba, 1978; Rocher, 1970;

and Olayiwola, 1983) have expressed concern over the lack of adequate implementation of Nigeria's special education policies for the handicapped.

With particular reference to physical education services for the handicapped in Nigeria, physical education as a part of the school curriculum for the handicapped is omitted in the educational system. In a survey of special education facilities in Nigeria carried out by Ogbue (1975), it was clear that physical education, recreation, and sport were not part of the facilities and experiences considered for the handicapped. The available statistics of schools and homes for the handicapped in Nigeria and statistics of existing special education facilities in Nigeria (See Appendices A and B) show the types of institutions and categories of handicapping conditions catered for in Nigeria.

Nwaogu (1979) commented that education of the handicapped in Nigeria was still being hampered by lack of concern, lack of trained personnel and a dearth of accurate statistics.

In another recent follow up survey of special education personnel and facilities undertaken by National Education Research Council (1980), physical education personnel and facilities were not identified for the handicapped.

Mba (1978) also undertook a survey to determine how important it was that special education in Nigeria include adequate provisions for various categories of handicapping conditions and found that the physically handicapped were viewed as second in need of special education among the fourteen handicapping conditions, as perceived by the re-



spondents (see Appendix C). Another question in the same survey that inquired about which courses should be made compulsory for all special education students, physical education was left out of the courses listed by Mba (see Appendix D). However, among Mba's recommendations, he recognized that the recreational needs of the handicapped should be considered in Nigeria's special education priorities.

The literature provided in this section of the chapter indicated that special education in Nigeria had just begun to gain wide recognition in the country's educational program, but physical education had yet to take its proper place in the special education services in the country.

#### United States Public Law 94-142 and Implications for Physical Education

One of the strongest factors in educational development for the handicapped child has come in the form of Federal and State Legislations (Reinert, 1980). A review of selected Federal Legislations affecting the handicapped in the United States is presented in Appendix E. The evolutionary function of equal rights has been extended to those with disabilities. The directionality of change has been expressed through court decisions and statements declaring the rights and needs that have been denied or at least not seriously attributed to those with disabilities (Reinert, 1980). Furthermore, a Bill of Rights for the disabled (Abramson and Kutner, 1972) and a bicentennial declaration of human rights for the handicapped (Westie, 1976) are examples of such declarations.

One of the most important Federal Legislations that is very sig-

nificant for the handicapped in the United States is Public Law 94-142, the Education for all Handicapped Children Act.

On November 29, 1975, President Gerald Ford signed into law, Public Law 94-142. The law became effective on October 1, 1977 and full compliance by 1980 was requested. It clearly spelled out a national commitment to educate individuals with physical, mental, or emotional handicaps at public expense (Frost and Marshal, 1981).

As a result of PL 94-142, more and more individuals are able to exercise their rights to an appropriate education free from discrimination. Girls and boys, handicapped and non-handicapped will play, compete and cooperate together and thereby breakdown the artificial walls which have too often come between them. The legislation, addressing challenges faced by the handicapped has received impetus and has in turn stimulated a new awareness of the needs of the physically handicapped (Arnold, 1980). Also, PL 94-142 has a central purpose -- the provision of programs for handicapped children who have historically been excused from or denied participation in regular physical education programs.

A better understanding of the primary contents of Public Law 94-142 as summarized by Gearheart and Wright (1979) is essential for an appreciation of the implications of the law to physical education and recreation. The major focus of PL 94-142 include the following:

1. It addresses the needs of all handicapped children.
2. It promotes a free and appropriate public education for the handicapped.
3. These services are to be established for handicapped children

ages 3 through 18 by September 1, 1978.

4. Full services are to be established for handicapped children ages 3 through 21 by September 1, 1980 (the lower and upper limits of this age span, 3 through 5 and 18 through 21, are to be in effect providing such is not inconsistent with existing state law or court order).

5. The child is guaranteed procedural safeguards and a due process in classification and program placement.

6. All testing and evaluation must be comprehensive and non-discriminatory.

7. Each handicapped child is guaranteed an individualized education plan.

8. When the handicapped child is to be placed, it must be the least restrictive environment approximating as closely as possible the environment provided for non-handicapped children.

9. Each state must provide a statement of compliance with the law through each local education agency. (Through this linkage, the local schools relate to the federal bureaucracy through the state education agency).

10. Each state must submit a plan for the Commissioner's approval, detailing how it will carry out the law irrespective of whether PL 94-142 support dollars are received.

11. Most of the support dollars from PL 94-142 will be for services established after the law's passage and will go directly to the local education agency to help it comply with the law's provisions.

12. As an incentive to establish preschool programs for the handicapped, an incentive grant of \$300 will be given to the local education agency for each handicapped child between the ages of 3 through 5 who

receives a special education (p. 47-48).

The Education for all Handicapped Children Act, PL 94-142, has expanded greatly the opportunities in physical education, recreation and sports for individuals with handicapping conditions (Baker, 1982), and the effect of both federal and state laws on physical education have undoubtedly been very significant (National Association, 1975).

PL 94-142 has implications for adapted physical education programs. The law, providing for individualized programs for the handicapped and mainstreaming, is bringing about many educational changes. It has particular significance for those handicapped students who can profit from having their physical education with regular students rather than be isolated (Bucher, 1983).

Furthermore, some of the major impacts of PL 94-142 on physical education have been identified by Aufsesser (1981) who stated that PL 94-142 has:

1. Expanded the adapted physical education programs where they already exist, which indicates modifying the existing curricula from a rehabilitative program to one offering a full spectrum of activities for all types of handicapped.
2. Created adapted physical education programs in schools where non existed.
3. Forced schools to address the issue of mainstreaming handicapped children in regular physical education classes.

Additional significance of PL 94-142 to physical education is the fact that PL 94-142 ensures:

1. The identification and location of all handicapped individuals.

2. Appropriate evaluation to avoid misclassification of students and ensures proper placement.

3. That handicapped individuals regardless of the nature or severity of their handicap, must be provided a free and appropriate public education.

4. The education of handicapped students with non-handicapped students to the maximum extent appropriate to their needs (Clelland, 1978).

Specific aspects of PL 94-142 which spelled out the requirements for physical education as part of the special education services for the handicapped are found in Section 121a, 307, of the law, captioned General, Regular Physical Education, Special Physical Education, and Education in Separate Facilities (Bucher, 1983; Delon, 1979; and Brown, 1981):

a. GENERAL: Physical education services, specially designed if necessary, must be made available to every handicapped child receiving a free appropriate public education.

b. REGULAR PHYSICAL EDUCATION: Each handicapped child must be afforded the opportunity to participate in the regular physical education program available to non-handicapped children unless: (1) the child needs enrolled full-time in a separate facility or (2) the child needs specially designed physical education, as prescribed in the child's individualized education program.

c. SPECIAL PHYSICAL EDUCATION: If specially designed physical education is prescribed in a child's individualized education program, the public agency responsible for the education of that child

shall provide the services directly or make arrangements for it to be provided through other public or private programs.

d. EDUCATION IN SEPARATE FACILITIES: The public agency responsible for the education of a handicapped child who is enrolled in a separate facility shall insure that the child receives appropriate physical education services in compliance with paragraphs "a" and "c" of this section.

Furthermore, in reference to physical education, The House of Representatives, in a special report, made the following reference to physical education:

The Committee expects the Commissioner of Education to take whatever action is necessary to ensure that physical education services are available to all handicapped children within the definition of special education, to make clear that the Committee expects such services, specially designed where necessary, to be provided as an integral part of the educational program of every handicapped child (Bucher, 1983, p. 116).

It was also pointed out during both the House and Senate Committee reports that it had been demonstrated through research and programs such as Special Olympics, that the physical functioning of handicapped children could be improved through physical education, exercise and participation in sports (Strokes, 1980). And, even though additional research is needed to qualify gains, there was considerable evidence introduced to substantiate that increases in basic intelligence, self-concept, motivation and academic achievement are associated with improved physical fitness (U.S. Congress, House and Senate Committee Hearings, 1975).

Most handicapped children can profit from instruction in physical education without the use of special support service. However, some

handicapped children require the services of occupational, physical, or recreational therapists to be able to benefit from physical education instruction. Support services such as occupational, physical or recreational therapy should be provided for handicapped children when necessary (Bureau of Education, 1978).

As a mandatory service, physical education, as stated in PL 94-142, must be provided to all handicapped children, and physical education has been defined in PL 94-142 as the development of: (a) physical and motor fitness, (b) fundamental and motor skills and patterns, and, (c) skills in aquatics, dance and individual group games and sports. The term also includes special physical education, adapted physical education, movement education, and motor development (Federal Register, 1977).

Furthermore, as defined by PL 94-142, physical education is a direct and not a related service. Additional emphasis on physical education in the definition of special education:

...specially designed instruction, at no cost to the parents, to meet the unique needs of a handicapped child, including classroom instruction, and instruction in hospitals and institutions (Masters, Mori, and Lange, 1983, p. 4).

Annarino, Cowell, and Hazelton (1980) related the implications of PL 94-142 to curriculum and instructional planning in physical education, especially that every handicapped child must be provided with physical education services by participating in a regular physical education program (mainstreaming) unless the child is enrolled in a separate facility or the child needs specially designed physical education instruction.

The following are other specific requirements of Public Law 94-

142, which affect implementation of physical education programs:

1. Public Law 94-142 defined "Handicapped Children" as those children evaluated to be mentally retarded; orthopedically impaired; learning disabled; seriously emotionally disturbed; visually handicapped; deaf; hard of hearing; deaf-blind; other health impaired; speech impaired; and multihandicapped (Federal Register, 1977).

2. The delivery of special education services is to be under the general supervision of the State Education Agency (SEA). The implications of this statement is that someone or some department at the SEA level will have general supervision over preschool, elementary, and secondary physical education programs in public, non-public, and institutional schools (Conference Summary of Public Law 94-142, 1976).

3. Each handicapped student is to have an individualized education program of which physical education will be a part. According to Auxter (1977), at a minimum the physical educator will be required to provide a statement of the child's present level of performance; a statement of annual goals, including short-term instructional objectives; a statement that verifies the extent to which the child will be able to participate in the regular physical education program; the projected date for initiation and anticipated duration of services; and appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether instructional objectives are being achieved. It was also pointed out that whenever special physical education services are prescribed in a child's individualized education programs, the public agency with jurisdiction over that child shall provide the services directly or



make arrangements for such services to be provided through other public or private programs (Stokes, 1980). Wessel (1977) has also noted that as a result of the passage of PL 94-142, successful planning, programming and implementation of IEP in physical education will require a commitment from schools, parents and the child to ensure: (a) Establishment of school physical education; (b) specification of each child's individual goals and appropriate resources and related services targeted to meet these goals; (c) awareness of everyone's responsibility - school, parent, child, related support personnel - in achieving the stated physical education objectives; (d) development of a common working plan to establish a school physical education of curriculum which will meet the needs of all children (pp. 6-7).

4. Physical educators have to ensure that tests and other evaluation materials are provided and administered in a child's native language, unless it is clearly not feasible to do so; have been validated for the purpose for which they are used; if a test is administered to a child with impaired sensory, manual or speaking skills, the test results accurately reflect aptitude or achievement level or whatever other factor the test purports to measure, rather than reflecting the child's impaired sensory, manual, or speaking skills; no one test or type of test or other means of evaluation is used as the sole criterion for placement; if the information derived either from ability and achievement tests or from other sources results in a showing that the child does not, because of disability, need instruction in a special setting, the child is not placed outside the regular physical education program (Federal Register, 1977; Stokes, 1980).

5. The physical education teacher is required to be aware of the confidentiality rights of parents and students which includes prior written consent before personally identifiable information is released; access to records; and the right to request that records be amended and an opportunity for an impartial due process hearing if there is a disagreement concerning the records (Federal Register, 1977).

6. The physical education teacher is required to be aware of the due process rights of parents and children which in addition to the above, define confidentiality rights that include the authority to request an independent evaluation; the right to request an impartial due process hearing that can be appealed to civil court action if the parent disagrees with some facets including physical education, of the child's program (Federal Register, 1977).

7. The development and implementation of a comprehensive system of personal development which includes the inservice and preservice training of regular and adapted physical education teachers and of regular and special education teachers that have responsibility for the physical education component of the individualized education program. This system is to ensure that there are appropriate and adequately prepared physical education personnel, and of sufficient quantity to carry out the intent of Public Law 94-142 (Federal Register, 1977).

8. Prior to the enactment of Public Law 94-142, many handicapped children were not educated in the public schools, and hence, were not provided with physical education. Because of the child-find procedures associated with this law, many more handicapped children are

being served than before, especially severely and profoundly handicapped children. Therefore, more specialists in adapted physical education are needed to serve the increasing number of handicapped children (Bureau of Education for the Handicapped, 1978).

9. The inclusion of children as young as three years of age creates still another population in the public schools - the preschool handicapped. Most physical educators are unaccustomed to working with very young children and with handicapped children. Physical educators must now be prepared to plan effective and appropriate physical education instruction for these young children (Bureau of Education for the Handicapped, 1978).

10. Since PL 94-142 provides for related services in the education of handicapped children, physical educators must develop a better awareness of the related services useful to them, namely, occupational therapy, physical therapy and therapeutic recreation. Physical educators must know when other professional services would be in the best interest of a child, and must be able to communicate effectively with other professionals. Furthermore, the roles of the physical educator, occupational therapist, physical therapist, and recreation therapist in schools must be delineated. The services provided by these personnel often overlap, especially among the severely and profoundly handicapped population (Bureau of Education for the Handicapped, 1978).

As reviewed in this section of the chapter, the physical education requirements for the handicapped have been clearly identified in Public Law 94-142 and poses a great challenge to physical educators. The understanding of this law and its implications for the profession of physical education are far reaching (Stokes, 1980).

Legal Aspects of Tort Liability Involving Handi-  
capped Students in Physical Education  
and Athletics

"Should a properly placed handicapped child suffer an injury in the regular classroom, what additional liability, if any, has the instructor? As of this date, there have been no court cases" (West, 1979, p. 114).

This section will review the literature on selected cases where pupils have had a limited disability and where there was an injury.

All students who attend schools should have equal opportunities to become familiar with all facets of the programs and activities of the school, once they are treated as equals (handicapped as well as non-handicapped). Whatever the classroom environment contains is applicable to both normal students and those with physical impairment (West, 1979).

However, since handicapped students have known disabilities, special education teachers are therefore expected to be more sensitive to the supervision of these students. Gatti and Gatti (1975) said, "...there is a higher standard of care in relation to the duty of supervision. This is so because it is more foreseeable that a handicapped child is more likely to be injured with supervision than a normal child" (p. 250).

Appenzeller (1975) also stressed the issue of supervision and stated that the lack of supervision is "the most frequent cause of litigation among teachers and coaches" (p. 212).

Another author, Proehl (1959), said, "broadly speaking, what is

foreseeable are the criteria in supervising classes. The impossible will not be required, although teachers know, it is often asked. Where supervision could not have prevented the injury, its lack will, of course, not be held to be the cause of injury" (p. 759).

One such case involved a fifteen-year-old mentally retarded boy, as reported in *Gonzalez V. Mackler*, 1963. While the boy's instructor was absent from the class, attending to other school duties, some of the children began to talk to each other and eventually a heated argument ensued. The instructor, Michael Mackler, had not appointed a class monitor on this occasion, which was customary, but had informed the teacher in the adjoining room. The verbal argument lasted about ten minutes at which time one of the students involved in the verbal exchange picked up a rubber-tipped wooden pointer and threw it at a second student. The pointer missed the second student and struck the plaintiff in the left eye causing serious damage. The plaintiff alleged negligence on the teacher's part for lack of supervision. The issues in the case dealt with whether the absence of the instructor was the proximate cause of the accident or the omission to supply a supervisor in his absence. The Court of Appeals reversed the lower court's decision and ordered a new trial, since the first had been dismissed (*Gonzalez V. Mackler*, 1963).

Another case (*Torres V. State*, 1972) concerned a seventeen-year old blind student attending the Texas School for the Blind. The plaintiffs in this case were the surviving parents of a young boy, Alejandro Torres. Court evidence showed that on October 7, 1970, while participating in a swimming class, the student drowned. The

The parents alleged that the negligence of the life guards in proximity caused the death of their son. The court held for the plaintiff.

Some other cases are available to show the track record of the courts toward physical education instructors and coaches who neglect some physical impairments resulting in injuries.

One of such cases involved a teacher who failed to inform her colleagues of a student who was subject to seizures (Rodrigues V. San Jose United School District, 1958). In this case, Bobby Rodrigues, a six-year old, suffered from a type of cerebral palsy and congenital heart disease. The mother had asked the teacher not to discuss her son's condition with her colleagues. The teacher and Bobby had discussed his situation and he understood that he was not to climb. The record showed that Bobby was found during a lunch period under the horizontal ladder on the playground. The court deducted that he had suffered a seizure while playing and had fallen (Rodrigues V. San Jose United School District, 1958). The charge of negligence in supervision was denied by the court because Bobby was aware of his condition. The fact that other teachers, who were supervising at the time, did not know of his conditions was a result of parental request. Playground supervisors could not have foreseen this unpreventable accident (Rodrigues V. San Jose United School District, 1958).

In another case, the court held for seventeen-year old Belva Bellman (Bellman V. San Francisco High School District, 1938) who was denied permission to take another physical education class but was told to enroll in the gymnastic classes. The instructor was informed of Belva's bad knee. The student requested to withdraw from the class

and was denied. Belva entered the classroom under protest. While attempting to perform a diving forward roll over two other students, she failed to execute the proper catching of her body weight on her arms and the tucking of her chin to complete the roll. Instead, she landed on her head causing possible brain damage. In the Appellate Court, the defendant school district contended two issues. First, that the result of the original trial was incorrect. (That trial held for the plaintiff due to negligence on the district.). Second, the money awarded was excessive. The defendant school district's appeal was denied as the court held again for the plaintiff (Bellman V. San Francisco High School District, 1938).

Although the Bellman case was held in 1938, the court took a different look in 1952, when James Hale brought suit against Coach W.H. Davies (Hale V. Davies, 1952). On August 25, the sixteen-year old Hale was practicing football and injured his right arm and shoulder. The coach was aware of the injury but again on September 6, ordered the minor plaintiff to engage in practice, whereupon the young plaintiff further injured his arm and shoulder (Hale V. Davies, 1952). The court, although agreeing with the allegations of negligence on the part of the coach, dismissed the petition on grounds of doubt. When the father filed suit for appeal, the Appellate Court held the lower court's decision was valid (Hale V. Davies, 1952).

A new trial was ordered in another case (Lowe V. Board of Education of City of New York, 1971) when in 1971, Judith Lowe filed charges of negligence against her physical education teacher. Miss Lowe claimed she had physical disabilities. She testified that on

three occasions she had given her teacher a note from her doctor and that the teacher insisted she perform broad jumps in spite of her protest. When the plaintiff was injured further, while doing the broad jump, she filed charges. The court could not establish proximate cause. This particular case was a split case, that is, that liability was the issue here. The second half of the case discussed from medical experts the proximate cause of the injury and possible amounts of damages due should the plaintiff merit such damages (Lowel V. Board of Education of the City of New York, 1969).

A similar trial took place in White Plains, New York, in 1969. The trial was held in favor of the school board (Cherney V. Board of Education of the City School District of the City of White Plains, 1969). When the plaintiff filed her appeal, it was based on an error made in her father's affidavit. The father had mistakenly omitted the fact that the daughter had weak wrists and that the instructor was notified of this condition (Cherney V. Board of Education, White Plains, 1969). The Appellate Court accepted the new statement and with if found reason to remand the case to the lower court for a new trial. The Appellate Court also indicated that possible negligence was shown on the part of the school system as well as the instructor. (Cherney V. Board of Education, White Plains, 1969).

Physical education teachers have an obligation to act as prudent individuals, and failure to do so, as shown through some of the cases cited, might result in negligence against the individual school's personnel.

According to Appenzeler (1975), "the wise teacher and coach will



take precautions, warn students in inherent dangers involved in the activities and facilities, act prudently and then go about their job with confidence" (p. 213-213). Appenzeler further warned not to make a student participate when the family doctor gives a medical excuse.

### Psychological and Social Problems of Physical Handicap

Program development for the orthopedically handicapped requires an understanding of the psychological and social problems physically handicapped persons experience as well as the perception of significant others to a handicapping condition.

Siller (1960) pointed out that psychological insights can help in the construction, design, prescription, and training in the use of prostheses for the amputees, and assist in programming strategies for other types of orthopedic disabilities.

Although, the literature review by McDaniel (1969), Shontz (1975), and Siller (1974) revealed that there are no sufficient data to support disability-specific personality types, several other studies (Cohen, 1977; Bruininks, 1978; Bryan et al., 1976; Bogdan, 1977, Richardson and Green, 1971; Harper and Richman, 1980; Cratty, 1980; Bucher, 1983; and Brown, 1981) have consistently indicated that the handicapped exhibit some psychological and social behaviors such as extreme maladjustment to social alienation, self pity, feeling of rejection, depression, and compensatory efforts.

A format for considering the effects of physical limitations on adjustment is the somato psychological relationship (Wright, 1960). The somato psychological approach according to Wright, considers the

relationship of the viability of body characteristics on the behavioral functioning of the individual. As a result of research into the somatopsychological phenomena, Wright has stated that "somatic abnormality as a physical fact is not linked in a direct or simple way to psychological behavior. Heterogeneity of reaction to crippling is a necessary result" (p. 373). Wright's generalizations concerning somato psychological relationship are as follows:

1. Persons with disabilities do not differ from others in regard to general adjustment. There are similar levels of overall adjustment and areas of overlap between the two groups.

2. A personality type associated with a particular disability cannot be established. There is no evidence to suggest that there is a cerebral palsy personality accompanying this particular set of physical deviations.

3. Although there is no evidence to suggest that a disability personality type exists, there are behaviors that are often associated with particular limitations.

4. "Physical disability has a profound effect on the person's life" (p. 376). Even though there are no established group-related personality or adjustment characteristics that can be identified, it is nevertheless well established that adjustment strategies and conditions are quite individualized and personalized.

5. Public response to disability is only rarely at a negatively verbalized level.

6. The reactions of parents to the child with a disability seem to be in the extreme as compared to their reactions to their normal children. These reactions range from overprotection to unrealistic

expectations for a variety of behaviors.

7. There are a wide variety of attitudes held by persons who are disabled about their own disabilities. The variation in attitudes is dependent on the degree of disability, the type of personality before the onset of disability (if the disability was not congenital), value systems, and other influences that may add to self-directed attitudes toward disability.

Many other explanations have been put forward to describe the behaviors of the non-handicapped. Cratty (1980) stated that normal individuals react in various ways to the handicapped persons. However, when confronted with the orthopedically handicapped, the primary social-psychological error committed by normals is to take an overly solicitous attitude, that is, to show pity rather than offer help and useful support. Cratty (1980) further stated that the orthopedically handicapped are often reluctant to enter and compete in new social situations, and that they may suffer from other problems such as social overcompensation, speech and language difficulties, and other perceptual and conceptual problems that inhibit their total adaptation to society.

In a research undertaken among children in Great Britain, Richardson and Green (1971) indicated that the major factors influencing children adversely against their fellows is not color, nor intelligence but visible deformity. Citing an example of a typical attitude towards the handicapped in many parts of the world, Mills (1960) offered this description: "There they sit, fed and housed by more or perhaps less sympathetic relations, but regarded by all as

useless and unproductive" (p. 3). Such unfavorable attitude towards the handicapped are seen throughout the developing countries, of which Nigeria is no exception (Nwaogu, 1979). Also, the stigma attached to being handicapped may take many forms: rejection as a person to be associated with, belief in God's punishment upon him, sins of parents, and strong disbelief in ability to be capable of approaching normality as a fellow citizen (Commonwealth Secretariat, 1972).

Barker et al. (1953) stated that studies indicated rather consistently that physically disabled persons are more frequently maladjusted than physically normal persons. They also pointed out that the resulting maladjustment can take the following forms: withdrawn, retiring behavior; shy, timid, self-consciousness and fearful behavior; serious, thoughtful behavior, refusal to recognize real conditions, concealment, and delusions; feelings of inferiority; emotional and psychosexual immaturity; tirelessness, isolated asocial behavior; paranoid reactions, sensitivity and suspiciousness; craving for attention, love of praise; extreme aggressiveness, competitive behavior; and anxiety, tension, nervousness, and temper tantrums.

Furthermore, Dewey and Dewey (1974) stated that children with handicaps such as amputations, deformed hands or "frozen" joints face a great psychological challenge. They contend that their handicaps are visible, and often must tolerate tactless reactions from others.

Mathew (1967) administered the Handicap Problems Inventory to a group of non-blind physically disabled people. Factor analysis of the responses to the inventory yielded six dimensions of psychological impact of physical disability: a feeling of personal rejection, a

need to be normal, denial of disability, guilt, despair, and acceptance of self.

In a study cited by Love (1978), it was reported that the effects of crippling condition on intelligence, school achievement, and emotional adjustment of 270 physically handicapped children aged five through sixteen was not significantly different from other non-handicapped persons. And an earlier study by Kanner (1972) postulated that emotional disturbance is not necessarily a characteristic of physical handicap. But the investigation of Harper and Richman (1978) showed that the orthopedically impaired group exhibits an isolative and passive orientation to interpersonal interactions, as well as more generalized feelings of alienation.

Furthermore, the psychological impact of disability on body image has received considerable attention by researchers. The concept of body image or body schema has been referred to by Little et al. (1974) as the mental idea and a basic attitude a person has toward his own body and an idea of how the person perceives himself physically, esthetically and socially. Body image also provides a clue as to how a person sees himself in relation to his world, and this reflects his style of life (Little et al., 1974).

Joy, Reynold, and Tisshaw (1983) agreed that the language used to describe people and their abilities influences how people perceive themselves, how they believe others perceive them and the way other people learn to describe the same people and abilities. Therefore, the term 'person with a handicapping condition' has been suggested by Joy et al. rather than 'handicapped person', because, according to

them, one may only experience a handicapping condition in certain situations and not all situations. Meninger (1963), Szasz (1963), Szasz (1970), and Blatt (1970) also agreed that the terms used in describing the handicapped have both descriptive value and deleterious effect.

Brown (1981) stated that many factors influence the development of impaired persons, but it is their attitude about themselves that seems most significant. The amputee cannot find a place in his body image for his deformity. He may even deny the deformity and resist efforts to use braces and crutches. Acceptance of the disability could be facilitated not only by various forms of physical therapy but by various psychological means aimed at satisfying emotional and attitudinal needs and pressures and at social integration. Both intellectual and emotional acceptance of the disability are necessary in order that the body image could take a new achievement and could be reorganized (Mueller, 1974).

In a study of the body image of amputee children, Siller and Peizer (1957) found feelings of inferiority and shame to be important components in the psychological functioning of more than one-third of the children studied, and most particularly among amputees of traumatic origin. Also, Garret and Levine (1962) stated that the word "cripple" comes to the amputees' mind along with its various annotations of inadequacy, charity, shame, punishment, and guilt. They further indicated that when an individual views himself and feels that he is being viewed by others in these forms, he considers himself

an object of lessened respect and reacts to this changed status accordingly. Since these attitudes are not likely to enhance self concept, but rather devalue it, the handicapped may be expected to undertake defence against these attitudes on his integrity (Garrett and Levine, 1962).

Extensive research studies have been done on the attitudes of peers, parents, students, the public, teachers, and administrators towards the handicapped. Alms giving seems very predominant in the charitable attitude of many Nigerian people toward the handicapped. Lenhart (1976) explained that the charitable act of alms giving is done in many cases not because of a concern for the handicapped, but because of the givers' selfish interest in seeking rewards. Mba (1978) also indicated that among factors contributing to the general apathy toward the handicapped in emerging countries of Africa are "superstitious beliefs that regard disability as a curse invoked by the gods who must be appeased in order to work off the evil Karma" (Mba, 1978, p. 30).

Goffman (1963) indicated that when an individual is identified as having a physical abnormality, people also assume that the person has some form of mental retardation. Such misunderstandings and attitudes about the physically disabled students may affect the development of educational programs as well as the methods used to implement these programs (Patton, 1979).

Peer reactions to handicapping conditions have also received some studies. Brown (1981) commented that peers of the orthopedically handicapped students are often moved by pity which may cause them to

overreact with concern or to be helpful beyond what is needed or wanted. Furthermore, Brant (1979) listed several factors relating to peer reactions to handicapped students:

1. Children often reject or pity the handicapped.
2. Physical handicaps have a greater stigma than ethnic differences.
3. Intellectually gifted students tend to regard the handicapped negatively.
4. Younger students tend to have more neutral feelings toward the handicapped.
5. The educational level of the parents can affect the students' attitudes toward the handicapped.
6. Parental attitudes toward the handicapping condition may result in greater acceptance by their children (p. 13).

In a recent research based information on attitudes toward people with disabilities, Siller (1982) found seven stable factors describing attitudes of non-disabled people toward amputation and other physical disabilities. These are:

1. International strain - uneasiness in the presence of people with disabilities and uncertainty as to how to deal with them.
2. Rejection of intimacy - a rejection of close, especially intimate, relationship.
3. Generalized rejection - unpleasant personal reactions with derogation advocacy of segregation.
4. Authoritarian virtuousness - ostensibly predisabled, this orientation is rooted in an authoritarian context and advocates



special treatment.

5. Inferred emotional consequences - an assumption that disability impairs the character and emotions of its "victims".

6. Distressed identification - personalized reactions to disability arising from anxiety about one's own vulnerability.

7. Imputed functional limitations - restricted evaluations of the ability of people with disabilities to function in the environment (p. 4).

Siller further observed that six of the above dimensions are clearly negative, and that the one which appears to be positive was interpreted as actually reflecting negativity.

In another recent data based study by Kennedy and Thurman (1982) they concluded that at a very early age children perceive incompetencies in others without having seen it demonstrated. In addition, relatively young children, as determined by their investigation, ascribe negative status to handicapped children by referring to them as babies, young, and small. Kennedy and Thurman's data further suggested that attitudes toward handicapped children begin to develop even before the child enters school or comes into contact with handicapped children. They suggested that parents training in the pre-school years might be the strongest influence in developing a child's concern for the welfare of others and tolerance and acceptance for those viewed as different. Brant (1979) agreed that parental attitude is very important in influencing a child's social and personal development.

Some parents have unrealistic ideas about their handicapped child,

while others are able to accept their child's handicapping condition and try to utilize the best possible education opportunities (Kindred, 1976).

Furthermore, attitudes of teachers and administrators toward the handicapped have been studied and have been found to be woefully inadequate to meet the educational needs of the handicapped (Patton, 1979; Gickling and Theobold, 1975). Such negative attitudes by educators has been labelled the "two box" theory by Reynold and Birch (1977). That is, children are considered exceptional or normal.

A summary of the psychological impact of being handicapped has been well presented by Cruickshank (1966). He suggested that the handicapped child might be involved with a success-prohibitory situation. Cruickshank defined the situation:

The handicap sets into operation a circular situation: The handicap is the barrier to success; frustration results; attempts are made to substitute satisfactions for the original activity; the handicap is again a barrier; greater frustration results; more activity, more blocking ad infinitum (p. 18).

Specific efforts designed to aid the disabled in developing competency in social and psychological situations and understanding of the roots of stigma should be considered as an integral part of programming for the handicapped (Rosenthal, 1975).

### Characteristics of Orthopedic

#### Handicapping Conditions

A literature review on characteristics of selected orthopedic handicapping conditions is presented in this section. The California Administrative Code (1977) considered these conditions as orthopedic disabilities: cerebral palsy, poliomyelitis, amputation, club foot,

congenital dislocation, spinal bifida, burns or fractures, bone tumors, fragile bones, muscular atrophy, muscular dystrophy, perthes' disease, hemophilia, uncontrolled epilepsy, severe cardiac impairment, and drug dependency.

This section focuses only on cerebral palsy, muscular dystrophy, amputations, and crippling conditions because these are the orthopedic handicapping conditions encountered most in public schools (Best, 1978).

The description of the orthopedic handicapping conditions is not an attempt to label handicapped children with the characteristics to be described but to highlight some of their special problems and characteristics. Pointing to the characteristics and differences of handicapped children, according to Sye (1971) provides the encouragement for specially trained professionals to become involved with the child, and also encourages the use of specialized techniques, specialized materials and special teachers.

An understanding of specific types of disabilities would assist in preparing adapted physical education teachers to be better able to apply assessment procedures, to set reasonable performance objectives, and to plan appropriate exercise and activity programs for the students (Crowe, Auxter, and Pyfer, 1981).

### Cerebral Palsy

Cerebral palsy was recognized in 1863 by William John Little, M.D. and was known as Little's disease for many years. The multiplicity of the signs and problems associated with cerebral palsy and the inability to predict exact success or failure for the sufferers

account for why the disease has something of the mystique about it (Wheeler and Hooley, 1976).

The group of disabilities primarily affecting the nervous system is known collectively as neurological disabilities (Clarke and Clarke, 1963). Most neurological disabilities are irreversible, and the extent of involvement will range from being slight, to a total loss of normal function, according to Clarke and Clarke (1963). One such condition is cerebral palsy (White, 1983).

The American Academy of Cerebral Palsy and the American Public Health Association as reviewed by White (1983) gave the following professional definition of cerebral palsy:

Cerebral palsy is a group of conditions having a common disorder of motor control originating in the brain. All forms of cerebral palsy are a result of anomaly, injury, or disease operative before birth, during birth, or after birth. Since the condition is caused by a number of different, and often unrelated factors, there are many clinical patterns and disease pictures. The motor disability may involve many parts of the body or only a limited group of muscles. It may be characterized by paralysis, weakness, incoordination, tremors, involuntary motions, excessive rigidity, or stiffness. (White, 1983, p. 5)

Several other definitions and explanations of cerebral palsy have been offered:

Any abnormal alteration of movement or motor function arising from defect, injury, or disease of the nervous tissues contained in the cranial cavity (Cardwell, 1956, p. 4).

Cerebral palsy is a manifestation or group of manifestations of impaired neurological function due to aberrant structure, growth, or development of the central nervous system (Denhoff and Robinault, 1960, p. 1).

Cerebral palsy is not a single disease entity, but comprises a group of syndromes with the common denominator of a chronic motor disability due to involvement of the motor control centers of the brain (Perlstein and Hood, 1964, p. 850).

Cerebral palsy is a general term used to designate any paralysis, weakness, incoordinations, or functional deviation of the motor system resulting from an intracranial lesion (Keats, 1965, p. 6).

The definition of cerebral palsy includes not only the neuromuscular component but many other mental or psychological disabilities of perception, learning, emotions, and speech as well. The neuromuscular aspects of cerebral palsy are primarily the responsibility of medical professions, while the associated disabilities are the responsibility of the social, educational, psychological, and speech professions. This is why the team approach is best when dealing with the problems of a child with cerebral palsy (White, 1983).

Dewey and Dewey (1974) compared the muscle activity of a person with cerebral palsy to that of an infant with predictable reflex responses and found that a victim of cerebral palsy is often unable to interpret movements in a meaningful way. Controlling certain muscles, especially the limbs, is a common problem with all children with cerebral palsy.

Ellis (1967) viewed the effects of cerebral on motor development and movement as abnormalities of posture and movement which alter as a result of maturation, adaptation or treatment. He also said that with cerebral palsy, not only is motor development delayed but abnormal postures and patterns of movement are acquired. With this condition, Wheeler and Hooley (1976) noted that the person cannot control muscular movements, and, depending upon the severity, a victim may be confined to a wheelchair or he may take part in regular school activities.

In relation to intelligence, Crickmay, (1966) reported that approximately 50 percent of cerebral palsied individuals are of normal

intelligence, 5 percent to 10 percent being exceptionally bright, 10 percent classified as moron, and the rest as borderline cases. However, White (1983) commented on the problem of intelligence tests for the cerebral palsied child. She said that because many intelligence tests require some form of motor movement or speech process which the cerebral palsied may be unable to make, it could be seen that even if a cerebral palsied individual fell into the normal intelligence capability level, there would be a problem in determining that intelligence and/or developing it. Therefore, it is easy to understand why 75 percent of cerebral palsied individuals are classified mentally retarded to some degree (White, 1983).

Almost all cerebral palsied children need speech therapy as 65 percent of cases have some form of speech impairment (Crickmay, 1966) with about half able to improve with training (Sherrill, 1980).

Fifty five to sixty percent of cases of cerebral palsy have visual difficulties. Strabismus, the inability to focus both eyes simultaneously on the same object is the most common problem. Imbalances in muscle strength causing squinting, loss of binocular vision, and problems with depth perception are other characteristics (Sherrill, 1980). Visual problems, according to Arnheim, Auxter, and Crowe (1969) seem to be most prevalent in the ataxic, less prevalent in the spastic, and even less in the athetoid.

Loss of hearing often accompanies cerebral palsy; however, there is disagreement as to the incidence of hearing defects. Sherrill (1980) reported that between 5 and 8 percent have hearing loss, and Hopkins, Bice and Colton (1979) reported that 13.3 percent have an

appreciable loss. Fish (1955) found that 20 percent of children with cerebral palsy had hearing losses. The different studies however show that the cerebral palsy exhibit considerable less incidence of speech or vision defects.

Emotional disturbances and behaviorial problems also accompany cerebral palsy. Significant physical impairment may deprive the child of opportunities to develop socially and emotionally. The inability to concentrate, distractibility, hyperactivity, and motor awkwardness, often result in a vicious circle of under-achievement, misbehavior, lowered self-esteem, and lack of motivation (Sherrill, 1980).

Cerebral palsy, as with many other conditions, may be caused by several factors before birth (prenatal), during birth (natal or perinatal), or after birth (postnatal) (Best, 1978). One of the most common causes leading to cerebral palsy is anoxia. This oxygen deprivation is not only the cause of brain lesions leading to cerebral palsy, but many other mental and physical aberrations. The interference with oxygen supply to the brain may be due to various pathological mechanisms, and may occur in prenatal, perinatal, or postnatal stages of development (Wheeler and Hooley, 1976; Best, 1978; and Perlstein and Hood, 1964).

Prenatal conditions -- Included in prenatal causes are: (1) inherited or genetic conditions, and (2) conditions during pregnancy which result in a defect of the child's central nervous system. Some conditions causing cerebral palsy during the prenatal period include: (1) prenatal anoxia from premature separation of the placenta, severe anemia of the mother, serious heart problems, or threatened abortion,

(2) diseases of the mother, such as German measles, use of drugs, and maternal malnutrition (Aahper, 1975; Vannier, 1977; Best, 1978).

Perinatal conditions -- Injury at birth has been firmly established as one cause of cerebral palsy. If birth is too rapid, the tiny brain cells may burst, causing brain damage. Head injuries which result in cerebral hemorrhage are another cause, a lack of Vitamin K in the new born infant is also thought to be a factor in causing cerebral palsy (Vannier, 1977). Difficulties with the cord and placenta can reduce the oxygen supply, which results in anoxia and the possibility of brain cells being destroyed. The majority of cases (60 percent) are attributed to birth injuries (Vannier, 1977).

Postnatal conditions -- Childhood diseases such as meningitis, encephalitis and influenza could cause cerebral palsy. Other postnatal factors include head injuries, lack of oxygen to the brain as a result of gas poisoning, or strangulation (Kirk, 1972). Illingworth (1958) estimated that about 10 percent of cerebral palsy cases are caused by postnatal factors.

It is however important to note Cruickshank's (1966) statement who said that no definite causes for cerebral palsy can be found in approximately 40 percent of the cases, and that there frequently may be several possible etiological factors in any one case.

### Classification of Cerebral Palsy

Motor types classification -- The most common types of cerebral palsy are spasticity, rigidity, tremors, athetosis, ataxia, and a combination of any of these. The motor component aspect of cerebral palsy is given precedence over other forms of classifications. Daniels



and Davies, 1975; Best, 1978; Minear, 1956; and AAHPER, 1975 described the various types of cerebral palsy as follows:

Spasticity -- Spasticity is characterized by hyperactive deep reflexes. The major component of this is the exaggerated contraction of muscles subjected to stretch and their inability to release. Common to spasticity are: muscles contracting, palms turning out, toes turning in and walking on toes with heels up, and knees flexing with arms close to the body.

Rigidity -- Rigidity is characterized by an increased resistance to passive movement throughout the range of motion. There are basically two forms of rigidity: intermittent rigidity, when the resistance to motion is interrupted at various intervals by jerky movements; and continuous or "lead pipe" rigidity, when the resistance to motion is continuous with the limb failing to return to its initial position.

Tremors -- Tremors generally are classified as uncontrolled, involuntary reactions, but may also be intentional or non-intentional in nature. The common symptom of tremors is one of generalized trembling of the extremities involving both flexors and extensors.

Athetosis -- Athetosis is characterized by involuntary movements of the following kinds: non-tension, tension, rotary, tremor, emotional release, hearing loss, and athetoid movements involving trunk muscles. Besides being involuntary and uncontrollable, the athetoid movements are jerky, twisting movements of the extremities with the fingers and wrist being the most common affected area.

Ataxia -- Ataxia is characterized by incoordination due to the disturbance of kinesthetic sense which affects the sense of balance

as well as other sensory awareness areas, such as jerky eye movements.

Wheeler and Hooley (1976) has presented an inclusive summary of the characteristics of spasticity, rigidity, tremors, athetosis, and ataxia (see Table One).

### Classification by Degree of Involvement

Although not very recent, Deaver's (1955) descriptions are still useful for classification:

1. Mild - Ambulatory, understandable speech, use of arms and legs satisfactorily. No treatment is needed, and the person can work without the aid of appliances.
2. Moderate - Partially disabled, has difficulty moving, speaking, and performing tasks of daily living. Braces and other equipment are needed.
3. Severe - Involvement complete, confined to bed or wheelchair. Self care and ambulation are very poor. (Deaver, 1955; Vannier, 1978, and Best, 1978)

### Topographical Classification

An additional classification of cerebral palsy involves topography or the area of the body where the motor problem is located (Best, 1978).

The involvement degree are classified as:

1. Monoplegic - One limb involved.
2. Paraplegic - Both legs (lower limbs) only. This classification is most often associated with the spastic type.
3. Hemiplegic - One leg and arm involved on same side of the body,

Table I  
Characteristics of Types of Cerebral Palsy

Type of Cerebral Palsy	Percent Estimate	Usual Characteristics and Marks of the Various Types
Ataxic	5-8%	Tend to be overweight. Severe problems are coordination, balance. Usually extroverted, unselfconscious about his appearance. Somewhat unstable emotionally; likes or dislikes people thoroughly.
Athetoid	19-45%	Continuous involuntary muscle action. Usually extroverted, unselfconscious about his appearance. Somewhat unstable emotionally; likes or dislikes people thoroughly.
Rigidity	4-5%	Tends to be overweight. Hypertense or (rigid) musculature. Mental retardation common. May be introverted or extroverted.
Spastic	40-66%	Tends to be overweight. Strongly involuntary muscle contractions and hypertonicity. Stiffness. Stretch reflex; results in flexion at many joints; may cause "scissors" gait in walking. Often lower than agemates. Often introverted; needs individual or small group work
Tremor	2-5%	Rhythmic motion patterns; may occur when person tries to move (intention tremor) or continuously (non-intention tremor) may be introverted or extroverted
Mixed	1%	Each case depends on the casualities.

with the arm often being more so than the leg. It is often associated with the spastic type.

4. Triplegic - Involves three limbs (both legs and one arm). It is generally spastic.

5. Quadriplegic - All four extremities involved; in spastics, the legs are the most affected; the hands are the most damaged among the tremor and athetoid groups.

These descriptions bring more definite picture of the physical involvement of cerebral palsy (Best, 1978).

Estimates of the incidence of cerebral palsy range from 1 to 3.5 cases for every 1000 births. Of those afflicted, 10 percent will be severely enough disabled to require custodial care. The remaining 90 percent can function in various educational setting such as public schools (Fait, 1978).

Furthermore, the incidence of characteristic forms of cerebral palsy have been studied in various surveys. The result of one of such surveys have brought together recent statistics in a number of cases of cerebral palsy types. Berkow (1977) provided the following information:

1. Athetoid-type syndromes occur in about 20 percent of the cases;
2. Ataxic syndromes are fairly rare and occur in approximately 10 percent of cases;
3. Convulsive seizures occur in about 25 percent of cases, most often in hemiplegics;
4. Spastic syndromes are the most common, occurring in about 70

percent of the cases.

Wheeler (1976) contended that as greater knowledge of cerebral lesions become more available some of the mystique surrounding cerebral palsy will disappear.

### Muscular Dystrophy

Muscular dystrophy is a chronic, non-contagious, progressive and degenerative disease, characterized by weakness and atrophy of the skeletal muscles, with steadily increasing disability and deformity (Muscular Dystrophy Association of America, 1959; 1972; Crowe, Auxter, and Pyfer, 1981).

The exact cause of muscular dystrophy, according to Crowe, Auxter, and Pyfer (1981) is not known. Speculation regarding etiology of the disease, they said, includes faulty metabolism (related to inability to utilize Vitamin E), endocrine disorders, and deficiencies in the peripheral nerves. Crowe et al. also said that there is some indication that an inherited abnormality causes the body's chemistry to be unable to carry on proper muscle metabolism.

Wallace (1955) indicated that heredity influences the severity of the disease and that the distribution of the affected muscles in individual patients is determined primarily by the linkage of a faulty gene.

Arnheim, Auxter, and Pyfer (1981) explained that muscular dystrophy is characterized by gradual weakness and wasting way of the voluntary muscles such as the arm, thigh, and calf muscles. The small muscles of the hand are usually the last to be affected, and muscles on both sides of the body are affected equally, leading to symmetrical

weakening of muscle tissue.

Muscular dystrophy does not affect the nerves, as they are in multiple sclerosis, cerebral palsy and other types of paralysis or muscular weakness (Daniels and Davies, 1975). The child with muscular dystrophy is not affected intellectually and there are no specific learning problems associated with the disorder. Muscular dystrophy in itself is not fatal, but secondary complications heighten the effects of respiratory and cardiac muscles increase susceptibility to heart disease and respiratory function. The weakening of these muscles give rise to total failure of body systems, and consequently, death. Muscular dystrophy is probably the most serious disabling condition that occurs in childhood (Daniels and Evelyn, 1975).

The rate of progression in muscular dystrophy varies in the different types of dystrophy, but generally the earlier clinical symptoms appear, the more rapid the progression (AAHPER, 1975). Progression is generally characterized by a gradual weakening and wasting away of voluntary muscles and a slowly progressive loss of muscle groups of the limbs and trunk (Fait, 1978). Late in the disease, muscle tissue is replaced by connective tissue and deposits of fat in the muscle may give the deceptive appearance of well developed muscle (White, 1983).

The progressive nature of muscular dystrophy is evidenced as the dystrophic child goes from crutches to wheelchair, and eventually confined in bed. Muscle deterioration continues at a progressive rate until the child is helpless (Muscular Dystrophy Association of America, 1959) and death frequently occurs before the age of 20 (Daniels and

Davies, 1975).

As the exact cause of muscular dystrophy is not known, no specific treatment has been developed. However, it is believed that physical activity and exercise are important in delaying the progressive weakness and crippling effects of the disease (Bleck and Nagel, 1975; Clarke and Clarke, 1975; Daniels and Davies, 1975; and Vigno and Watkins, 1966). Calhoun and Hawisher (1979) also suggested that good medical care and physical therapy are needed to meet the physical needs of children with muscular dystrophy. Orthopedic devices such as walkers, crutches, braces, orthopedic shoes, wheelchairs, hospital beds, and hydraulic lifts may be needed by the muscular dystrophied child.

One of the most recent advances in assisting the muscular dystrophied child is the development of broad-spectrum antibiotic therapy to help control respiratory infections which previously contributed to the high death rate of persons affected by muscular dystrophy (Adams, 1972).

Although the exact incidence of muscular dystrophy is unknown, estimates place the number of persons afflicted with muscular dystrophy in the United States at 200,000 (AAHPER, 1975). It is also estimated that more than half of the total number are children between the ages of three and thirteen (Arnheim, Auxter, and Pyfer, 1981; Clarke and Clarke, 1975; and Daniels and Davies, 1975).

#### Types of Muscular Dystrophy

Classically, there are four main types of muscular dystrophy, namely pseudohypertrophic (Duchenne) type, facioscapulohumeral type,

juvenile type, and mixed type (Fait, 1978; Price, 1980; Adams, 1972; MDAA, 1959; and Sherrill, 1980). Tyler and Wintrobe (1950) reclassified the Duchenne type and the facioscapulohumeral types jointly as 'childhood muscular dystrophy'.

The classifications are based primarily on the basis of age at onset, and muscle groups first involved.

Pseudohypertrophic (Duchenne) type -- This is the most progressive, most serious, and the most common of the dystrophies (Adams, 1972; Best, 1978; AAHPER, 1972). It is also the most commonly found in school age children (Love, 1978; Calhoun and Hawisher, 1979; MDAA, 1975). This type of muscular dystrophy accounts for about 65 percent of all dystrophies, and it affects children between the ages of 4 and 7, and it is largely confined to males (Fait, 1978).

Best (1978) stated that the progressive nature of the disease follows two avenues: progression related to the severity of involvement and progression of muscle group involvement.

The Duchenne type of muscular dystrophy is evidenced by the hypertrophy of muscles, produced by replacement of lost protein with fat, which creates the appearance of well developed muscles (Daniels and Davies, 1975 and Fait, 1978).

Early signs characteristic of this type of muscular dystrophy are lordosis (an exaggeration of the lumbar curve), an awkward gait, difficulty in rising from a prone or sitting position, and a tendency to fall frequently (Daniels and Davies, 1975 and Fait, 1978). The initial areas of muscular weakness are the glutials, abdominal, back, and calf muscles. Weakness of the hip abdominal and back muscles



explain the characteristic lordosis and difficulty in rising, while loss of strength and control of lower leg muscles contribute highly to the apparent clumsiness of the child with this type of muscular dystrophy (Sherrill, 1980). The rate of progression is rapid with no remission. By the age of 12 years, extreme disability is usually present (Adams, 1972).

Crowe, Auxter, and Pyfer (1981) have provided a very clear picture of symptoms that give an indication of the Duchenne type of muscular dystrophy:

1. Decreased physical activity, compared with children of commensurate age
2. Delay in the age at which the child walks
3. Poor motor development in walking and stair climbing
4. Little muscular endurance
5. A waddling gait with the legs carried far apart
6. Walking on tiptoe
7. Moving to all fours when changing from a prone to a standing position
8. Weakness in anterior abdominal muscles
9. Weakness in neck muscles, which makes it difficult to sit erect
10. Pseudohypertrophy of muscles, particularly in the calves of the leg, which are enlarged and firm on palpation
11. Pronounced lordosis and gradual weakness of lower extremities (p. 301).

Crowe et al. (1981) stated additionally that as the disease pro-

gresses, imbalance of muscle strength in various parts of the body occurs. Deformities develop in flexion at the hip and knees. The spine, pelvis, and shoulder girdle also eventually become atrophied. Contractures and involvement of the heart may develop with the progressive degeneration of the disease. In general, the later the age at which the disease is observed, the slower it progresses, and consequently, persons who are affected later may perform functional activities longer (Crowe, Auxter, and Pyfer, 1981).

Masters, Mori, and Lange (1983) suggested that the progressive nature of the disease implies that eventually special education and other related services would be called upon to encourage students to the limits of their ability, despite the fatal prognosis.

Facioscapulohumeral type -- The facioscapulohumeral type is the second most common type of muscular dystrophy. The onset of symptoms or signs is generalized recognized between the ages of 3 and 20 years (Arnheim, Auxter, and Pyfer, 1981). The muscles of the face are frequently affected first. Later involvement includes weakening of the muscles of the shoulder and upper arm (Clarke and Clarke, 1975). The course of progression is very slow with plateaus of significant duration and moderate disability. This type of muscular dystrophy is milder than the Duchenne type (Adams, 1972; Arnheim, Auxter, and Pyfer, 1981).

Crowe, Auxter, and Pyfer (1981) reported that with this type of muscular dystrophy, there is also a weakness in the facial muscles and the child may lack the ability to shut the eyes, close the eyes completely when sleeping, whistle, or drink through a straw.

A child with the facioscapulohumeral type of muscular dystrophy often appears to have a masklike face that lacks expression. Later, involvements of the muscles that move the humerus and scapula will be noticed, and weakness usually appears later in the abdominal, pelvic, and hip musculature, and anomalies such as scoliosis and lordosis develop in the spine. However, persons with this type of disease are able to live useful lives (Crowe et al., 1981).

Juvenile type -- The juvenile type has its onset at puberty, and affects males and females equally (Daniels and Dvaies, 1975). Muscle atrophy is more general, with the muscles of the shoulder girdle being affected first. The progression is usually slower than in the Duchenne and facioscapulohumeral types (Crowe, Auxter, and Pyfer, 1981; MDAA, 1959).

Mixed type -- The mixed type of muscular dystrophy may occur between the ages of 30 and 50 years. Involvement is most likely to appear in the area of the scapula and pelvis, and this type of muscular dystrophy may take on many of the characteristics that appear in the pseudohypertrophic type (Crowe, Auxter, and Pyfer, 1981; Daniels and David, 1975).

### Amputation

An amputation has been described by Gearheart (1980), and Grové (1976) as a loss or partial loss of a limb. Amputations, according to them, can be acquired or congenital.

Crowe, Auxter, and Pyfer (1981) made reference to amputation as the removal of some member, part, or body organ through surgery, trauma, or some congenital conditions.

Amputations may be categorized as congenital, traumatic, or elective. The congenital amputation is one in which a body part fails to develop properly during the prenatal period. A traumatic amputation occurs as the result of some violence to the body, whereas the elective amputation is one in which surgery is performed to ameliorate a disease condition or to correct a congenital or traumatic condition (Crowe, Auxter, and Pyfer, 1981). Commonly, elective surgery is conducted for vascular impairments, infection, or, more often, for malignant tumors in children (Adams, 1966).

Of the various disabilities which can result from trauma and disease, the elective amputation is the most traumatic. Not only does the child suffer anxieties about no longer being whole, but efficient use of prosthetic devices demands much effort (Sherrill, 1980). The etiologies of acquired amputations in children in order of incidence are trauma, cancer, infection, and vascular conditions like gangrene. Under trauma, the leading causes of amputation are farm and tool accidents, vehicular accidents, and gunshot explosions. Most of these occur in the age group from twelve through twenty one. Children who lose limbs because of malignancy are also primarily within this group (Sherrill, 1980; Crowe, Auxter, and Pyfer, 1981).

The sites of an amputation are usually amputations, and lower extremity amputations are common descriptions (Crowe, Auxter, and Pyfer, 1981). Figure One, as provided by Garrett and Levine (1962) best describes the usual sites of upper and lower extremity amputations.

Also, depending upon the number of extremities that are affected, amputees are further described as unilateral (one arm or leg affected),

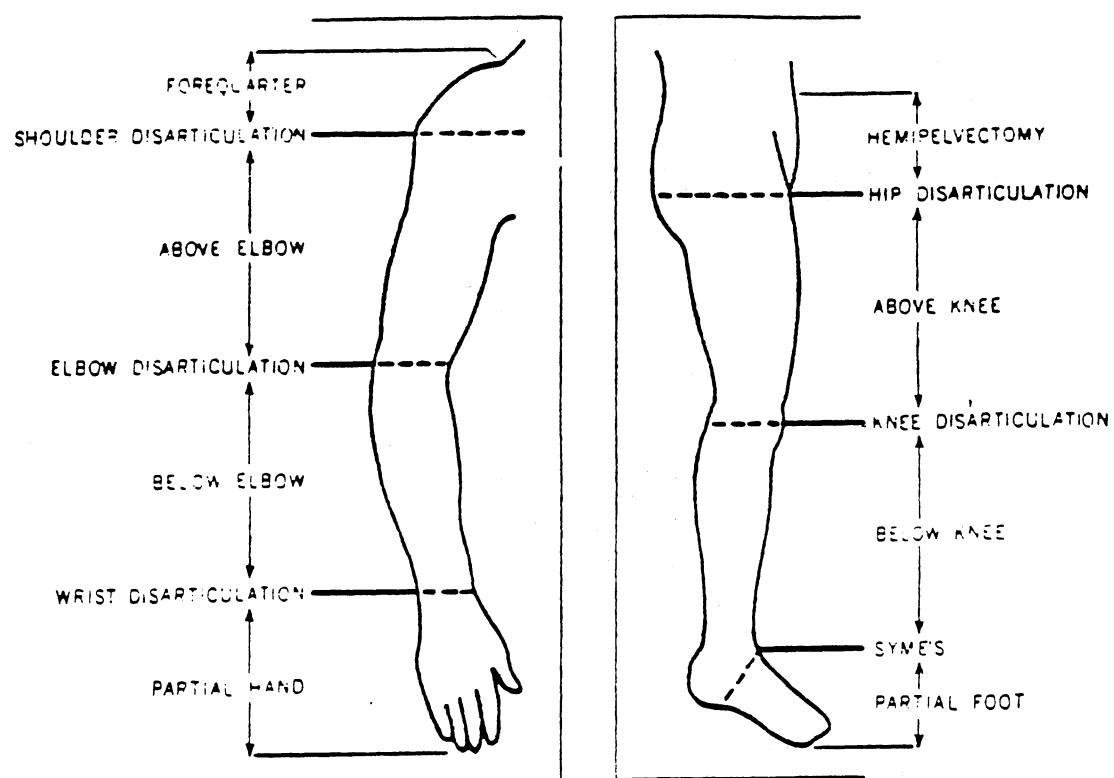


Figure 1. Left: Upper Extremity Amputations;  
Right: Lower Extremity Amputations

bilateral (two arms or two legs affected), double (one leg and one arm affected), or multiple (more than two extremities affected) (Garrett and Levine, 1962).

Upper extremity amputations -- Upper extremity amputations have been categorized primarily into partial hand, wrist disarticulation, Below Elbow (BE), Above Elbow (AE), Elbow disarticulation, shoulder disarticulation, and forequarter (see Figure One).

The loss of any part of an upper extremity is often accompanied by severe functional and emotional consequences. Prehension, tactile sense, and balance are affected (Crowe, Auxter, and Pyfer, 1981).

Gearheart (1980) and Grove (1976) recommended that wherever there is an amputation, a prosthetic appliance must be considered, and to employ a prosthesis a stump must be both free from irritation and be functional. Therefore, sites of amputations become extremely important.

With some exceptions in the hand amputation, a long stump is desirable in order to provide adaptability in fitting a prosthetic appliance. No single artificial arm can fill all the requirements of the amputee. A choice must be made as to which need will be satisfied: cosmetic, heavy labor, or dexterity. Every effort is made by the surgeon to reconstruct hand function and to maintain prehension and sense of touch (Tosberg, 1962).

In an effort to replace some semblance of hand function, various terminal devices have been made for the amputee. The two most common devices are the cosmetic prosthetic hand, having some prehension, and more useful and adjustable split hooks. Control of the artificial

upper limb is frequently provided by steel cables and a shoulder harness (Crowe, Auxter, and Pyfer, 1981).

Lower extremity amputations -- The categories of lower extremity amputations include partial foot, symes, Below-Knee (BK), Knee Disarticulation, Above-Knee (AK), Hip Disarticulation, and Hemipelvectomy (see Figure One).

An optimum site for lower extremity amputation is based on the location and extent of normal tissue, type of function required, placement of prosthesis, and stump appearance (Burnham, 1964).

In a dated but still informative New York University Study (1951), the more common gait abnormalities found with the Above-the Knee amputees were:

1. Lateral bending of the trunk toward the prosthesis
2. Dipping the pelvis on the opposite side when swinging the normal leg through
3. Circumducting the prosthesis in a laterally curved line
4. Raising on the toes of the normal leg in a vaulting movement in order to swing the prosthesis through
5. Permitting an increase in lumbar lordosis when standing on the prosthetic leg.

Sherrill (1980) advised that in addition to guiding the amputee in sports, dance, and aquatic activities, the physical educator should recognize any gait deviations which might develop, and the physical educator should refer the pupil back to the physical therapist and/or the prosthetist. Most gait deviations, according to Sherrill, result from problems with the alignment or fit of the prosthesis. Deviations

to watch for include: rotation of the foot at heel strike, unequal timing, side walking base, abducted gait, excessive heel rise, instability of the knee, terminal impact noise, excessive piston action, foot slap, and rotation of the foot with continuing whip. Deviations caused by instability and weakness of the hip joint or by contractures include lateral bending of the trunk, circumduction, and excessive forward bending of the trunk (Sherrill, 1980).

Adapted physical educators need extra observation of the gait problems of the amputees when directing activities for the amputees.

Crowe et al. (1981) added that phantom pain is a phenomenon that occurs after the loss of an extremity. Sensations such as numbness and "pins and needles" in the lost limb are other common complaints of the amputee (Crowe et al., 1981).

Children with amputations, whether acquired or congenital, should be provided with a prosthesis according to their particular growth and development demand (Salter, 1980). Most authorities (Crowe et al., 1981; Salter, 1980; Daniels and Davies, 1975; and Tosberg, 1962) indicated that the sooner a child is provided with an appliance, the sooner proper habit of locomotion or dexterity can be acquired.

Children with congenital amputations could be fitted with prosthesis as early as 3 months of age. As the child grows, constant attention should be given to the function and fit of the prosthesis. Functioning capabilities of appliance fitted early in life, gradually increases to take advantage of the child's developing neuromuscular abilities. An improper fit might result in poor movement pattern development (Daniels and Davies, 1975).



### Crippling Condition

The term "crippled" is frequently used interchangeably with other handicapping labels such as disabled, impaired, or handicapped. Persons using prostheses, wearing braces, maneuvering wheelchairs, or ambulating with the aid of crutches or canes are also referred to by Sherrill (1980) as crippled.

However, because a crippling condition itself manifest unique orthopedic characteristic as supported by Bureau of Education (1978), and Best (1978), the review of literature on crippling condition is therefore warranted in order to present a clearer understanding of some of the other noticeable conditions apart from cerebral palsy, muscular dystrophy, and amputations.

Crippling conditions can be caused by trauma or bone infections. The crippled are also further described as ambulatory or non-ambulatory, depending upon their independence in locomotor activities (Sherrill, 1980). Trauma can be elective as in the case of bone surgery or accident as in fractures, dislocations, crush injuries, bruises and contusions.

Because the Legg-Perthes disease is a major crippling condition among the disabilities seen in children (Garrett, 1975; Fisher, 1972; and Katz, 1967) it is discussed most in this section of the chapter.

Other crippling conditions are arthrogryposis, a congenital condition with an unknown cause but described by Friedland, Westin, and Wood (1968) as a syndrome of persistent joint contractures present at birth; osteomyelitis, and the bones frequently affected are tibia, femur, and humerus. The symptoms of osteomyelitis according to Sher-

rill (1980) are, pain and tenderness, particularly near the end of the bone in the metaphysical region, heat felt through the overlying skin, overlying soft tissues being hard (indurated), and neighboring joints may be distended with clear fluid. Osteogenesis imperfecta is another kind of bone crippling conditions, and it has been referred to by Siffert (1966) as a brittle bone disorder for which there is an unborn error of connective tissue with consequent deficiencies resulting in bone structure weakness. Osteogenesis imperfecta has several characteristic features including multiple fractures (which occur with less stress than would be expected to produce a fracture on a normal bone), deformity, dwarfism, hearing failure, a blue tint to the white of the eyes, and a triangular facial appearance (Bleck, 1975; Milgram, Flick, and Engh, 1973).

Legg-Perthes disease (Legg-Calve-Perthes disease, coxa plana, coxa plana juvenilis) is a disability that has been described as a self-limiting disease (Garrett, 1975) and is one that is most usual among the disabilities seen in children with orthopedic problems.

Legg-Perthes disease, named after the physicians who first described it, is a disease of the head of femur (growth center of the femoral head) of unknown cause (Best, 1978). A lack of blood supply to this growth center of the femur results in disintegration and flattening of the femoral head at the hip joint. Weight-bearing pressure on the hip area results in a destructive process characterized by slight pain along the thigh and knee. The presence of this slight pain and limp are the first symptoms of the disease process (Best, 1978).

The disease is most frequently seen in boys of elementary school ages; an approximate sex distribution of 80% males and 20% females (Fisher, 1972; Katz, 1967). The age of onset of the disease has been variously reported as "at or just before puberty" (Garret, 1975, p. 6), "during the age period from 4-8 years" (Silberstein, 1975, p. 178) and between 3 and 12 years of age (Fisher, 1972). Although age specificity in detection is important, it is complicated by the possibility of the disease being undetected and unreported for as long as 6 months during the early stages of the disease process (Fisher, 1972).

Treatment success is particularly related to the age of the child, and the "prognosis is most favorable in the younger age group although it does not seem to be related to the duration of symptoms at the time of diagnosis or to the duration of therapy", (Katz, 1967, p. 1050). Treatment is aimed at reducing the weight-bearing pressure of the femoral head in order to eliminate the destructive process and to allow for bone restoration. The three major reported treatment include bed rest; abduction bracing, which allows for ambulation, often with the required aid of crutches; and surgery involving the hip joint and femoral head (Cocchiarella, Challenor, and Katz, 1972; Eaton, 1967; Katz, 1967; Petrie and Bitenc, 1967).

The major concern for the special educators should be focused on the child's avoidance of physical activities that would put weight-bearing stress on the affected hip and on the child's continuation of academic program, and, given the conditions of early diagnosis and successful treatment, children with Legg-Perthes disease have an ex-

cellent chance of being able to participate in the activities of the normal population (Best, 1978)

### Summary

This chapter presented the literature related to the history and status of special education in Nigeria; the United States PL 94-142 and implications for physical education; the legal aspects of tort liability involving handicapped students in physical education and athletics; and the psychological and social problems of physical handicap. A review of the literature on the characteristics of selected orthopedic handicapping conditions was also done.

The information on special education in Nigeria showed that for a long period of time, the entire educational provision in the country, including the education of the handicapped, was dependent upon the Christian missions and voluntary organizations. Government involvement in the education of the handicapped is as recent as the 1960s, and the deaf and the blind were the first handicapping conditions to receive earliest attention. Compared with the United States, Britain and other developed countries, special education in Nigeria is just emerging.

The enactment of 1975 Public Law 94-142 (Education for all Handicapped Children Act) of the United States demonstrates that more handicapped children will maximally benefit from physical education because, as reviewed in the literature, physical education was specifically mentioned as a major curriculum area to be offered in special education. The provisions of PL 94-142 are also far reaching for the handicapped especially in regard to programming, individualized

education program, least restrictive environment, mainstreaming, due process, and evaluation.

Some of the legal aspects of liability involving handicapped students were also reviewed in the chapter, and it has been demonstrated that teachers of handicapped and non-handicapped students need high standard of care and supervision in their duty, more so when teachers are aware of a student's physical impairments and restrictions placed by a student's medical records. It is important for adapted physical education teachers to always check their students medical records, work with other professionals, and plan their programs adequately to avoid court cases and injury to their students.

Mathew's (1967) study is a clear summary of some of the major psychological problems related to physical disability. Five dimensions of Mathew's psychological impact on physical disability are: a feeling of personal rejection; a need to be normal; denial of disability; guilt; and despair. Other problems identified in the review are the problems related to adjustment, lack of adequate physical movements, body image, and negative attitudes of parents, teachers, administrators, and peers.

The information provided on orthopedic handicapping conditions centered on selected handicaps, namely, cerebral palsy, muscular dystrophy, amputation, and crippling conditions because several authors agreed that these are the orthopedic conditions common in schools. Keats (1965) explained cerebral palsy as a term used to designate any weakness, incoordination, or functional deviation of the motor system due to brain damage. Six types of cerebral palsy were identified in

this chapter, namely spasticity, rigidity, tremors, athetosis, ataxia, and mixed type; each type manifesting distinct characteristics. Muscular dystrophy was described as a progressive and generative disease, characterized by weakness and atrophy of the skeletal muscles. Amputation is a loss or partial loss of a limb and could be acquired or congenital. Different kinds of crippling conditions were highlighted in the chapter, and Legg-Perthes disease (a disease of the head of the femur) was reported to be most common among school children.

## CHAPTER III

### OPERATIONAL GUIDELINES

This chapter presents general operational guidelines in the areas of philosophy, goals and objectives; Adapted Physical Education design; and adaptation of activities and facilities for the orthopedically handicapped. Also included in the chapter are information and guidelines on Individualized Education Program (IEP); Mainstreaming; Least Restrictive Environment; and Assessment. The chapter also includes information on selected alternative strategies that may be used for the orthopedically handicapped, such as "Physical Education Opportunity Program for Exceptional Handicapped Learners" (PEOPEL); "I CAN Program"; "Zero-Reject Model"; "Fail-Save Model"; "The Consulting Teacher Model"; and "Diagnostic/Prescriptive Teacher Model". Furthermore, Administration of Adapted Physical Education Services, and Program Evaluation are part of the chapter.

#### Philosophy, Goals, and Objectives

The importance of identifying the philosophy of any program or curriculum has been clearly demonstrated by Powers (1982); Bucher (1983); Zais (1972); Meyen (1978); Tyler (1969); Annarino, Cowell, and Hazelton, (1980); and Gearheart (1974). On the philosophy of physical education for the handicapped, Vannier and Fait (1969); Fait (1968); and Annarino et al. (1980) maintain that the philosophy of Adapted

Physical Education Program is the same as that of the regular physical education program -- to help the student achieve optimum physical, mental, and social growth.

The physical education program, according to Powers (1982), should also endeavor to develop a self-supporting, law abiding individuals by striving toward the four basic goals of self-realization, human relationships, economic efficiency, and civic responsibility. For the Adapted Physical Education program, Powers (1982) added that equality of opportunity with non-handicapped peers should be stressed along with preparations for a healthy and productive life and worthy use of leisure time.

Fait (1978) states that the physical educator for the orthopedically handicapped must understand the division between a physical therapist and a physical educator. The physical educator's program must, according to Fait, be limited to those activities used for leisure time play to promote body conditioning, but not specifically concerned with the correction of the handicap. Similarly, Wheeler and Hooley (1976), and Fait (1978) emphasized that the physical educator, working with the medical team and other professionals, should provide a program of exercises, motor skills and leisure time activities in order to help the orthopedically handicapped improve in body mechanics, so that they can use well the substitute for body parts, whether it be crutches, wheel chairs, or prosthetic devices.

Selected goals that give direction to the physical education program for the handicapped student, and which also translate into objectives for each participant, as outlined by the American Alliance



for Health, Physical Education, Recreation and as adapted by Bucher (1983) are presented below:

- Informing each student of his or her capacities and limitations.
- Providing each student within his or her capabilities the opportunity to develop organic vigor, muscular strength, joint function, and endurance.
- Providing each student with opportunities for social development in recreational sports and games.
- Providing each student with opportunities to develop skills in recreational sports and games.
- Helping students meet demands of day-to-day living.
- Helping students with permanent disabilities in their social development.
- Developing personal pride in overcoming disabilities or other forms of impairment.
- Developing an appreciation for individual differences and being able to accept limitations and still be a part of the group.
- Emphasizing the potentialities of the students (Bucher, 1983; Vannier and Fait, 1969).

Crowe, Auxter, and Pyfer (1981) added that the aim of physical education for the handicapped is to aid them to achieve physical, mental, emotional, and social growth commensurate with their potential through carefully planned programs of regular and special education activities. Specific objectives to help the handicapped students accomplish the goals of the physical education program,

according to Crowe et al. (1981), are as follows:

1. To help students correct conditions that can be improved.
2. To help students protect themselves and any conditions that would be aggravated through certain physical activities.
3. To provide students with an opportunity to learn and to participate in a number of appropriate recreational and leisure time sports and activities.
4. To help students understand their physical and mental limitations.
5. To help students make social adjustments and develop a feeling of self-worth and value.
6. To aid students in developing knowledge and appreciate a variety of sports that they can enjoy as non-participants or spectators (Crowe, et al., 1981, p. 425).

Additional goals of physical education and recreation for the physically handicapped have also been identified by Kraus (1973).

These are:

1. To relieve the families of the disabled, both psychologically and in terms of time commitment, from the need for unremitting care for the physically disabled member of the family.
2. To help physically disabled persons compensate for their specific disability by mastering and finding personal achievement in other areas of activity, in which the disability is not an important factor.
3. To promote healthful physical involvement, and so to prevent further physical deterioration because of disuse.

4. To expand the disabled person's involvement in community life, and to complement other social, vocational, educational or civic involvements in a rounded schedule of activity.

Furthermore, Sherrill (1981) stated that physical education contributes significantly to development in the behavioral domains of cognitive (intellectual skills); affective (feelings, opinions, attitudes, beliefs, values, interests, desires); and psychomotor (motor and fitness performance).

Geddes (1978) suggested a list of cognitive, affective, and psychomotor behaviors to be developed by the handicapped through regular participation in physical education activities:

#### Cognitive (Intellectual) Behaviors

The individual will display the following cognitive behaviors:

- Spontaneous and meaningful nonverbal ways of self-expression
- Improved and elaborated perceptual skills
- Improved communication skills and language development
- Enhanced basic educational skills
- Increased attention span and ability to concentrate
- Better ability to follow directions
- Increased sense of curiosity
- Increased ability to be observant, to remember, to understand, to become more able to evaluate, and to be more willing and able to make decisions
- Improved auditory and visual discriminatory powers
- Increased ability to handle abstractions
- Increased ability to understand rules and regulations of

games and sports

- Improved analytical ability (demonstrated, for example, by judging team performance or keeping score).

### Psychomotor (Physical) Behaviors

The individual will exhibit the following psychomotor behaviors:

- Improved general physical health and appearance
- Better basic perceptual-motor skills
- Improved physical fitness skills
- Improved growth and development progression
- Enhanced posture and body mechanic skills
- Improved physical skills relative to a specific handicapping condition
- Better self-care skills
- Well-developed motor skills and physical proficiencies needed for job situations.

### Affective (Social-Emotional) Behaviors

The individual will demonstrate the following affective behaviors:

- Desirable social skills and abilities
- Characteristics of social independence
- Social skills for acceptance and belonging as an individual in group situations
- Civic-minded skills and concepts
- Respect for the rights of others
- Cooperation and acceptance of responsibilities in group situations

- Leadership and followership quality
- Improved self-image
- Greater levels of courage, self-confidence, and poise
- Increased self-concept and self-actualization
- Joyful participation in wholesome activities
- A feeling of worth and dignity through personal achievement
- Greater feelings of success, accomplishment, achievement, personal fulfillment, adequacy, and self-enhancement
- Greater self-discipline
- Individualism; increased amounts of personal initiative and resourcefulness
- A greater interest in play and recreation that will promote wiser, more constructive, and more wholesome use of leisure time
- Improved self-control and emotional stability
- More perseverance, less distractibility, and better ability to see a task through to its completion
- Improved work habits
- Participation in activities that will promote better mental health through emotional satisfaction, personal adjustment, and spiritual growth
- Acceptance of evaluation, direction, authority, and constructive criticism. (Geddes, 1978, p. 11-12)

Annarino, Cowell, and Hazelton (1980) and Gullickson (1961), have described the general goals of physical education for specific orthopedic handicaps namely, cerebral palsy, amputation, and muscular dystrophy.

Cerebral palsy -- The general goals of physical education for the cerebral palsied child, according to Annarino et al. (1980) are: to facilitate muscular functioning; develop voluntary muscular control; secure muscular relaxation; facilitate motor development; and develop basic motor skills. Other general goals for the cerebral palsied child are: to facilitate the action of contralateral muscles; counter spinal deviations to enhance body alignment; reduce muscular tension, promote body awareness, and perform basic movements (Annarino et al., 1980).

Amputee -- Physical education programs should provide balance activities to counter disruption in equilibrium due to limb loss, stretching and flexibility exercises to inhibit contractures, strengthening exercises to prevent atrophy of the unaffected limb, exercises to promote stump circulation, exercises to reduce weight, gross motor activities, and sports modified to the abilities of the amputees (Gullickson, 1961).

Muscular dystrophy -- Physical education activities are important for the muscular dystrophy to help children stretch muscles, delay onset of contractures, and help maintain strength, endurance, coordination, balance, and cardiovascular functioning (Annarino, Cowell, and Hazelton, 1980; and Gullickson, 1961).

Geddes (1978) recommended that the selection of behaviors or objectives should be dependent on the individual needs or goals of a particular program participant.

## Program Design

A program design has been described by Brown and Cassidy (1963) as an outline for action. The design of a program, according to these authors, is the built-in assurance that the learnings needed by individuals can and will take place. Rebore (1982) also explained program design to mean a process of matching needs with available resources through an effective delivery method.

Bucher (1983) stated that program construction requires the selection, guidance, and evaluation of experiences and activities to achieve both long term and more immediate goals. Program design considers such factors as the participants, the community, the organizations, existing facilities, personnel, time allotments, national trends, and state rules and regulations (Bucher, 1983). Program design sets up a framework for orderly progression and offers a guide to physical education personnel so that they are better able to achieve educational goals (Bucher, (1983).

To start a modified or adapted physical education program for the handicapped, Fisher and Conrad (1983) suggested that the following needs must be addressed:

1. Scheduling -- It must be flexible in order to accommodate the teacher and the facilities.
2. Screening and placement of students.
3. What curriculum will be used.

Furthermore, the necessity to adhere to some principles and guidelines in physical education programming for the handicapped has been clearly emphasized by Daver and Pangrazi (1975), and Cratty (1978).

Daver and Pangrazi (1975) provided the following principles to be considered by teachers when developing curricula:

1. Activities should relate in a sequential manner regardless of the proficiency expected on the student's part. An orderly progression is necessary for the teacher to maintain goal orientation as well as to provide the student with structure. If such sequencing is evident, then both the student and the teacher will be involved more appropriately in the learning environment.

2. Organization is essential to the successful implementation of physical education program. Knowledge on the teacher's part of the number of children to receive services, the extent and nature of their disabilities, and previous curricular arrangements at the school or facility in which one functions are important.

3. The major purpose of writing a curriculum is to give direction and continuity to a physical education program. Without such structure, the potential for successful and progressive programming may be reduced.

4. The goals and objectives expected to be achieved should be arranged in such a manner and sequence as to help teachers and students in their mutual interaction.

5. The curriculum should be varied and should contain different approaches in accomplishing goals and objectives.

6. Children should be actively involved in participation regardless of differing individual skill levels. The teacher should plan for mainstream situations when appropriate. Many times minor changes or adjustments will lead to success for every child in the activity



and not only the average or highly skilled student.

7. Program content should be based upon efficient body movement and fundamental movement skills directed toward the developmental needs of the child. Imperative to such an arrangement is sufficient time for skill instruction, practice, and feedback. The needs of handicapped students should be considered at all times.

Daver and Pangrazi (1975) added that the more planning preceding the implementation of activities, the greater the potential for successful experiences for the handicapped students. Bucher (1983) also suggested five steps involved in program development, namely, (1) determining the objectives, (2) analyzing the objectives in terms of the program, (3) analyzing the objectives in terms of the activities, (4) providing program guidelines and teaching aids, and (5) assessing the program. Each of these steps has been further described by Bucher as follows:

Determining the objectives -- Determining the objectives involves studying such factors as the nature of society, developmental program trends, the learning process, and the needs of the consumer so that objectives may be clearly formulated.

Analyzing objectives in terms of the program -- Having determined the objectives and knowing the characteristics of the consumer, those developing a program can outline and analyze broad categories of experiences and activities and assign related emphases to the various phases of the process. The specialized fields of physical education and athletics should be viewed as part of the total organizational program. Consequently then, specific objective should relate to the

overall objectives of the organization.

Analyzing objectives in terms of activities -- The next step is to focus attention on the activities needed to achieve the set objectives. For example, the physiological needs of the consumer necessitate providing a wide range of physical activities. Growth and development characteristics of children and physical capacities and abilities need to be studied in the school.

Providing program guides and teaching aids -- Curriculum and program guides and teaching aids such as books and visual aids offer opportunities to use educationally sound materials to achieve objectives.

Assessing the program -- Evaluation represents the culmination of the program development process -- what actually takes place in the classroom, gymnasium, fitness center or swimming pool. The learning that takes place and physical fitness achieved, the aids, methods, and materials used, and the outcomes accomplished determine the success or the failure of program development. (Bucher, 1983, p. 374-375)

Similar to Bucher's six steps and more applicable to the orthopedically handicapped are Kaufman's (1975) six steps in the planning and programming process. These are:

1. Assessment of the physical education needs of the orthopedically handicapped child.
2. Formulation of goals and objectives.
3. Identification and selection of appropriate resources for delivery of needed physical education services. (This step includes selecting instructional strategies to insure accomplishment of objec-

tives and selecting appropriate materials related to the teaching strategies).

4. Development of the physical education plan.

5. Establishment of the physical education program (implementation and commitment of needed services and resources).

6. Evaluation of both the physical education plan and program.

In line with Kaufman's first step in the planning and programming principles, Wheeler and Hooley (1976) advised that the physical educator must know and understand his students before the physical educator begins to plan his program. The physical educator, according to Wheeler and Hooley, should also be aware of:

1. Cause of the handicapping condition.

2. Limitations, including those imposed by the medical team.

3. Degree to which the student is dependent upon artificial means of support at rest and in motion.

4. Knowledge of individual differences related to age (at present and when handicap appeared), intelligence, general health, desire to live normally, and lifetime goals.

Best (1978) also contended that every effort needs to be made to analyze the capabilities of the child in order to plan and implement activities that will have a high degree of success probability as possible. Cratty (1969b) has suggested several cautions to be taken in developing physical education activities for children with physical disabilities:

1. Consult the recommendations of the child's physician for the

level of physical involvement that is safe for a specific child. An example of a medical referral form has been developed by the American Alliance for Health, Physical Education and Recreation (1976) (See Figures 2 and 3).

2. Carefully monitor the vigor and duration of the game or activity so as to avoid physical exertion of the child.

3. Avoid excess competition. Past failures may not have developed in the child a sense of sportsmanship or striving for successful participation.

4. Be aware that a game or activity in which a child is excessively motivated may cause the child to move rapidly and/or with less judgement than otherwise.

5. Be aware that game rules may be confusing and not clearly understood by the child because of lack of previous experience in organized activities.

Geddes (1978) added the following suggestions for teaching or leading program participants with orthopedic problems:

1. Work out a carefully planned program of exercises and activities to meet the special needs of the student.

2. Discuss problems with the student, devise means of handling them, and go over the results.

3. Provide frequent periods of rest for those with limited endurance.

4. Provide kinesthetic cues, which may range from a signal, such as a tap on the shoulder, to actually leading the individual through the movements.

## Form 1

Any City Public Schools  
 School Health Department  
 Physical Education Divisions

## Physical Education Medical Referral Form

Dear Dr. \_\_\_\_\_,

(This space can be used for information about state/local physical education requirements, rationale of adapted physical education, objectives and benefits of local programs, organization and administration of local classes, purposes and uses of this form and related areas to improve understanding and communication among physicians, physical educators, parents, and others concerned with and involved in the education, health, and welfare of the student. Procedures for returning the form can be included in this section or at the end of the form.)

Director, School Health Dept.      Division of Health, Physical  
 Education and Athletics

STUDENT INFORMATION

Name \_\_\_\_\_ School \_\_\_\_\_  
 Home Address \_\_\_\_\_ City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_  
 Home Telephone ( ) \_\_\_\_\_ Grade & Section \_\_\_\_\_

CONDITION

Brief description of condition:

Condition is ☐ permanent ☐ temporary

Comments on condition \_\_\_\_\_

If appropriate:

Comments about student's medication and its effects on participation in physical activities

Student may return to unrestricted activity \_\_\_\_\_, 19

Student should return for examination \_\_\_\_\_, 19

FUNCTIONAL CAPACITY

☐ Unrestricted - No restrictions relative to vigorousness or types of activities.

☐ Restricted - Condition is such that intensity and types of activities need to be limited (Check one category below).

☐ Mild - Ordinary physical activities need not be restricted but usually vigorous efforts need to be avoided.

☐ Moderate - Ordinary physical activities need to be moderately restricted and sustained strenuous efforts avoided.

☐ Limited - Ordinary physical activities need to be markedly restricted

Figure 2. Sample Medical Referral Form (Side 1)

### Activity Recommendations

Indicated body areas in which physical activities should be minimized, eliminated, or maximized.

	Maximized	Minimized	Eliminated	Both	Left	Right	Comments Including any Medical Contraindications to Physical Activities
Neck							
Shoulder Girdle							
Arms							
Elbows							
Hands & Wrists							
Abdomen							
Back							
Pelvic Girdle							
Legs							
Knees							
Feet & Ankles							
Toes							
Fingers							
Other (Specify)							

### Remedial

\_\_\_\_ Condition is such that defects or deviations can be improved or prevented from becoming worse through use of carefully selected exercises and/or activities. The following are remedial exercises and/or activities recommended for this student. (Please be specific)

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---



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Signed \_\_\_\_\_ M.D.

Address \_\_\_\_\_

Telephone No. ( ) \_\_\_\_\_

Date \_\_\_\_\_ 19\_\_

Figure 3. Sample Medical Referral Form  
(Side 2)

5. Teach the orthopedically handicapped to fall correctly from crutches, wheelchairs, or unsupported positions.

6. Promote self-acceptance and help to instill confidence.

7. Develop skills and talents that compensate for a physical disability.

8. Provide body awareness activities to compensate for the loss of a limb or lack of mobility.

9. Provide exercise programs that increase range of motion, alleviate contractures, and improve postural maintenance, balance, muscular power, endurance, and coordination.

10. Modify ambulatory or locomotor activities for those with lower extremity impairments.

In addition to the above general guidelines, Geddes (1978) also suggested other specific activity guidelines for teaching the orthopedically handicapped (See Appendix F). Another central issue in curriculum theory and design is the rational planning model developed by Tyler (1949). The major focus of the rational planning model is to explain a rationale for viewing, analyzing, and interpreting the curriculum and instructional program for an educational institution. Tyler raised four questions concerning the rational planning model and, if a physical education program design for the orthopedically handicapped is to proceed, these questions need to be answered:

a. What educational purposes should the school seek to attain?

b. What experiences can be provided that are likely to attain these purposes?

c. How can these experiences be effectively organized?

d. How can it be determined whether these purposes are being attained?

Tyler's (1969) questions can be formulated into the four-stage process by which any program could be developed, that is, stating objectives, selecting experiences, organizing the experiences, and evaluating the experiences. Tyler also developed a commitment to framing prespecified objectives in behavioral terms:

Since the real purpose of education is not to have the instructor perform certain activities to bring about significant changes in the students' patterns of behavior, it becomes important to recognize that any statement of the objectives of a school should be a statement of changes to take place in students (p. 44).

In a further statement, Tyler confirms his position even more:

The most useful form for stating objectives is to express them in terms which identify both the kind of behavior to be developed in the student and the content or area of life in which this behavior is to operate (p. 46).

Although the rationale for prestatating behavioral objectives has been critized by Stenhouse (1971), the behavioral approach to stating objectives has nevertheless, been upheld by Wiseman and Pidgeon (1970); Kane (1976); Mager, 1962); Masters, Mori and Lange (1983); and Mori and Masters (1980). A major prescription of stating behavioral objectives has been outlined by Wiseman and Pidgeon (1970):

These should be set down in clear, unambiguous terms describing the expected changes in behavior. The word behavior is used in this context to cover all activities that can be assessed or inferred. It covers not only the acquisition of knowledge and skills, but also the development of attitudes and interests. It is the expression of objectives in terms of expected behavioral change that distinguishes them from the more general goals that might



be ascribed to a course. These are more vague and more indefinite, and can be thought of more as declarations of intent than descriptions of behavior (p. 101).

Mager (1962) has provided some criteria for specifying good behavioral objectives, and these are:

1. Identifying exactly what the person is doing when demonstrating mastery.
2. Defining conditions under which the behavior is to occur.
3. Identifying a level of minimal acceptance performance.

Masters, Mori and Lange (1983) contended that once objectives have been written, the next step is to identify skill sequence for instruction. Skill sequencing is most important for teaching the orthopedically handicapped. Skill sequences have been described by Masters, Mori, and Lange (1980) as organizational tools that provide structures of objectives or tasks within which varying instructional methods and materials may exist. The use of task analysis for developing instructional programs for the handicapped has been supported by Williams (1975). Williams defined task analysis as a problem-solving strategy designed to identify exactly what to teach (content) and the proper sequence of teaching to enhance the individual's mastery of the objective. Furthermore, task analysis, according to Williams, is designed to break down instructional skills into smaller teaching components in sequential order from the first to the final step that demonstrates accomplishment of a stated behavioral objectives.

According to Williams (1975), the development of a task analysis

generally requires seven steps:

1. Delineate the behavioral objectives.
2. Review instructionally relevant resources.
3. Derive and sequence the component skills of the objective.
4. Eliminate unnecessary component skills.
5. Eliminate redundant skills.
6. Determine prerequisite skills.
7. Monitor student performance and revise the sequence accordingly (p. 229).

Calder (1977) added some other vital principles and guidelines for instructional decision making relating to task analysis:

1. The learner should possess the basic readiness skills needed to ensure some degree of success in the new task.
2. The learner should be made aware of the value and meaning of the new task.
3. The task should be analyzed to determine the difficulties that may be encountered because of any special needs of the learner.
4. The task should begin with familiar experiences and skills and progress to new experiences and skills.
5. The task should be presented in a manner that will provide the learner with a degree of success and satisfaction.
6. The task should be planned and a procedure developed for presenting it to the learner. When possible, the plan should be initiated and executed by the learner.
7. The task should include options that meet the learner's learning style.

8. The task should have flexibility and provide for differentiated assignments in order to meet the individual needs of the learner.

9. The task should be planned to provide the learner with reinforced repetition and practice to ensure retention.

10. The task should provide for constant performance evaluation by the learner, teacher, paraprofessional, or peer tutor.

11. The assignment of a new task should be the result of continuous evaluation of the learner's performance on the present task (p. 13).

Furthermore, preplanned activities resulting from task analysis enables adequate monitoring for a handicapped child's progress throughout the school year (Congressional record, 1975) because of the specificity of what is to be taught. There are several distinct ways in which preplanned activities help handicapped children. Programmed instructional objectives according to Crowe, Auxter, and Pyfer (1981) function as follows:

1. They assist teachers with evaluation of the curriculum so that it may be revised to facilitate the child's learning at a subsequent time.

2. They structure behavior so that there are interrelationships between activities. This facilitates development.

3. They can introduce scientific validity to curriculum materials. This enhances accountability and assists refinement of measures that indicate the child's educational progress.

4. They enable employment of procedures that indicate limits of the child's current functioning on a specific task.

5. They provide opportunities for the child to become a self-directed learner and to have an Individual Education Program in the regular class without undue attention.

6. They enable a comparison between where the child is in the sequence and where the child should be based on chronological age expectancies.

7. They provide information about the strengths and weaknesses of the child so that relevant instructional decisions can be made to meet unique needs.

8. They enable communication with the parents so that instructional programming may be continued in the home.

9. They free the teacher from curriculum construction so that he or she may manage individualized instruction.

10. They facilitate the monitoring of the instructional delivery system.

11. They enable evaluation of instructional techniques through knowledge of measurable learning outcomes.

12. They enable the child to progress continuously when the instructional setting is changed and facilitate the coordination of efforts between the physical educator and those who provide related services.

13. They guide the revision process when changes are made in the Individual Education Program.

14. They expedite the attainment of goals of the Individual Education Program.

15. They assist with appropriate allocation of responsibility,

time, facilities, and other resources among professionals.

16. They enable placement of the handicapped child in regular class where he or she can work independently on the Individual Education Program.

17. They enable the systematic application of principles of learning to behavioral analysis (p. 93-94).

Crowe, Auxter, and Pyfer (1981) argued that analysis of tasks to formulate instructional hierarchies enables measured and systematic organization of education to maximize developmental potential. Pre-arranged, task-analyzed motor behavior that is the target of instruction promotes accountability of the measured educational progress of each child. Such programmed instructional materials enable measurement of the degree of competence when instruction starts (content-referenced measurement). From this point in the task-analyzed activity, meaningful skills can be taught. However, trained teachers are needed to implement such instructional materials. Such a system can facilitate evaluation of teacher performance in relationship to the outcomes of the learner (Crowe et al., 1981).

#### Adaptation and Modification of Activities and Facilities

No program of adapted physical education should be considered complete unless it includes provision for modifying sports and games (Crowe, Auxter, and Pyfer, 1981). Annarino, Cowell, and Hazelton (1980) also agree that the limitations as to levels of participation and unique needs of the handicapped, whether they are integrated in a regular physical education program or in a special program, require

modification and adjustment of conventional strategies.

Logan (1972) proposed that it is not necessary to have special activities, equipment, and facilities prior to offering an adapted physical education program. An adapted physical education program may be provided by any school that offers a regular physical education program, and an adequate program can be offered through the utilization of carefully selected and modified existing regular physical education facilities (Logan, 1972).

Sosne (1972) has set three goals for modification of physical education equipment for the handicapped: a) development of existing physical abilities; b) the enhancement of capabilities; and, c) participation with age peers as part of group recreation and social events. Crowe, Auxter, and Pyfer (1981) suggested that it is desirable for physical education teachers of the handicapped to apply principles of adapting sports activities. The procedures for adapting a sport or game to a handicapped child are as follows:

1. Select and analyze the sport or game to be played.
2. Identify the problems the individual child will have in participating in the sport or game.
3. Select principles of adaptation that may apply to the specific situation (Crowe et al., p. 196).

Coward (1978) suggested the following guidelines for making adaptations:

1. Adaptations should be within a student's ability range. An adaptation should assist a student participatesuccessfully in planned activities within his/her ability range. As a student's skill in-

creases it may be necessary to modify further or eliminate an adaptation to encourage continued progress in student development.

2. Adaptations should allow a student to participate within guidelines established by his/her physician. Adaptations must be made that encourage a student to stay within activity limitations established by his/her physician while at the same time allowing the student freedom to participate within his/her ability. As a student uses an adaptation, attention must be given to possibilities of new problems being created. Since aggravation of other existing conditions is a possibility, frequent reevaluation of an adaptation as used by a specific student is necessary; appropriate adjustments are made when necessary.

3. A student should participate in the development of an adaptation and be positive toward its use. Cooperation between teacher and student is necessary for the development of a successful adaptation. The problem must be studied together to create a successful adaptation that overcomes a student's specific limitations. Ongoing appraisal regarding an adaptation's use is necessary for continued student acceptance.

4. Adaptations should be constructed safely. In planning and constructing a device adaptation, student safety must be uppermost in a teacher's mind. An adaptation should encourage student participation yet be safe for the user as well as other students with whom he/she participates.

5. Adaptations should be made in activities appropriate to the student's age and interests. Each student should have opportunities to develop and use his/her abilities and capitalize upon personal

interests. Since participation with non-disabled peers is a common desire, adaptations should be planned to encourage and allow this type of participation (p. 3).

Added to Cowart's (1978) guidelines are some other factors to consider in modifying or adapting games and activities for the orthopedically handicapped, as recommended by Aharoni (1982); Wheeler and Hooley (1969); Masters, Mori, and Lange (1983); Sherrill (1971); Fait, Shaw and Ley (1969):

1. Be sure to select activities appropriate for each individual or group so that the level of difficulty will be challenging and stimulating.
2. Games and activities should relate to the overall theme for a particular day or week of the adapted physical education unit.
3. Prepare equipment in advance. Make sure that there are sufficient activities to permit flexibility when some games do not work.
4. Attempt new ideas for activities and games. Whether or not they succeed will be learned by trial and error, and will enhance instructor expertise.
5. Vary the same activity to maintain player interest and to facilitate organization. Familiarity with the games increases student understanding, and contributes to active participation.
6. Always consider optimal "positioning" for each student during the game where he/she is most comfortable for efficiency of skill acquisition. Use of devices, modified equipment, moving closer to or further from the target, and approaching the target from either its left or right side are all examples which could improve student per-



formance.

7. Provide short rest periods when necessary for certain individuals or slow down the pace with a less physically demanding activity. Handicapped students might become over-excited during activities, forgetting fatigue or causing possible bodily injury.

8. Ensure fullest possible participation for all students. Let them help in organization of the game or activity; involve them in selecting or suggesting a new game or variation. Give each individual a feeling of being part of the activity.

9. Praise accomplishments, both small or large. Immediate reinforcement is best. It is always important that participation in the activity is rewarding.

10. List and organize all modified games and activities which were attempted and succeeded. Add new ones. This will help increase the activity list, will aid in retrieval as needed, and enable sharing of ideas with other teachers.

11. Provide games and activities which do not eliminate players or require them to wait. One may use the point system instead of eliminating players. If the nature of the game requires player elimination, make sure that such elimination is very short.

12. Be clear, concise, and avoid lengthy explanations. Children learn faster by doing. "The child thinks with the arms and legs."

13. The size, length, or weight of the equipment used for the activities may be increased or reduced, made shorter or longer, etc.

14. The size of the playing area may be reduced to decrease the amount of activity.

15. The size of the team and number of players may be reduced or increased depending on the situation.

16. The height of the equipment may be reduced, e.g., in basketball and volleyball the hoop and nets may be lowered.

17. Rules of the game may be modified or changed in order to decrease the complexity and demand of the activity.

18. Additional adaptive devices may be used with the standard equipment or by the player. These devices may improve body control and enhance use of the equipment.

19. Boundary lines of the target or playing area may be enhanced by adding line markers, such as cones, colored tape, etc. This will increase visibility and provide safety for the activity.

20. A more able player could be paired with a less able player in such activities as folk and square dancing where the walker might push one who is non-ambulatory.

21. The time to play the game may be reduced.

22. Increase the ratio of adults to players, or of non-handicapped students who may assist in the activities.

23. Permit body positions such as sitting which increase stability in games usually played in a standing position.

24. Allow two hands instead of one where accuracy or power are involved.

25. Change standing position in such games as table tennis or bowling to a sedentary position in a chair or wheelchair.

26. Revise the techniques of performing a skill to protect a weak or injured area.

27. Eliminate the requirements of a game or skill which may aggravate a condition.

28. Exercise safety precautions.

Gearheart and Weishahn (1976) suggested that because many children with cerebral palsy, muscular dystrophy, spina bifida, and other crippling conditions need braces, crutches, or wheelchairs, teachers should be acquainted with the purpose, care, and maintenance of the devices used by students with handicapping conditions. Furthermore, in order for the handicapped to be able to function successfully in a society, Neibauer (1983) recommended that necessary changes or modification have to be made to existing buildings and vehicles. Referring to California State Administrative Code, Niebauer (1983) added that the accessibility requirements for the handicapped affect modifications of doorknobs, bars and handles; fire alarms; intercommunication units; door thresholds; carpet construction and thickness; electrical outlets; light switches; drapery/curtain pull cords; glass doors; desk height; chair height; door widths; wash basin in classroom; drinking fountain; toilet stool height and location; grab bars placement; toilet stall openings; toilet stall interior minimum clearances; lavatory location; urinal locations; auditorium seating-floor slope; auditorium seating clearances; serving line facilities in cafeteria; size and location of gym lockers; elevator/lifts-door opening; interior clearance, and stairway handrails. Other accessibility requirements referred to by Niebauer are parking; ramps and handrails; walks and sidewalks; sidewalk gratings; entrances to athletic fields; tennis court gate widths; pool deck; and water entry facilities.

Niebauer (1983) maintained that the adapted physical education specialist must take the initiative to make recommendations for the necessary building changes and modifications.

### Individualized Education Program

Several educators (Cratty, 1980; Auxter, 1977; Best, 1978; Baker, 1982; Crowe et al., 1981; Powers, 1982; Cohen, 1979; Calder, 1977; and Groves, 1979) have expressed the desirability of planning an individualized education program for every child receiving specially designed education services.

The Individualized Education Program (IEP) is a written statement of the regular and special education instruction the child is to receive (Bureau of Education, 1978). The purpose of any IEP have been clearly identified by Gagne and Briggs (1979) as follows:

1. To provide a means for assessing the entry skills of pupils.
2. To assist in finding the starting point for each pupil in a carefully sequenced series of objectives.
3. To provide alternative materials for adjustment to various learning styles of pupils.
4. To enable pupils to learn at their own rates, not at a fixed pace for the entire groups.
5. To provide frequent and convenient progress checks so that pupils do not become "bogged" down with cumulative failures. (p. 261)

In the United States, the IEP is legally binding for all teachers offering special education services for handicapped children.

Furnal (1978) has provided very important guidelines for the IEP components as related to physical education:

IEP ComponentsImplications for Physical Education

Statement of student's  
present level of  
performance

A statement of the student's level of performance is written when an IEP is first developed. This statement helps to formulate annual goals and short-term instructional objectives. It is obtained by formal and/or informal assessment techniques that provide the clearest possible picture of the student's present levels of performance, including physical and motor development. This is the foundation for the child's IEP.

Statement of annual  
goals

In physical education as well as in other curricular areas, annual goals are designed to habilitate or rehabilitate a pupil's weaknesses after they have been assessed. Annual goals are broad in nature and give direction for the individual's educational program (e.g., a child is classified as a nonswimmer and his/her annual goal might be to swim the length of the pool without aid).

Statement of short-term  
instructional objectives

These give specific objectives and are in reality intermediate steps in reaching the annual goals of the IEP. They may be a specific game, fitness activity,

movement pattern, or aquatics activity. These objectives should have a content-referenced base that permits analysis of pupil progress from day to day (e.g., the nonswimmer might have as short-term objectives (1) acquire knowledge of 7 out of 10 safety rules in the pool and (2) kick one complete width of a 50 by 25 meter pool, using a kickboard and the scissors kick).

Statement of specific  
media, materials, and  
supportive personnel

The handicapped student may need specific audiovisual aids to help in being successful in learning experiences. Media in physical education could include movies, videotapes, slides, or transparencies of an activity being taught. Specific materials refer to the adaptation of equipment or the use of special testing devices to meet the needs of a handicapped individual (e.g., in swimming one may need to purchase bubbles or flippers for the orthopedically handicapped). Specific supportive personnel include teacher aides, speech therapists, physical therapists, occupational therapists, and special physical educators, among

others. These extra personnel may make all the difference in the type of educational placement chosen and the ultimate success of the handicapped child (e.g., the only help a primary student may need to participate successfully in a mainstreamed physical education setting is a teen leader).

Specific date services  
will begin and their  
duration

A statement must be provided to designate when the supportive services (e.g., special physical education consultant) will start and when they will end. The dates are applicable to both annual goals and short-term instructional objectives. It does not mean the instructor is responsible if the goals are not achieved at the end of a specified time period.

Specific statement of  
participation in  
regular education  
programs

The handicapped student should be placed in a class that is best suited to meet his/her needs. Common examples in physical education include a situation where the student may be totally mainstreamed without support or assisted by a full-time aide in a mainstreamed setting. In another situation, the student can be taken

out of the mainstreamed setting when additional help is needed and brought back when participation can be successful (flexible schedule).

#### Specific evaluation

requirements (criteria, procedures, scheduling)

Postevaluation is conducted to assess the

handicapped student's progress. The scheduling is usually done on a quarterly basis, and specific accountability-based objective criteria are stressed, using exact numbers (e.g., sink two out of every five free throws on request, using a junior-sized basketball). There are different evaluation procedure options:

1. A content-referenced type deals with the individual's progress from day to day. In this type, progress is continually recorded (e.g., standing long jump distance improved 1 inch every day this week).
2. Standardized instruments compare the handicapped student's progress with peers of the same age and sometimes the same characteristics (e.g., the 25th percentile on a 600-yard run-walk for a 15 year old, visually impaired girl might be 5:15).



3. A criterion-referenced procedure is evaluation based on an external variable, such as a grade.
4. Informal evaluation techniques are also used frequently in physical education. These consist of observations, anecdotal records, case studies, rating scales, and self-evaluations. These latter techniques are not as scientific, but are realistic, simple, and sometimes helpful.

The physical educator's involvement in the IEP planning conference

The physical educator may or may not be asked to help in planning a handicapped student's IEP. The physical educator should, however, make sure that he/she is at least consulted in reference to present level of performance data and reasonable objectives that should be established in the area of physical education. The idea of the IEP is to establish a written guide (not a contract) in order to give the handicapped child the best possible education. The physical educator is the expert in physical education and should be the best qualified to develop the program for the handi-

capped student in that required area.

(Furnal, 1978, p. 21-34)

Safer, Kaufman, Morrissey, and Lewis (1980) stated that the IEP will result in changes in the role of special physical education teachers' professional job requirement by (1) allowing less time for the direct instruction of children, (2) sharing the responsibility for classroom activities, (3) increasing accountability to outsiders, (4) increasing demands on personal time, and (5) necessitating new requisite skills.

The IEP is developed at an (IEP) conference by a committee whose membership must include:

1. A paid professional of the school (usually a principal or counselor)
2. The child's teacher or teachers
3. One or both parents, and
4. The child when appropriate (Bureau of Education, 1978).

The written IEP should include the following six items and should be clearly written on the IEP form (See Figure 4 for a sample of IEP form):

1. The child's present level of performance in each curricular area;
2. Long range goals and short term objectives;
3. A specification of the special educational services and materials which will be provided to help accomplish these goals;
4. A statement of the extent to which the child will be integrated with nonhandicapped children in regular school programs;

## INDIVIDUALIZED EDUCATION PROGRAM FORM

1. Child's name \_\_\_\_\_ Date prepared by committee \_\_\_\_\_  
School \_\_\_\_\_ Class \_\_\_\_\_
2. Summary of present levels of performance
3. Prioritized long-term goals
4.
  - a. Short-term objectives
  - b. Special education, regular education, and related services
  - c. Person responsible
  - d. Beginning and ending dates
  - e. Review date
5. Placement decisions
6. Percent of time in regular classroom
7. For the committee recommendations for specific procedures/techniques, materials, information about learning style, etc.
8. Criteria for evaluation of annual goals
9. Committee members present
10. Dates of meetings

Source: Anthony, A.A., Cowell, C.C., and  
Hazelton, H.W. Curriculum Theory  
and Design in Physical Education.  
St. Louis: C.V. Mosby, 1980.

Figure 4. Individualized Education  
Program Form

5. A timetable of when special services will begin and how long each service or program will be offered; and

6. A statement of when and how the child's performance and effectiveness of the plan will be evaluated (Bureau of Education, 1978).

Powers (1982) provided the following guidelines for designing an IEP form:

1. Accommodation of full service information
2. Content flexibility
3. Emphasis on retrieval of program related information
4. Effectiveness without repeated use
5. Provision for full participation
6. Utilization without extensive training
7. Cumulative and program based qualities
8. Sustaining nature
9. Format considerations.

Moran (1977) recommended that in planning an IEP interagency coordination should be an integral part of the IEP process. Moran offered the following guidelines:

1. Provide all people involved in coordinating staffing with a list of agencies including the name of agency, address, telephone number and name of contact person.

2. Include a statement on the parent permission form that the IEP will be developed (finalized) during the first 30 days a student is in the program.

3. Have parent(s) sign the IEP stating that they were involved, or had the opportunity for involvement.

4. Invite in writing representatives from agencies working with the child to attend the staffing. Request input (as per confidentiality) when representatives who are unable to attend.

5. Designate who or what agency is responsible for accomplishing or working on each goal and objective.

6. Establish a means of communication for review of IEP - continuous? Periodic? Annual?

7. Provide a copy of the IEP to everyone working directly with the student.

8. Notify parents of availability of the IEP if they desire.

9. Design referral forms so they are useful for all agencies involved. (p. 139)

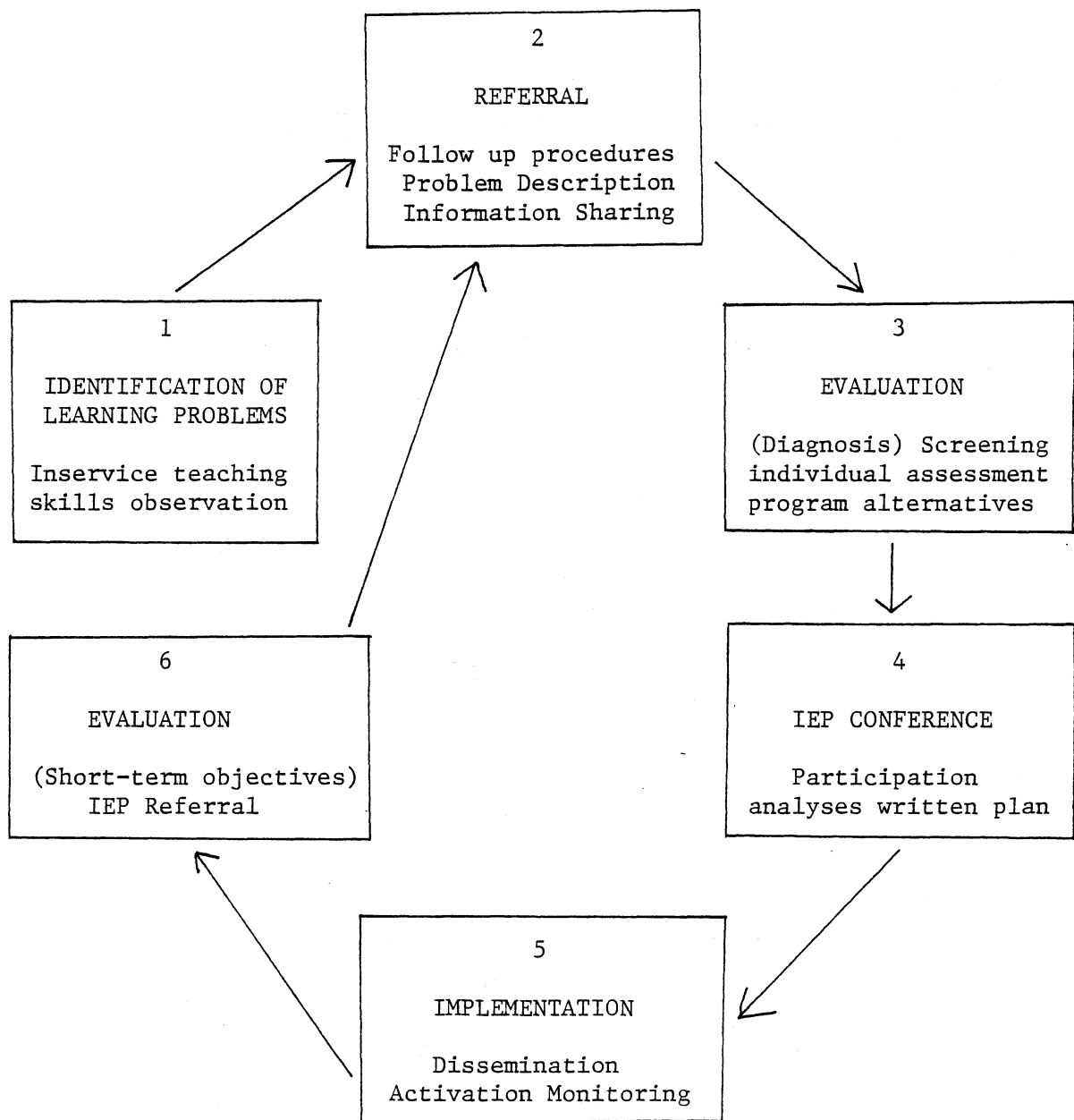
Another approach for developing an IEP has been provided by Meyen (1978). Meyen's six steps of developing an IEP can be used as a frame of reference for developing an Individualized Education Program for the orthopedically handicapped children. Figure 5 further illustrates Meyen's (1978) approach:

Step 1. Identification of learning problems. This remains the initial step in determining whether or not a student's problem is brought to the attention of appropriate personnel.

Step 2. Referral

Step 3. Evaluation is broadened to include an extensive review of the available service alternatives required to meet the student's needs.

Step 4. The IEP Conference replaces the instructional placement decision step. Previously collected data and program needs are pre-



Source: Meyen, E.L. Exceptional Children and Youth: An Introduction. Denver: Love Publ. Co., 1978.

Figure 5. The IEP Process

sented. A written plan is prepared.

Step 5. Implementation becomes a more comprehensive step in terms of the IEP, as the plan must be disseminated to all persons who will participate in the student's program. The plan is actually put into effect at this stage. Each participant is required to monitor the student's performance and to make any necessary modifications to the plan. This is the "service delivery" stage.

Step 6. Evaluation is repeated as a final step in the cycle. The intent is to determine student progress and the IEP's general effectiveness. During Step 3 the evaluation emphasis continues but focuses on achieving short-term objectives. In this step a decision must be made on the IEP's overall effectiveness. The decision may be to continue the IEP with minimal modification, or to initiate a referral to obtain additional evaluation services (Meyen, 1978, p. 30). An understanding of the IEP concepts, procedures and strategies is very necessary in order for the physical education teacher to maximize the physical education potentials of the orthopedically handicapped.

### Mainstreaming

Mainstreaming is based on the philosophy of equal educational opportunity that is implemented through individual planning to promote appropriate learning, achievement, and social normalization (Stephens, Blackhurst, and Maglioca, 1982). Mainstreaming is a relatively recent development of special education (Stephens et al., 1982) and the concept of integration, according to Cohen (1979), denotes the

provision of educational settings which serve the handicapped and nonhandicapped in ways which are more similar than different. A key goal of integration, Cohen contends, is to facilitate the possibility of considerable interaction between handicapped and nonhandicapped children. Interaction can help reduce alienation and prejudices, expose children to a wider range of personal and learning experiences, help children develop positive self-images toward themselves (Cohen, 1979).

Supported by parents and educators and mandated by legislation in the United States, the moving of handicapped children from their segregated status in special education classes and integrating them with normal children in regular classrooms gives promise of a more humanistic education for all children -- handicapped and nonhandicapped alike (Dowd, 1977). Many sensitive educators, according to Carpenter (1976), maintain that totally separate educational practices for the handicapped not only fail to assure that any sort of special needs of these children are met, but do, in fact, assure that many needs common to all children are not met.

Because of the recency of advocating mainstreamed settings for handicapped children, Mitchels (1981) maintained that mainstreaming for the handicapped can be considered an adventure; a voyage into the unknown for the regular teacher and the handicapped child. It may be that mainstreaming is not the least restrictive setting for persons with multiple handicaps. Therefore, placement in a mainstreamed class should be accomplished only after careful analysis of individual needs (Mitchels, 1981).



Mitchels (1981) viewed the advent of PL 94-142 as promoting awareness of the handicapped individual simply because increased numbers of special children are being mainstreamed into regular classes and schools. Amos et al. (1977) sought the perceptions of 335 principals, regular classroom teachers, and special education teachers regarding their reaction to classes with mainstreamed handicapped individuals. Their findings indicate a need for cooperative planning and developing a rationale for mainstreaming during upcoming school years. It is the special educator who often assumes responsibility for providing guidance to the community and regular educators about the individual needs of the handicapped person. Kindred (1976) also suggested that mainstreaming will be more successful if administrative support is established. This allows for staff orientations to acquaint regular classroom teachers with techniques in working with handicapped children as well as a means of appropriating funds for necessary supplies.

Jones, Gottleb, Goskin, and Yoshida (1978) identified the three aspects of mainstreaming that can contribute to its effectiveness: the removal of labels, desegregation, and more effective programming. In addition, the socialization gained through mainstreaming has many benefits in promoting positive relationships between handicapped and nonhandicapped students (Weinberg, 1978). Weinberg continued his observations by stating that as contact between the able-bodied and disabled is increased, stereotyping of the disabled diminishes. He also noted that increased contact between the two groups resulted in increased perception of their similarities. Rumble (1978) indicated

that mainstreaming had a positive effect on the attitudes held by teachers toward handicapped children.

The concept of mainstreaming is predicated on the application of the developmental concept, which implies that each individual is unique with respect to specific abilities. Since the abilities of each individual are at different developmental levels, the developmental concept cannot be applied unless there is individualization of instruction. If individualization of instruction is practiced, there is less need for homogeneous grouping, allowing handicapped children to be educated in the mainstream of education (Crowe, Auxter, and Pyfer, 1981).

Wilcoxon and Burstein (1983) argued that a child placed in the least restrictive environment does not provide interaction with normal peers or access to the regular education program. This child, according to Wilcoxon and Burstein, has to be functionally, not just physically, integrated for mainstreaming to occur.

Bucher (1983) pointed out that mainstreaming has the following additional advantages:

1. Some psychological testing has been questioned and tests that have labeled many students as retarded have proved to be unreliable; therefore, many of these students should be in regular classes.

2. Fiscal considerations encourage mainstreaming, because special education with segregated and special classes increases educational costs.

3. Classifying and segregating handicapped students who are retarded results in labeling and cause harm to children.

4. The research does not convincingly show that handicapped children advance scholastically faster when segregated than when grouped with children in the regular classroom.

5. The American way suggests an integration of all types of children into the classroom situation.

6. Many educators are convinced that the nonhandicapped child gains in understanding by exposure to handicapped children.

7. Handicapped children benefit socially and emotionally when they are a part of regular classes. (p. 125)

Moran (1977) expressed the view that the questions of the effects of mainstreaming and integration within the recreational and physical education settings have not been properly analyzed. Physical education and motor skill acquisition in a mainstreaming environment has not been studied carefully, Moran maintained.

However, Moran and Kalakian (1977) suggested that mainstreaming should carry over into recreational and physical education settings for the handicapped. Moran and Kalakian therefore provided the following guidelines for mainstreaming:

1. All decisions to mainstream should be accompanied by decisions to provide comprehensive instructional support systems for the children and teachers involved. The support systems should come from both general and special education.

2. Not all handicapped children will benefit from mainstreaming. Children to be involved should be selected carefully, based on recommendations of persons thoroughly familiar with their educational and social readiness to go into regular programs. The mildly handicapped

should be the first group considered for mainstreaming, when they are ready and to the degree possible.

3. Mainstreaming plans should be developed at the school building level. Frequently, the total social organization of the school must be changed if mainstreaming is to be effective. Architectural barriers may need modification or removal. Many schools differ substantially in terms of administrative policies, personnel attitudes, student population, and parental attitudes and involvement. The particular climate in the school will determine how mainstreaming will be incorporated into the existing educational system.

4. Participatory planning is one of the most important elements in mainstreaming efforts. All personnel (regular and special) who will be involved with handicapped children should be allowed to participate in the planning of the program.

5. If regular classroom teachers are made responsible for exceptional children in their classrooms, they must also be allowed to help make decisions related to the kind and amount of special education support they, or the child, are to receive.

6. No mainstreaming effort should be attempted without serious attention given to the provision of in-service education for the staff involved. A systematic in-service education program will be needed by both special and regular personnel in the school.

7. The procedures for providing instructional support in each school should be carefully delineated. In addition, a detailed description of the type of support services provided in both the school and the school district should be developed. This practice will en-

hance staff communication in both the school and school district and will provide a basis for a student accounting system. It will create an educational environment which encourages exchange between colleagues, helps educators grow professionally, increases professional contact, and creates mutual help among classroom teachers and specialists.

8. Develop a pupil accounting system as a part of the mainstreaming plan. This accounting system should provide a cumulative record of numbers of children served, type of service provided, who provided the service, and for what duration the service was provided. This form of accounting allows the school staff to monitor their own activities and determine if they are providing the kind of service intended. The accounting system is also useful to the personnel responsible for program administration.

9. Obtain data to evaluate the child's progress in relation to established objectives to determine if the mainstreamed environment is meeting these objectives. Other important variables, such as teachers' attitudes toward the program, should also be evaluated. Data obtained should be used to remedy problem areas in the program.

10. Report the results obtained from the program to administrators, teachers, parents, and the community. (p. 404-406)

Bucher, (1983) added the following as principles that apply to mainstreaming:

1. All students should be provided satisfactory learning experiences, whether they are nonhandicapped or handicapped.

2. Class size should be such that all students can receive an

adequate educational offering and effective teaching.

3. Facilities should be adapted to meet the needs of all students, including the handicapped (such as providing ramps, if necessary).

4. Mainstreaming should be used only for those students who can benefit from such a practice. In other words, some handicapped students may benefit more from special classes.

5. Periodic evaluation should take place to determine objectively the effectiveness of mainstreaming in terms of students' progress.

6. Adequate supportive personnel, such as a speech therapist or a person trained in physical education for the handicapped, should be provided for handicapped students.

7. The administration should support the program and make it possible for those teachers involved in such a program to have the necessary instructional supplies, space, time, and resources necessary to adequately do the job required.

8. Adequate preservice and inservice teacher preparation should be provided for all teachers who will be involved in working with handicapped students.

9. To assure full public support, the school should carry on an adequate public information program to ensure that parents, the community, and general public are aware of the program, its needs, and what it is doing for children. (p. 407)

Avedon (1974) presented a continuum model of mainstreaming handicapped people, based upon five levels of programming, with each level

being "regarded either as a step to the next or as the optimum level of performance in social and recreative activity that can be expected for a given participant" (p. 100):

Level 1. Programming for the isolated person who has had little or no opportunity to be with others outside the home and is directed toward the development of psychophysical skills and mastery over inanimate objects.

Level 2. Programming for the secluded person who has had some opportunity to acquire recreation, knowledge, skill, and experience, with the individual being provided opportunity at a community facility if limitations permit.

Level 3. Programming for the limited person who has had successful recreation experience with a few nondisabled peers and has been able to use at least one neighborhood recreation resources, with the individual being provided opportunities to join ongoing interest groups and clubs available to nonhandicapped persons within their own neighborhood recreation centers.

Level 4. Programming for the person who has been able to use some of the recreation resources of their home neighborhood, with arrangements being made for expanded social interaction with nonhandicapped persons.

Level 5. Programming for the independent person who has had successful interaction with many nondisabled peers in his own neighborhood, with recreation personnel providing information and referral to facilitate broader use of recreation resources.

Moran (1977) supported Avedon's (1974) model and added that the

emphasis on the model is on participation skills and abilities, the environment of acceptance, the disabled, and a continuum into which the disabled and nondisabled may fit at any particular point in time. Avedon's model may be used as mainstreaming programming steps for the orthopedically handicapped.

#### Least Restrictive Environment

The least restrictive environment concept according to Meyen (1978) requires that educators specify educational goals and instructional objectives for handicapped children and youths based upon their individual needs. After the instructional program for a handicapped child has been identified, the educational settings for program implementation must be selected. This setting is to be least restrictive, or most normal appropriate -- based on the needs of the handicapped child (Meyen, 1978).

Placing children in the least restrictive environment does not mean the mainstreaming or the placing of all handicapped children into regular classes. The least restrictive environment provision of United States Public Law 94-142, according to Bureau of Education (1978), requires that handicapped children be educated in the most normal environment in which they can potentially succeed as students.

Cratty (1980) stated that:

The concept of least restrictive environment, while seemingly expressed in simple words, in reality implies a rather complex planning and professional operation. Adapted physical education teachers should both (1) understand the flexibility and complexities implied by the concept and (2) be prepared to have their professional expertise to bear on the implementation of the concept as reflected in programming for the exceptional child (p. 20).



The variety of educational settings which complete the continuum of least restrictive to most restrictive placement include special classes, resource rooms, consulting teachers, tutors, homebound instruction, and other similar arrangements (Bureau of Education, 1978). Cratty (1980) stated that the physical educator has an obligation to understand and be aware of the range of alternatives that may arise. The implications of this for the orthopedically handicapped have been adapted from Powers (1982) as follows:

1. Physical educators should have at their disposal a range of services available to meet the unique physical education needs of the orthopedically handicapped children.
2. Physical educators should be aware of, and use hard evaluative evidence to understand the heterogeneity of the physical capacities and abilities of the orthopedically handicapped students.
3. Physical educators should be present and involved at all meetings and hearings in which the educational placement of the orthopedically handicapped child is discussed.
4. Discussions and consultations should be preceeded by valid and thorough assessment of the movement needs of the orthopedically handicapped child conducted together with other specialists concerned with psychomotor development.

To make a physical education environment least restrictive, AAHPER (1977) recommended the following:

1. Careful consideration and appropriate thought be given to adaptations and modifications of methods and devices so that individuals can take part with their classmates.

2. Difficulties and problems of individual students might have been anticipated so that progressions and sequence can be broken down further and developed to assist these students in overcoming such problems.

3. Teachers/leaders recognize that no matter how specifically progressions and sequences are developed they will always have to be refined further and broken down more to meet needs of specific individuals.

4. Curriculum and program progressions and sequences be looked upon simply as guides and not absolutes if true and meaningful individualization is to result.

5. Teachers/leaders are also individuals with their interests, abilities, background, and hang-ups which affect the instruction of students.

6. Teachers/leaders are individuals working with individuals so that there is no one or magic formula to guarantee success.

7. Emphasis must be on the learner and learning, not the teacher and teaching. (p. 7)

#### Assessment

Although the literature does not contain many instruments with which to assess or evaluate the physical capacities of the orthopedically handicapped (Cratty, 1980), the adapted or special physical educators should attempt to assess the more gross components of the behaviors of the orthopedically handicapped persons that permit or restrict their performance of various recreational and sports skills (Cratty, 1980).

Cratty (1980) further justified the need for assessment of the orthopedically handicapped by adding that the assessment of the orthopedically handicapped can do and what they will do. Marrau and Coulter (1977) described the two functions of assessment as identification -- placement, and intervention-programming.

Frost and Marshal (1981) added the following specific assessment responsibilities for which physical educators must be prepared for:

1. To diagnose in some detail an individual's strengths and weaknesses, abilities, and differences, as well as his or her potential for development.
2. To classify and group individuals on the basis of test and examination results.
3. To assist in determining and establishing instructional objectives and long-term goals for each handicapped individual.
4. To assess progress on the basis of the best available tests and measurements.
5. To assist individuals to become motivated to grow and develop according to their potential.
6. To assist with the determination of the effectiveness of the various methods and approaches in physical education classes and in working with individuals.
7. To record and organize the results as indicated by testing and observation. (p. 123)

Annarino, Cowell, and Hazelton (1980) argued that the effectiveness of any individualized education program for the handicapped is based on assessment techniques that (1) provide data relative to the

student's preentry skills, (2) monitor progress and, (3) evaluate achievement. Preentry assessment, according to Annarino et al., is used for formulating the child's long-range goals, and short-term instructional objectives and developed for attaining these goals.

Some authors (Barrow and McGee, 1979; Dizney, 1971; Ebel, 1978) use the terms evaluation and assessment interchangeably. Seaman and Depauw (1982) described four basic concepts of the process of assessment in adapted physical education and their relationship to each other (See Figure 6). The definition of these terms as related to the assessment process within special education are:

1. Testing is a data gathering technique that uses tools or specific procedures for systematizing observations. Testing may be either formal or informal.
2. Measurement is the process which helps determine the degree to which a person possesses a defined characteristic (Baumgartner and Jackson, 1981).
3. Assessment involves interpreting the results of measurement for the purpose of making decisions about placement, program planning, and performance objectives (Seaman and Depauw, 1982).
4. Evaluation is the process that uses the results of measurement to compare with predetermined standards to facilitate rationale decisions (Seaman and Depauw, 1982).

The United States Public Law 94-142 as reviewed in Chapter Two, recognizes the importance of assessment and evaluation of the handicapped. According to Bureau of Education for the handicapped (1978), the assessment and evaluation of the handicapped should include physi-

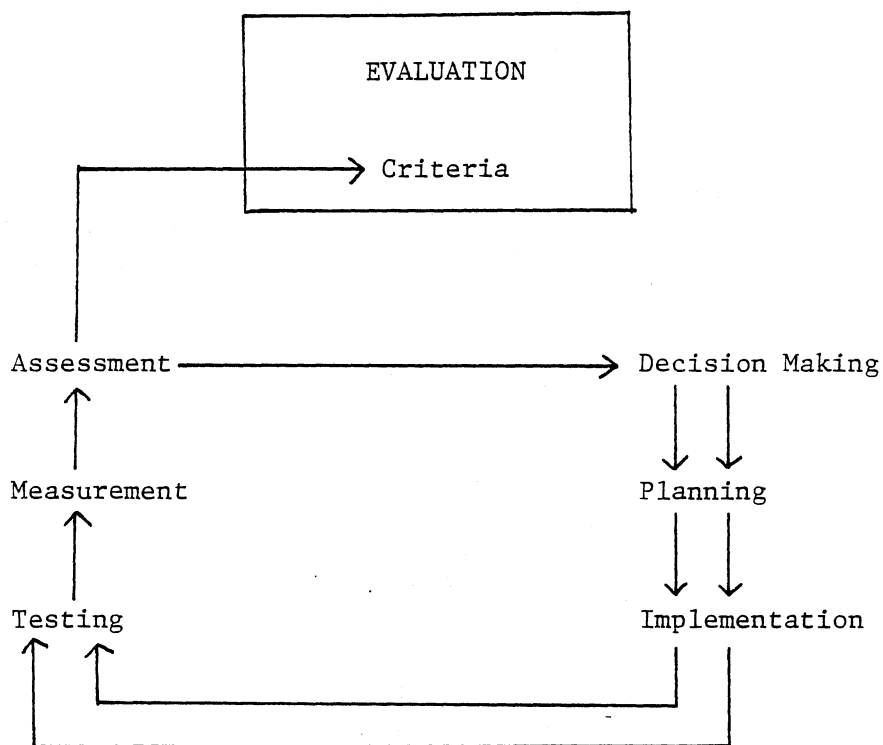


Figure 6. The Relationship Between Testing, Measurement, Assessment, and Evaluation

cal and motor fitness, fundamental motor skills and patterns, and skills in aquatics, dance, individual and group games and sports including intramural and lifetime sports. The Bureau added that rules and regulations for the U.S. PL 94-142 require that tests and other evaluation materials:

1. Are provided and administered in the child's native language or other mode of communication, unless it is clearly not feasible to do so;
2. Have been validated for the specific purpose for which they are used; and
3. Are administered by trained personnel in conformance with the instructions provided by their producers:
  - a. Tests and other evaluation materials include those tailored to assess specific areas of educational need and not merely those which are designed to provide a single general intelligence quotient;
  - b. Tests are selected and administered so as best to ensure that when a test is administered to a child with impaired sensory, manual, or speaking skills, the test results accurately reflect the child's aptitude or achievement level or whatever other factors the test purports to measure, rather than reflecting the child's impaired sensory, manual, or speaking skills (except where those skills are the factors which the test purports to measure);
  - c. No single procedure is used as the sole criterion for

determining an appropriate educational program for a child; and

- d. The evaluation be made by a multidisciplinary team or group of persons, including at least one teacher or other specialist with knowledge in the area of suspected disability.
- e. The child is assessed in all areas related to the suspected disability, including, where appropriate, health, vision, hearing, social and emotional status, general intelligence, academic performance, communicative status, and motor abilities. (p. 20)

Dubose, Langley, and Stagg (1979) identified characteristics and guidelines found to be most desirable in instruments used in assessing handicapped children. These include:

1. They should be easily obtained and simply scored.
2. They should possess adequate validity and reliability.
3. The items should be primarily manipulative in nature.
4. Scoring should be minimally dependent upon the child's speed of performance.
5. The items should be adaptable across handicapping conditions.
6. The instrument should yield data immediately transferable into sequentially planned developmental activities for educational programming. Although, individually there are no physical education tests which possess all the above desirable qualities, (Powers, 1982) careful selection of several instruments or parts of them may provide

the examiner with a relevant battery for determining current physical and motor abilities of the orthopedically handicapped.

Because of the importance of assessing physical and motor domains of the handicapped in an adapted physical education program, the AAHPER (1978) provided the following implications of assessment and evaluation provisions for the physical and motor domain:

1. Give necessary instructions for leisure assessment, physical fitness, motor development, skills, and other tests in child's primary language if other than English.
2. Recognize positive and/or negative effects of particular disabilities on physical and motor function and performance in individual children as well as the positive and/or negative effects of physical and motor activities on the disability itself.
3. Deal with only characteristics, traits, and functions which affect the particular activities under consideration. Avoid making categorical generalizations based on handicapping conditions.
4. Keep focus and emphasis on the child, not the program activity, therapy, or modality.
5. Recognize that a physical educator, adapted physical educator, motor development specialist, therapeutic recreator, or other person with background, training, or experience in the physical motor areas/psychomotor domain must be considered the specialist to provide input about a child's needs in these areas. (AAHPER, 1978, p. 4-7)

Neisworth (1982) and Cratty (1980) have suggested informal testing and observation of the handicapped, because of the few instruments



available for the handicapped. Neisworth's informal testing guidelines in the areas of screening, adaptive behaviors, fine and gross motor skills, language and socialization, and self-care skills (See Appendix G) would be most useful for observing the behaviors of the orthopedically handicapped in the areas identified by Neisworth.

Sattler (1974) indicated that mastery of the assessment process requires experience and familiarity with the problems involved to provide the examiner with a base from which to evaluate personal testing technique and the abilities of the child. Assessment, according to Sattler, is a complex activity calling for many skills on the part of the examiner. The assessment procedure includes: (1) Selecting a test; (2) administering the test; (3) scoring the test; (4) observing behaviors; (5) writing the report; (6) consulting activities; and (7) conducting research.

#### Alternative Strategies

This section of the chapter provides some alternative strategies available for use with the orthopedically handicapped. Programs and models such as "Physical Education Opportunity Program for Exceptional Handicapped Learners" (PEOPEL); "I CAN" Program; "Zero-Reject Model"; "Fail-Save Model"; the "Consulting Teacher Model"; and "Diagnostic/Prescriptive Teacher Model" are presented.

Dowd (1975) supported the view that a number of alternatives by which special educators may serve handicapped children should be made available, while at the same time the regular classroom teachers should be provided with training and experience in meeting the needs of handicapped children in their classrooms.

The issue of making alternatives available has been further supported by Biachi (1979):

The fact that people take a certain route does not imply that this is the route they wish to take. And even if one asked them what route they wished to take, they would not be able to respond in any effective manner simply because they were unaware of the alternative (p. 121).

The alternatives may be directly beneficial to the child or to the teacher.

### Physical Education Opportunity Program for Exceptional Learners (PEOPEL)

Physical Education Opportunity Program for Exceptional Handicapped Learners (PEOPEL) is a teaching-learning project developed by Phoenix (Arizona) Union High School District (1974). The learner based goals of PEOPEL are: to develop sports, games, and leisure activity skills through a specially designed, peer-teaching physical education program; to improve physical fitness levels of students and peer-tutors through a series of specially designed, sequentially designed activity units of instruction; and to improve student attitudes toward physical education and activity (Long, 1977).

The primary focus of PEOPEL project is that peer teaching (by non-handicapped peers in the teaching of handicapped students) contributes not only to normal sociability, but also to increases in the complexity of social behaviors. As a result of more integration of handicapped and nonhandicapped children in public schools, handicapped and nonhandicapped children are increasingly in a position to mutually influence socialization (Kennedy and Thurman, 1982).

The description, rationale, inputs, process, outcomes key elements

of "PEOPEL", the criteria used in selection of PEOPEL adopters, population characteristics and other information relating to "PEOPEL" are presented in Appendix H as described by Long (1977).

### "I CAN" Program

The "I CAN" program is a project of the I CAN field service unit of Michigan State University (1980). The I CAN program has been described by Wessel (1981) as an objective-based resource bank of program materials with sequential objectives coded to prescriptive teaching-learning activities and criterion-referenced test items.

The I CAN program, according to Wessel (1981), provides a model for:

1. A continuum of programs and services, K-12, which accomodate student ability levels from near zero and beyond functional competency.
2. Application to all students across all handicapping conditions and school settings.
3. Identifiable teaching competency for effective implementation of the system.

The appropriate use of the I CAN instructional system results in handicapped students making gains on primary and secondary performance objectives, and the gains have been found to be reliable, meaningful, and generalized to all handicapped students (Wessel, 1981).

I CAN is an individualized physical education instructional management system that gives balanced emphasis to the development of skills, associated concepts and social growth. The I CAN implementation Guide (1976) suggests that the I CAN is designed to serve the student, the teacher, the school and the parent in the following ways:

For the student -- I CAN enhances the student's chance of success and development of a feeling of self-worth; provides him/her with a substantial physical education curriculum designed to facilitate the student's use of physical activity skills in daily life, in maximizing healthy growth, development and maintenance, and in his/her social-play-leisure enjoyment.

For the teacher -- I CAN maximizes the teacher's opportunities for individualized instruction in both physical education and associated skills; provides the teacher with a number of instructional options; provides a system to facilitate the effectiveness of teacher-aides, parents, and community-related recreation service personnel in planning and instructional implementation.

For the school -- I CAN provides a flexible set of modular resource units designed for maximum program applicability in a variety of teaching situations; provides a system with modular resource units for use as a supplement in the regular physical education program for the not-so-handicapped persons; provides accountability in a physical education curriculum which can be organized in such a way that learning outcomes are predicted and measured.

For the parent -- I CAN provides a structure for parents to observe the child on measurable performance objectives of purposeful activities; and provides an instructional system for total comprehensive school-home-community related recreation services (I CAN Implementation Guide, 1976).

The I CAN program can be used as a supplementing resource for developing an adapted physical education program for the orthopedi-

cally handicapped and, the following models are indirect service models whose primary focus is to provide consultant services to regular classroom teachers. They can be used for alternative or supplementary resources.

### "Zero Reject Model"

Lilly (1971) proposed a training based model whose function it would be "to provide training for classroom teachers, not to provide direct services (of any nature or extent) to children" (p. 764). The characteristics of this model which would affect the functions of the special education system include "zero reject" which means that once a child is enrolled in a regular education program within a school, it must be impossible to administratively separate him from that program for any reason. Lilly notes that a zero reject model accomplishes two goals: First, it places the responsibility for failure on the teacher rather than on the child; and second, it protects teachers from the tendency to blame and label children for failure and to prevent acceptance of easy solutions to complex instructional problems.

A second characteristic of this model is that it places the responsibility for rectification of difficult classroom situations on the regular education teacher. Special educators must provide support and training for the classroom teacher rather than provide repositories for children that regular education is unwilling to deal with.

The third characteristic of the model is that the special education system must have as its first goal the enhancing of classroom teachers' skills so that they are self-sufficient in handling pro-

blems rather than referring them to another system (Mitchell, 1981).

Lilly (1971) described the workings of this theoretical model as follows:

Upon referring a child, a teacher would be offered the services of an instructional specialist whose function would be to instruct that teacher in ways to handle the referred problem as well as other identifiable problems within the classroom. The task of the instructional specialist would be to equip the teacher to deal with the class as it exists, to handle both behavioral and academic problems.

...at no time during the period of service would the instructional specialist remove a child from the classroom for individual work, whether it be of a diagnostic or tutorial nature, for this practice in no way contributes to preparing the teacher to perform this function in the future. The job of the instructional specialist is to change the behavior of the teacher thereby enabling him or her to change the behavior of the child. (p. 746)

### Fail-Save Model

Adamson and Van Etten (1972) proposed a "fail-save" operational model as an alternative to Lilly's zero reject model. The "fail" represents the system's failure to meet all children's needs, not the child's. The "save" represents the adaptation of the system to the child's individual needs and "saves" him.

This model represents a continuum of services providing aid to the teacher, the parent and the child through a key person called a Methods and Materials Consultant/Teacher, in relation to Adapted Physical Education whose major functions are:

1. To assist in diagnosing and pinpointing the child's specific movement problems.
2. To develop an instructional prescription.

3. To train parents and teachers to deal effectively with the child's movement behavior problem.

4. To monitor the child's progress throughout the program.

The first phase of the continuum of services is a Consultation Phase, which follows the referral of the child by the classroom teacher. Diagnostic procedures that determine that all of the child's sensory systems are intact, the child's best mode learning, identify a motivation system, and to identify the child's specific academic and behavior problem are undertaken. The role of the Methods and Materials Consultant is "to separate the child's problem from the teacher's and parent's interpretations of it" (Adamson & Van Etten, 1972, p. 737). The results are shared with the teacher, parents, and the principal, and one specific task is selected for programming. Precision teaching techniques are utilized by the classroom teacher and the teacher is also taught to use operant procedures to control social and educational aspects of the child's behavior. During this period of time the parents have been attending and participating in a four-week training sequence learning the application of behavior principles.

During the next five or six weeks the Methods and Materials Consultant continues to assist the regular classroom teacher. If the child does not respond to the prescribed treatment, the Consultant may tutor him temporarily in order to gather more relevant data. At the conclusion of the ten week-period, the child's progress is checked, and if it is satisfactory the treatment is continued, with the Consultant teacher available to the regular teacher on a call basis. If the child's progress is not satisfactory, the child may be recycled

through the Consultant Phase or he may be moved to Phase II (the Resource Room).

In Phase II additional diagnostic work may be done. Placement may be made in the resource room on a part-time basis for a maximum of 90 days. At the end of 90 days, the child may be recycled for another 90 days or transferred to Phase III of the system, or he may be returned to the regular classroom or returned to Phase I.

Each Phase is more restrictive. Phase III is a special classroom/resource option. Phase IV is a special class placement, and Phase V is special residential or day school.

#### The Consulting Teacher Model

In the Consulting Teacher Model, Christie, McKenzie, and Burdett (1972); McKenzie, Egner, Knight, Perelman, Schneider and Garvin (1970) employ a special educator as a facilitator rather than as an implementor (Miller and Sabatino, 1978). His or her major task consists of helping regular classroom teachers individualize instruction, analyze behavior and apply the principles of reinforcement, scheduling, shaping, and errorless discrimination (Christie et al., 1972).

Consulting teachers differ from resource teachers in that they have no direct classroom responsibilities. Diagnosis and remediation procedures are undertaken by the child's teacher in his own classroom with the help of the consulting teacher. Another difference is the application of principles of behavior modification to handicapped children in regular classrooms.

The consulting procedure steps have been effective in teaching both teachers and parents of referred children to learn and apply the



- a. Use of formal and informal instruments.
- 3. Demonstrate the tactics and strategies of good teaching.
  - a. Classroom management.
  - b. Observational and interviewing techniques.
  - c. Grouping strategies and peer tutoring.
- 4. Display these competencies in the regular classroom as a model for the regular teacher.

Little (1978) envisioned the role of the teacher consultant as a program collaborator and problem solving helper for the regular teacher for learning and behavior problems. He therefore proposed a teacher consultant operational model (see Table II).

#### Diagnostic/Prescriptive Teacher Model

The Diagnostic/Prescriptive Teacher Model (DPT) described by Prouty and McGarry (1973) utilizes a school-based special educator who serves as a diagnostician-consultant to regular class teacher in the development of appropriate instructional and socialization experiences for children who are viewed as posing problems (p. 47).

The DPT Model can be adapted to physical education whereby the specially trained Adapted Physical Educator could serve as a diagnostician-consultant to regular physical education teachers to develop appropriate instructional experiences for the orthopedically handicapped students. The underlying assumptions of this model include recognition that a small number of severely handicapped children need special class placement, but that the regular classroom has the potential to accommodate mildly to moderately handicapped children who exhibit a wide range

TABLE II  
TEACHER CONSULTANT OPERATIONAL MODEL

Stage	Purpose	Agent
1. Planning	To identify and clarify concerns a regular teacher has regarding the pursuit of an educational objective(s) with a child or group of children.	Consultant and teacher
2. Observation	To obtain behavioral data (in the regular classroom on teaching/learning situation regarding the teacher's concern(s) and objectives.	Consultant
3. Analysis	To analyze data gathered in Stage 2 in order to hypothesize if a "problem" exists and the nature of the problem.	Consultant
4. Strategy	To hypothesize a strategy to further examine or remediate the problem.	Consultant
5. Conference	To discuss and formulate with the teacher what steps need to be taken to remediate the problem if one has been determined to exist.	Consultant and teacher
6. Implementation	To implement the strategy as determined in the conference.	Teacher

principles of individualized instruction and analysis of behavior (McKenzie, 1972). The steps which form a procedure for consulting are:

Step 1. Referral Procedure. The referring teacher receives a packet from his principal in which he specifies the deficits of the child. When he returns the packet to the principal, the consulting teacher is notified.

Step 2. First Meeting of Teacher and Consulting Teacher. The consulting teacher helps the referring teacher define the problem in specific terms so that relevant behaviors are observable by at least two people. An instructional objective is defined. A data collection system is agreed on and potential reinforcers for the child are inventoried.

Step 3. Second Consulting Teacher and Teacher Meeting. The teacher brings his plotted data. Establishing a baseline is discussed along with concurrent teaching procedures and materials. Arrangements are made for a meeting with the child's parents.

Step 4. First Parent Meeting. After reviewing the graphed data, a joint decision as to what will constitute a baseline is reached, and potential reinforcements in the home are discussed. The parents sign permission for the use of special procedures to help their child.

Step 5. First Classroom Visit by Consulting Teacher. The consulting teacher observes the child in the classroom and notes the teaching/learning procedures and materials in effect.

Step 6. Selection of Modification Procedures. Meetings are held with the teacher to specify the changes in teaching/learning procedures.

Step 7. Second Parent Meeting. Principal joins teachers, parents and sometimes the child in this meeting to discuss procedures which appear to be good possibilities for modifying the child's behaviors. Agreement is reached on those that will be tried.

Step 8. Implementation of Modification Procedures. Selected procedures are implemented with the teacher continuing to collect data.

Step 9. Evaluation of Procedures. If the procedures are reliably changing the child's behaviors in a satisfactory way, then the teachers go to Step 10. If not, they return to Step 6.

Step 10. Maintenance and Follow Through. Once the child's behaviors have reached the levels of the instructional objective, data are taken only occasionally, and the reinforcer is gradually phased out. At this point an exit interview is held for the parents and teachers. (p. 113-115)

Newcomer (1977) noted that the ultimate goal of the consultant is not to remediate a particular child's learning problems, but to prevent certain problems from developing and to provide the regular educator with the additional skills and competencies required to undertake remedial activities independently. She suggest that the ratio for service be one consulting teacher for each five regular classroom teachers. Competencies of the consultant teacher include:

1. Proficient as a teacher in all specific academic skill areas.
  - a. Be able to use task analysis to modify instructional programs.
  - b. Be familiar with developmental and remedial programs.
2. Assess student academic competencies.

exhibit a wide range of learning and behavior styles. This model is designed to serve all children who experience difficulties in learning and behavior and rejects the necessity of using categorical labels (Mitchell, 1981).

The Diagnostic/Prescriptive Teacher model provides both the structure by which delivery of service is achieved and a role-definition for the person in that position. The steps of the model are:

1. Referral: The classroom teacher's written referral contains an anecdotal description of the problem and the efforts made to alleviate it.
2. Observation: The DPT observes the referred child in his regular classroom.
3. Referral Conference: DPT and referring teacher to update referral information, clarify their respective roles and responsibilities and to arrange a suitable time for the referred child to come to the DPT's room for diagnostic teaching.
4. Diagnostic Teaching: Small group works by the DPT with the child to determine successful teaching techniques and materials based on the child's needs.
5. Educational Prescription: A written educational report is prepared. It recommends well-defined techniques and materials and describes in detail their use with the child.
6. Prescription Conference: Discussion of the suggested prescription with the referring teacher for modification and finalization.
7. Demonstration: The DPT takes over the referring teacher's class to demonstrate elements of the Prescription in the total class

environment.

8. Short-Term Follow-Up: The DPT makes periodic visits to the referring teacher's room to offer suggestions, provide encouragement, and give demonstrations as they are needed.

9. Evaluation: The referring teacher completes a single-page evaluation form 30 days after receiving the Prescription, indicating progress to date.

10. Long-Term Follow-Up: The DPT continues periodic checks. Only when both DPT and referring teacher view the child's progress as satisfactory in the case closed. (Prouty and McGarry, 1973)

In each of the ten steps of the operational model, the DPT maintains appropriate records. Throughout the process the DPT does not engage in remediation, tutoring, or counseling, except as it may occur coincidentally to the diagnostic teaching procedure. The referred child is not removed from his regular class for more than one hour per day, nor is final responsibility for his instruction ever removed from his regular classroom teacher (Mitchell, 1981).

Sapp (1977) reported on an adaptation of this model in three counties in North Dakota serving twelve school districts. Each Diagnostic/Prescriptive teacher serviced two or three schools. The program was so successful during the 1975 to 1977 school years that no child has been referred to special education classes that have received the services of the DPT.

#### Administration of Physical Education Services

##### For the Orthopedically Handicapped

Good administration is a very important element in the implemen-

tation of an adapted physical educator for the handicapped. The administrators' dispositions, knowledge, and decisions would reflect, the philosophy under which physical education program for the orthopedically handicapped would operate.

To implement a physical education program, the Bureau of Education for the Handicapped (1978) has provided some useful guidelines for administrators:

1. Become familiar with physical education -- its rationale, antecedents, principles, programmatic dimensions and concepts.
2. Identify those educational areas in which change may be necessary due to the implementation of a physical education curriculum.
3. Develop an educational philosophy which is congruent with physical education concept.
4. Plan and conduct a comprehensive survey of students, parents, and other relevant persons to determine their physical education attitudes, behaviors and needs.
5. Identify and utilize community education resources, including areas and facilities, personnel, and natural resources which would be available to use in the physical education curriculum.
6. Develop a sound financial management program plan prior to the implementation of the physical education curriculum.
7. Plan, implement, and evaluate a physical education curriculum.
8. Apply techniques and procedures of scientific management in developing a long-range plan for optimal implementation of a physical education curriculum. (Bureau of Education for the Handicapped, 1978, pp. 51-52)

In administering an adapted physical education program for the orthopedically handicapped, there is need to recognize the importance of professional competencies required of teachers of handicapped children, record keeping, administrative handbook, the role of volunteers in program implementation. Information in these areas is presented below.

### Professional Competencies of Teachers of Handicapped Children

In an effort to identify successful teachers of children with mental and physical disabilities, Meisgeier (1965) has provided a list of desirable characteristics. A listing of these personal qualities includes a good attitude toward children and teaching; an adventurous, experimenting nature; readiness to try new ideas; responsiveness; friendliness; cheerfulness; sociability; ability to remain unannoyed at leaving a task unfinished; an even disposition; the ability to remain calm in a crisis; emotional stability; a vigorous, energetic, and expressive personality; ability to organize, promote new projects, and influence others; and the ability to be realistic, practical, and logical.

In addition to the personal qualities listed by Meisgeier, the Department of Special Education, California State University (1974) identified certain competencies a teacher of handicapped children should attain. These are: (1) Knowledge of the physical, cognitive, social, and personality development of the normal child from gestation through adolescence and (2) Knowledge of the types, nature, and extent of the various categories of exceptionalities of individuals; state and federal laws and provisions related to exceptional children and youths; types of educational programs for the various exceptionalities;



and current issues and trends in educating exceptional individuals.

Diroco (1978) proposed that the possible course content additions regarding physical education for the handicapped should include the history and role of physical education for the handicapped; the effects of physical disabilities upon movement mechanics; physical parameters of the handicapped; motor awkwardness and perceptual-motor problems; effect of delayed maturation; mainstreaming methods and programs; and the effect of competition and sport on socialization.

In response to a growing need for standards for educators who provide physical education services to handicapped children, the American Alliance, for Health, Physical Education, Recreation, and Dance (AAHPERD), as cited by Depauw (1981), has developed some additional general guidelines in adapted physical education. Six major competency areas were identified: a) Biological foundations, b) Sociological foundations, c) Historical-philosophical foundations, d) Assessment and evaluation, and e) Curriculum planning, organization, and implementation. To develop and implement an adapted physical education program for the orthopedically handicapped the AAHPERD (1981) guidelines (See Appendix I) seem vital for all adapted physical education specialists.

Biachi (1979) has identified other competency and training needs of educators of the handicapped in the following areas:

1. Recognizing school situations that may contribute to the learning or behavior difficulties of exceptional children.
2. Communicating with support personnel and request, when necessary, special services provided by an Intermediate Unit or school

district.

3. Writing behavioral objectives which describe the observable behaviors to be displayed by the learner, the condition(s) under which the behavior is to be exhibited, and the criteria for acceptable behavior.

4. Selecting, implementing and evaluating the effectiveness of teaching and classroom management techniques.

5. Comprehending and interpreting psychological reports which identify personality traits and cognitive abilities and skills.

6. Constructing, administering, scoring, and interpreting informal diagnostic tests that can be used to develop a child's educational program.

7. Being aware of required child tracking procedures which monitor educational services and document compliance with federal law and state regulations.

8. Constructing, as part of the child's cumulative record, a student profile based on observation data and formal and informal testing.

9. Identifying various teaching strategies that can be used to tailor the instructional process to the needs of the students.

10. Stating the educational implications of federal and state legislation which apply to the rights of students and their parents.

11. Communicating with parents by interpreting test results, discussing their child's program and suggesting ways they may contribute to their child's success.

12. Reviewing and revising the individual components of an indi-

vidualized educational program, taking into consideration the pupil's academic progress and social behavior.

13. Constructing or selecting appropriate educational media/materials according to a pupil's needs.

14. Keeping abreast of new educational materials, methods, and issues by reading professional journals, taking additional course work, and participating in staff development activities.

15. Implementing techniques that help students acquire self-esteem and appropriate behaviors.

16. Listing the separate steps or operations needed to complete a given objective or activity (task analyze objectives).

17. Assisting or training parents to communicate with their child.

18. Selecting and using community resources which can facilitate the development of a student's interests, aptitudes and skills. (Biacchi, 1979, p. 62-65)

#### Adapted Physical Education Records

The importance of keeping accurate records for participants in the adapted physical education program has been stressed by several authors. For example, Crowe, Auxter, and Pyfer (1981) maintained that since most of the work of the adapted physical education teacher is related to the measured instruction progress on the individual education program, it is essential that accurate, complete, confidential records be maintained. Some of the types of records that should be retained by an institution include medical examination card, physical education progress record card, posture and body mechanics examinations, letters to and from medical personnel, and photographic records.

### Administrative Handbook

For the efficient and effective administration of the adapted physical education program, Logan (1972) proposed that it is essential that policies and procedures be developed. Collecting the policies and procedures into an organized and written form could result in the evolution of an administrative handbook, Logan added, and such a handbook could serve the following functions:

1. An operational guide for administering the program.
2. A reference for the application of policy concerning the cooperation or coordination of the school health services, the student's personal physician, and/or the department of physical education.
3. A resource guide for the administration of the physical education department with regard to the adapted physical education program, facilities, equipment, staff, intra- and interdepartmental relationships.
4. A reference for maintaining continuity and consistency in regarding policies and procedures within the adapted physical education program.

### Role of Volunteers

The use of volunteers in assisting physical education teachers to implement a physical education program for the handicapped is not only psychologically advantageous for the handicapped but also administratively cost effective, especially at any period of financial exigency. Volunteers can "improve the community's understanding of the education

system and help the school know what the community expects" (Hardy, 1982, p. 72).

In order for volunteers to carry out their work effectively, some general guidelines offered by Hardy (1982) have been selected:

1. The school district must have Board of Education approval regarding selecting, training, assigning, and evaluation of all volunteers.
2. A complete job description should be prepared for the physical education volunteer.
3. An orientation, for both volunteer and professional, should be held so that each understands the other's role.
4. Assignments of volunteers should be consistent with the volunteers' interest, skills, and competencies.
5. A review and/or evaluation of the volunteer's total contribution to the overall physical education program should be made on a continual basis.
6. Volunteers should be prepared for the specific task and responsibilities to which they will be assigned.
7. The physical education volunteers always work directly with the teacher and are never expected to work with students alone.
8. The physical education volunteer does not represent the school in any way that is traditionally delegated to the teacher.
9. Volunteers should be placed at the request of a teacher and schools which are receptive to volunteers.
10. The physical education specialist should provide training for

the volunteers as they work with students.

11. The volunteers should assist the teacher in clarifying directions and instructions.

12. The volunteers should give personalized assistance to individuals or small groups of students under the direction of the teachers.

### Program Evaluation

Jones, Gottlieb, Guskin, and Yoshida (1978) justified the importance of program evaluation by stating that "it is important, as new special education programs are developed and before implementation becomes finalized, that a variety of evaluation considerations be examined" (p. 589).

Evaluation systems, processes, and considerations should be an integral part of the adapted physical education for the orthopedically handicapped regarding the meaningfulness of program planning and implementation.

Provus (1971) gave five different definitions of program evaluation thus:

1. The judgement of authorities about a program,
2. The opinions of program staff,
3. The opinions of those affected by a program,
4. A comparison of actual program outcome with expected outcomes,
5. A comparison of executed programs with its design (p. 10).

Sims (1970) stated that as a planning tool, evaluation enhances the likelihood of making accurate decisions regarding continuation, expansion or limitation of services. Evaluation also provides the

primary method of quality control in a project as progress evaluation can reveal discrepancies, which once corrected can result in better services to the handicapped (Sims, 1970). Sims further maintained that:

Evaluation is based on the process of (a) first agreeing upon standards, (b) then, determining whether a discrepancy exists between aspects of the actual program and the governing standards, and (c) using the discrepancy information to identify the weaknesses of the program (p. 56).

Explaining the scope of evaluation, Ahr and Sims (1972) noted that evaluation is more encompassing than grading of students, grouping and promotion, reports to parents, and financial reports to the Board of Education. The authors outlined certain principles which should be examined as plans for a systematic evaluation. These include:

1. To conduct evaluation in terms of objective standards.
2. To provide evidence of quality of instruction or degree of pupil accomplishment in relation to established standards.
3. To undertake evaluation cooperatively with all the persons concerned.
4. To provide for frequent and continuous information gathering.
5. To relate evaluation closely to the teaching-learning situation.
6. To take into account differences among individuals being evaluated in terms of adjusting work loads or responsibilities.
7. To use evidence gained through evaluation in planning for the future growth of each individual.
8. To provide a variety of techniques, instruments, and methods

since evaluation is complex.

9. To develop evaluative criteria which are flexible enough to allow change as the study progresses.

10. To develop evaluation as an integral and planned part of the operational special education. (p. 2).

Cratty (1980) stated that a sound program of evaluation can (1) give administrators an idea as to teacher effectiveness, (2) help teachers assess themselves in a valid manner, (3) aid the instructor in perceiving slight changes in the behavior of children, and (4) help bring about modifications in program content. Dressel (1976) described evaluation as both a judgement on the worth or impact of a program, procedure, or individual, and the process whereby the judgement is made. In Dressel's outline of an approach to evaluation, the essential components or concepts involved have appeared. Evaluation, according to Dressel, involves some or all of the following:

1. Identifying and examining the values inherent in the program, policy, or procedure to be evaluated.

2. Formulating or clarifying the objectives, goals, purposes of the program.

3. Determining the criteria for measuring success.

4. Defining, obtaining, analyzing, and interpreting data and other information.

5. Determining and explaining the extent of success and failure.

6. Indicating the relationships between experiences during the program and the outcomes of the program (impact of various program



variables).

7. Identifying unplanned and undesirable (side) effects.
8. Determining the impact of the program and the impact of external, uncontrolled variables.
9. Recommending the alteration, replacement, or discontinuance of the program or of individual features of the program.
10. Setting up a continuing review of program results.
11. Assessing the value benefits, or social utility of the program, objectives, and processes, and other evaluation itself.

The four steps of evaluation mentioned by Dressel (1976) are:

1. Planning, or developmental, evaluation: to determine the needs or deficiencies and to devise objectives or goals to meet these ends.
2. Input evaluation: provide continuing or periodic feedback so that those responsible for program planning and operation can review and possibly alter earlier decisions.
3. Output evaluation: assess attainment, at the end of a project or at appropriate stages within it, of those goals which are self-contained and of those which are preliminary to entering another stage.
4. Formative and summative: refer more to the nature and finality of a decision than to role of evaluation.

Emphasizing the need for program evaluation, Adelman (1972) stressed:

The two basic acts of evaluation are description and judgement, and both are needed if programs are to be understood...if a program is to be fully described and judged, there must be data for (1) assessing the functional contingencies between antecedent conditions, transactions and

outcomes; (2) assessing the congruence between what is intended and what occurs; and (3) making absolute comparisons of two or more programs (p. 476).

Adelman further remarked that such a matrix of data would provide much of the information needed for describing and demonstrating the effectiveness of, and improving the program's basic guidelines, content and process, as well as for making general decisions about such programs.

Kraus (1973) suggested that evaluation of the therapeutic recreation for the handicapped should be carried out in the following areas:

1. Determination of effectiveness in reaching goals and objectives;
2. Evaluation of patient needs and interests;
3. Evaluation of patient participation;
4. Evaluation of specific program elements;
5. Evaluation of staff performance;
6. Evaluation of facilities;
7. Evaluation of program structure, and administrative and supervisory practices.

Physical education program evaluation for the orthopedically handicapped could be carried out, in a continuous basis, in the areas suggested by Kraus. A checklist for evaluating instructional materials (See Appendix K) as provided by Wessell (1977) is a useful tool in evaluating the appropriateness, quality, feasibility and usability of instructional materials in physical education for the orthopedically handicapped.

## CHAPTER IV

### SUMMARY, CONCLUSION, AND RECOMMENDATIONS

#### Summary

Orthopedically handicapped children, like other handicapped children, require physical education to better cope with the psychological, social, and movement problems created by their handicapping condition. With physical education, developmental gains could be experienced by the orthopedically handicapped in addition to marked improvement of self esteem, physical development, socialization, healthful experiences, and change in attitudes of others toward the handicapped.

The lack of organized physical education for the handicapped in Nigerian schools therefore provoked this study. The primary purpose of this study was to identify operational guidelines for the development and implementation of adapted physical education programs for the orthopedically handicapped in Nigerian schools.

Source materials were obtained from special education, regular physical education, rehabilitation counseling, and recreation to identify the operational guidelines, and the study was limited to selected orthopedic handicapping conditions, namely amputation, muscular dystrophy, and cerebral palsy.

The study identified a philosophy of physical education for the orthopedically handicapped and in congruence with the philosophy of

physical education for the "normal" population, the adapted physical education should aim at the achievement of optimum physical, mental and social development of the orthopedically handicapped. The adapted physical education should however be planned and geared toward special considerations for the specific disability, special needs, interests, and limitations of the orthopedically handicapped child.

In developing a program for the orthopedically handicapped some general guidelines for program design were offered in the study. Such as, (1) determining the objectives to be accomplished, (2) analyzing the objectives in terms of the program and activities, (3) relating activities in a sequential manner (4) providing kinesthetic cues when necessary, and (5) considering legal and medical implications of activity complications.

It was presented in the study that the adapted physical education program for the orthopedically handicapped would be more meaningful if activities and facilities were modified and adapted to suit the handicapping condition and special interests of the child. The development of existing physical abilities, capability enhancement, and active participation with nonhandicapped peers are the major goals of facilities/activities modification.

In developing a written Individualized Education Program (IEP) for the orthopedically handicapped child, the adapted physical educator should have an impact in presenting the present level of motor performance and potentialities of the child and the reasonable objectives that should be established in physical education. Assessment of the motor performance of the orthopedically handicapped holds very

important implications for program development and the Individualized Education Program (IEP). However, because of the dearth of assessment instruments with which to evaluate the physical capabilities of the orthopedically handicapped, informal assessment in the form of observations of fine and gross motor skills, socialization and self-care skills could be relied upon.

In order to develop and implement an adapted physical education program, a complete up-to-date medical record needs to be kept by the school administrator and the adapted physical educator. The diagnosis and prognosis, medical history, areas of the body involved in the disability, medical treatments already undergone and/or being undergone by the orthopedically handicapped child, and the special recommendations of the child's physician are areas of particular attention.

Program evaluation is a very important element of program development and implementation. Program evaluation provides evidence of quality of instruction or degree of students' involvement in the physical education program. Program evaluation also assists adequate planning for future growth of each individual child and for future restructuring of objectives, facilities, and activities.

### Conclusions

Based on the results of this study, and within the limitations of the study, the following conclusions are made:

1. Resources are abundant in physical education, special education, rehabilitation, and recreation but that there is an uncoordinated effort to identify operational guidelines for developing adapted physical education programs for the orthopedically handicapped.

2. Although the operational processes in this study included rationale and guidelines for Individualized Education Program (IEP) and mainstreaming, unanswered questions still exist regarding the implications of mainstreaming and IEP to other nonhandicapped children.

3. If physical education programs for the handicapped in Nigeria are to be very effective, Federal and State legislations specifically providing for physical education for the handicapped need to be enacted.

4. For effective implementations of any program for the handicapped, there is still a need for an up-to-date survey on the actual population and classifications of handicapping conditions in Nigeria. Lack of accurate statistics greatly inhibits planning, programming, and administration of a physical education program for the handicapped.

#### Recommendations

On the basis of this study the following recommendations are warranted:

1. The extent to which handicapped children receive appropriate physical education rests partly on availability of sufficient and qualified manpower. The Federal and State governments of Nigeria should provide the necessary technical assistance in terms of research grants and training of more adapted physical educators.

2. It is recommended that seminars, workshops, clinics and conferences in adapted physical education should be organized in Nigeria on a regular basis as information sessions and as a part of in-service education of physical education teachers, regular teachers, and special education teachers.

3. Federal and State Colleges of Education and Universities in

Nigeria, need to restructure their curricular to include theories and practicums in adapted physical education as a condition for graduation.

4. The implications of Individualized Education Program (IEP) and mainstreaming of orthopedically handicapped child viz a viz other nonhandicapped children in a class need further investigation.

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## APPENDIX A

## STATISTICS OF EXISTING SPECIAL EDUCATION

FACILITIES IN NIGERIA, 1975

## STATISTICS OF EXISTING SPECIAL EDUCATION FACILITIES

(Schools, Homes and Open Education) July, 1975

STATE	NAME OF INSTITUTION	CATEGORIES OF HANDICAP										STAFF - ACADEMIC						OTHER STAFF	RECURRENT EXPENSES	
		Deaf and Partially Hearing	Blind & Partially Sighted	Physically Handicapped	Mentally Retarded	Emotionally Disturbed	Others	Total	Number on Waiting List	Below Grade II	Grade II	Grade II Above	Specialist Trained	Total	Cooks, Drivers, Gardeners, Nurses, etc.	Government Grant	Voluntary Donation			
Lagos State	Atunda Olu Sch. for Phys. Handicapped Children, S/Lere	166	166	127	---	---	22	481	826	7	28	1	12	48	88	161,640	132,595			
	Cheshire Home, Mushin, Lagos	---	---	114	---	---	---	114	---	---	7	1	4	12	18	27,500	13,500			
	Child Care & Trtmc. Home Sch., Akoka	---	---	15	40	---	---	55	50	6	---	---	---	6	47	15,200	29,800			
	Child Guidance Clinic - Yaba	---	---	---	131	---	---	131	---	---	1	---	8	9	15	NOT KNOWN				
	Child Trtmc. & Placement Home Sch. Kirikiri	---	---	---	5	10	---	15	10	2	---	---	---	2	1	---	2,000			
	Ile Anu Olu Pra-Sch. Unit for Phys. Handicapped Chr.	---	---	9	---	---	---	9	---	---	1	---	---	1	3	---	4,130			
	Pacelli Sch. for Blind Children, Surulere	---	74	---	---	---	---	74	15	---	3	---	5	8	9	25,200	10,000			
	R.O.H. Sch., Igboi	---	---	105	---	---	---	105	---	---	3	1	---	4	5	NOT KNOWN				
	Wesley Sch. for Deaf Children	200	---	---	---	---	---	200	280	---	17	---	5	22	6	70,000	20,000			
	Open Educ. Scheme	---	28	---	---	---	---	28	---	---	14	---	5	19	---	NOT KNOWN				
M.W. State	Gidan Yara Don Dakikai, Da Tabubbun Yara Home/Sch. Zaria	---	---	---	5	5	---	10	---	2	---	---	---	2	3	---	3,000			
N.C. State	Open Educ. Scheme (Katsina)	---	24	---	---	---	---	24	---	1	2	---	1	4	---	NOT KNOWN				
N.E. State	Open Educ. Scheme Maiduguri	---	7	---	---	---	---	7	---	1	---	---	---	1	---	NOT KNOWN				
N.W. State	Open Educ. Scheme Sokoto	---	5	---	---	---	---	5	---	---	1	---	---	1	---	NOT KNOWN				
Rivers St.	Cheshire Home-Port Harcourt	---	---	9	---	---	---	9	---	N O N E						---	2,500			
S.E. State	Open Educ. Scheme Calabar	4	3	---	13	---	50	70	---	TEACHERS IN REGULAR PRIMARY SCHOOL						---	NOT KNOWN			
W. State	Ibadan Sch. for the Deaf	135	---	---	---	---	---	135	420	---	10	---	3	13	13	---	40,000			
	Ibarapa Deaf Sch.	16	---	---	---	---	---	16	325	---	2	---	1	3	2	---	15,000			
	Oluloye Cheshire Home, Ibadan	---	---	12	3	1	---	16	8	TEACHERS IN REGULAR PRIMARY SCHOOL						3,000	4,000			
	Open Educ. Scheme	---	77	---	---	---	---	77	---	---	6	---	1	7	---	NOT KNOWN				
	Sch. for Handicapped Chr., Ibadan	---	---	10	5	2	1	18	5	1	2	---	---	3	8	10,000	2,000			
B.P. State	The Good Samaritan Movement (Intl.)	---	---	21	---	---	---	21	50	3	1	---	---	4	3	1,200	4,800			
	Ginditi Sch. for Blind Children	---	85	---	---	---	---	85	65	---	7	---	2	9	19	17,100	18,480			
	Mangu Leprosy Settlement	---	---	85	---	---	---	85	65	---	7	---	2	9	19	17,100	18,480			
E.C. State	Cheshire Homes of Nig. Orlu Br.	---	---	27	---	---	---	27	---	2	---	---	---	2	---	1,000	4,000			
	Enugu Spec. Sch. for the Deaf	---	---	35	---	---	---	35	20	TEACHER IN REGULAR SCHOOLS						7	400	8,210		
	Min. of Educ. Sp. Ed. Gen.-Oji Riv. (Blind)	75	---	---	---	---	---	75	48	---	7	---	3	10	8	22,800	29,100			
	Min. of Educ. Sp. Ed. Centre-Oji River (Deaf)	---	65	---	---	---	---	65	166	---	7	---	1	8	21	48,000	14,490			
	Patient Sch. - Oji River	65	---	---	---	---	---	65	203	---	6	---	2	8	20	55,000	23,000			
Kano State	Sch. for the Blind-Kano	---	---	50	---	---	22	72	---	3	1	---	---	4	---	---	30,000			
Kwara State	Sch. for the Deaf, Ilorin	---	16	---	---	---	---	16	26	2	---	---	1	3	1	---	4,815			
	TOTAL	687	350	551	208	18	95	2109	2815	30	126	4	57	217	324	475,380	417,295			

Source: Ogbue, R.M. "Report of the Survey of Special Education Facilities in Nigeria. (1975). Federal Ministry of Education, Lagos, Nigeria.

APPENDIX B

SPECIAL EDUCATION INSTITUTIONS FOR THE  
HANDICAPPED IN NIGERIA, 1978-79

## Special Educational Institutions for the Handicapped, 1978-79

NO.	NAME OF INSTITUTION	ADDRESS	OWNERSHIP/ PROPRIETORSHIP	DATE ESTABLISHED	HANDICAPPED CATERED FOR	AGE RANGE FOR PUPILS	DURATION OF COURSE	SEX ADMITTED	BOARDING/ DAY
1	Spec. Ed. Centre Oji River	P.O. Box 2 Oji River	Anambra State		Blind, D/Ph., S.D., M.R.				
2	Spec. Ed. Centre Enugu	Ogbete Enugu	Anambra State		D., H.IMP., M.R.				
3	Cheshire Home of Nigeria, Enugu	Enugu	Anambra State		P.H.				
4	Benin School for the Deaf	Benin City	Bendel State		D., H.IMP.				
5	St. Francis School for the Deaf	Vandekya	Benue State		D., P.H.				
6	St. Joseph's Kema- dial Training Ctr.	Iba C/ River	Cross River St.		P.H.				
7	St. Joseph's Blind Centre	Obudu C/ River			B.P.S.				
8	Spec. Ed. Centre	Orlu, Imo	Imo State		B.P.S., D/PH. M.R., P.H.				
9	Torrey's Home Sch.	Zaria Kaduna St.	Kaduna State		B.				
10	S.I.M. School for the Blind	Kano	Kano State		B.D.				
11	Kwara St. School for Deaf & Blind	Ilorin	Kwara State		B.P.S., D., H., PH.				
12	Pacelli School for the Blind	Surulere	Lagos State	1962	B.P.S.				
13	National Orthopedic Hospital School	Igbobi	Lagos State	1956	P.H.				
14	Atunda-Olu School	Surulere	Lagos State	1965	P.H.	6-14	6-8 yrs. Pry.VI	B/G	S/D
15	Wesley School for Deaf Children	Surulere	Lagos State	1957	D., P.H.	5-16 ±	6-8 yrs. Pry.VI	B/G	
16	Child Care & Trmt Home School	Akoka	Lagos State	1961	D/P.H., B.O.S. D.P.H., S.D., M.R.P.H.S.D.M	5-16 ±	6-8 yrs. Pry.VI	B/G	
17	Iberekodo Abeo- kuta Sch. for P.H. Children	Abeokuta	Ogun State	Nov. 76	P.H., D/P. G.M.R.			B/G	
18	Sch. for Handi- capped Children	Ijebu Ode	Ogun State	1-9-77	B.P.S., H.IMP. D/PH., S.C.M.R. P.H.	6-9	6 yrs	B/G	
19	Remo Sch for the Handicapped	Sagamu	Ogun State	1-9-77	V.H.H.IMP.D.P. H.M.R., P.H.		8-10 yrs	B/G	
20	School for Handi- capped Children	Ilaro	Ogun State	1-9-77	D/P.H.H.IMP. M.R.	6-15	6 yrs	B/G	
21	Ondo State School for the Blind	Owo	Ondo State	12-12-78	B.P.S.	6-15	6-8 yrs	B/G	
22	Ondo State School for the Deaf	Akure	Ondo State	15-4-77	D/P.H.	6-11	6 yrs	B/G	
23	Otun-Ireti Sch. for P.H. Child.	Ikare	Ondo State	1979	P/H	6-16 yrs	8 yrs	B/G	
24	Blind Centre	Ogbomosho	Oyo State	1958	B.P.S.	6-16 +	6 yrs	B/G	
25	Eruwa Sch. for the Deaf	Eruwa	Oyo State	17-9/76	D., P.H.	6-18 yrs	6 yrs	B/G	
26	Oluyole Cheshire Home School	Ibadan	Oyo State	1959	D., P.H.	7-18 yrs	6 yrs	B/G	
27	Sch. for Handi- capped Children	Ibadan	Oyo State	9/64	P.H.	5-15 yrs		B/G	
28	Ibadan School for the Deaf	Ibadan	Oyo State	16-9-63	D., P.H.	8-25 yrs	8 yrs	B/G	
29	Plateau School for the Deaf	Jos	Plateau State		D.P.H.	5-19 yrs		B/G	
30	Gindiri School for the Deaf	Gindiri	Plateau State						

Source: Aduwo, A.O. (Editor) Directory of special education personnel and facilities in Nigeria. Nigeria Educational Research Council. Lagos, Nigeria. 1980.

Abbreviations: B = Blind; P/S = Partially Sighted; D = Deaf; P/H = Physically Handicapped; S.D. = Speech Disordered; M.R. = Mentally Retarded; H.IMP. = Hearing Impaired; E.D. = Emotionally Disturbed; P.H. = Partially Hearing.

APPENDIX C

RESULT OF QUESTIONNAIRE ON HOW IMPORTANT IT IS  
THAT SPECIAL EDUCATION IN NIGERIA SHOULD  
INCLUDE ADEQUATE PROVISION FOR SOME  
CATEGORIES OF THE  
HANDICAPPED

QUESTION: How important is it that special education in Nigeria include adequate provision for these categories of the handicapped?

	Most Important	Average Importance	Not Important
Blind	82.76%	11.50%	0.0%
Partially Seeing	50.00	12.79	0.0
Deaf	75.86	6.90	0.0
Hard of Hearing	47.62	14.29	0.0
Educable Mentally Retarded	65.12	11.63	1.16
Trainable Mentally Retarded	41.86	19.77	5.81
Brain Injured	40.70	20.93	3.49
Emotionally Disturbed Children	44.19	16.28	2.32
Physically Handicapped Children	70.93	3.49	1.16
Children with Speech Problems	38.37	13.95	1.16
Home or Hospital Bound Children	39.53	23.26	4.65
Gifted Children	57.14	14.29	11.90
Learning Disabled Children	38.37	23.26	3.49
Multiply Handicapped Children	48.84	24.42	0.0

Source: Mba, P.O.; Priority needs of special education in developing countries: Nigeria. In Fink, F.H. (ed.) International perspectives on future special education. Reston, Virginia: The Council for Exceptional Children, 1978.

## APPENDIX D

RESULT OF QUESTIONNAIRE ON RATING COURSE

EXPERIENCES IN SPECIAL EDUCATION

WHICH SHOULD BE MADE COMPULSORY

FOR ALL SPECIAL EDUCATION

STUDENTS



QUESTION: Rate the following courses as common core experiences in special education which should be made compulsory for all special education students.

	Most Important	Average Important	Not Important
Psychology of Exceptional Children	59.30%	6.98%	3.49%
Behavior Modification & Guidance	47.67	12.79	0.0
Human Growth & Development	44.19	6.98	2.33
Psychoeducational Diagnosis	54.65	9.30	0.0
Communication Skills	51.72	11.49	0.0
Health Education	45.98	12.64	3.45
Psychology of Teaching Spec. Subj.	66.28	5.81	1.16
Teaching the Multiply Handicapped	37.21	16.28	3.49
Planning Individualized Instruction	53.49	8.14	2.33

Source: Mba, P.O.; Priority needs of special education in developing countries: Nigeria. In Fink, F.H. (ed). International perspective on future special education. Reston, Virginia: The Council for Exceptional Children, 1978.

APPENDIX E

A REVIEW OF SELECTED FEDERAL LEGISLATIONS  
IN UNITED STATES THAT HAVE AFFECTED  
THE HANDICAPPED

## Public Law 83-531

PL 83-531 was the Cooperative Research Act, and it was the 531st bill to be approved by the Eighty-Third Congress and President Eisenhower. The law was designed to assist cooperative research in education. The bill was funded in 1957, and of the \$1 million appropriated \$675,000 was earmarked for research with the mentally retarded. PL 83-531 was the first recognition by Congress for categorical aid to handicapped children since the beginning of support to Gallaudet College in 1864 and the American Printing House for the Blind in 1979 (Martin, 1968).

## Public Law 85-905

The 85th Congress passed the Captioned Films for the Deaf Act", and act which assigned to the Department of Health, Education, and Welfare the responsibility to provide, on a loan basis, films which would add to the cultural and recreational opportunities of the deaf. PL 85-905, enacted and funded in 1958, provided further evidence of the concern of Congress for the handicapped, and the tendency to enact categorical aid. The impact of this law at the onset was minimal, but later amendments were to greatly broaden its provisions and prove of real importance to deaf persons of all ages (Gearheart, 1977).

## Public Law 85-926

This law was for the training of professional personnel, and it was designed to encourage expansion of teaching for mentally retarded through grants to state agencies and institutions. This was a very significant piece of legislation, because it established a model for

support to teacher trainees in special education (Reinert, 1980).

#### Public Law 88-164

Public Law 88-164 was the Mental Retardation Facilities and Community Mental Health Center's Construction Act. It is one of the cornerstone legislative acts for handicapped children. PL 88-164 brought together into one unit the captioned film program of PL 85-905, an expanded teacher training program from PL 85-926, and a new research program in the education of handicapped children (Reinert, 1980).

#### Public Law 88-164, Section 301

This law is the training professional personnel, and it was amended Public Law 85-926 to include a number of additional handicapping conditions, notably, the emotionally disturbed.

#### Public Law 88-164, Section 302

PL 88-164, Section 302 was the Research and Demonstration Projects in Education of Handicapped Children, and it authorized the Commissioner of Education to make grants to various state and local agencies for research and demonstration projects relating to the education of the handicapped. PL 89-105 later supplemented PL 88-164, Section 302, by permitting monies to be used for construction, equipping, and operation of facilities for research, training research personnel, and various dissemination activities (Reinert, 1980).

#### Public Law 89-10

Public Law 89-10 was enacted for the assistance to children in

disadvantaged areas (including the handicapped). Each of the five of PL 89-10 had direct implications for handicapped children who resided in low-income areas (Reinert, 1980).

#### Public Law 89-105

PL 89-105 which became law on August 4, 1965, provided additional funds for research and demonstration projects in the education of handicapped children and for construction of at least one facility for research (Reinert, 1980).

#### Public Law 89-258

This was an expansion of the "Captioned Films Act", and provided for the distribution of media and equipment in addition to films (Gearheart, 1974).

#### Public Law 89-313

PL 89-313 provided for "Aid for Education of Handicapped Children in State Operated Institutions" and thus corrected an omission in the "Elementary and Secondary Education Act". ESEA was deliberately established to channel funds to local education agencies, but in so doing, bypassed those schools and programs funded directly by the state. Therefore, it left out a significant number of handicapped children. PL 89-313 indicated the determination of Congress to assist all handicapped and educationally disadvantaged. PL 89-313 was passed in 1965 (Gearheart, 1974).

## Public Law 89-511

PL 89-511, passed in 1966, provided amendments to the "Library Services and Construction Acts", to include improvement of libraries residential schools, and in materials and facilities for the handicapped in public libraries (Gearheart, 1974).

## Public Law 89-522

PL 89-522 was also passed in 1966, and it expanded the services provided by the Library of Congress (which up to this point included only services for the blind) to include materials for other physically handicapped individuals (Gearheart, 1974).

## Public Law 89-694

Because the 89th Congress wanted to adequately provide for the deaf, and because their information indicated that inadequate high school education was a major factor in lack of success in college, a "model high school for the deaf" was planned to be built on the campus of Galludet College in Washington D.C. It was to provide a base for experimentation, so as to actually provide a "model" for high school programming for the deaf throughout the nation. PL 89-694 was passed in 1966 (Gearheart, 1974).

## Public Law 89-750, Title VI

PL 89-750, Title VI, Education for Handicapped Children, was a critical legislative act that allowed grants to states through the Elementary and Secondary Education Act (ESEA) for handicapped children.

This act was particularly important since the Division of Handicapped Children and Youth had been disbanded in 1965. A second section of the act called for the establishment of a "National Advisory Committee on Handicapped Children". The committee was to advise the Commissioner of Education as to the national needs and priorities for the handicapped. A third facet of this act directed the "establishment of a Bureau of Education for the Handicapped." Congressional Committee hearings had brought out the strong resentment of special education professionals over the disbanding of the Division of Handicapped Children and Youth, and Committee members became convinced that the proliferation of administration of programs for the handicapped in various bureaus and divisions of the Office of Education was highly undesirable. The act was passed in 1966 (Gearheart, 1974; Reinert, 1980).

#### Public Law 89-752

PL 89-752, also passed in 1966, was primarily to expand and amend the earlier Higher Education Facilities Act, and included two important provisions. The first required that all architectural barriers to the handicapped be eliminated. (This applied to institutions of higher learning which were using federal funds in building new buildings). The second provision was 100 percent forgiveness of NDEA loans to teachers of handicapped children, forgiven at a fifteen percent per year rate for each year the individual teaches handicapped children (Gearheart, 1974).

#### Public Law 90-170

PL 90-170 passed in 1967, was referred to as "Physical Education

and Recreation for the Handicapped" and was promoted through provision of support for professional personnel training and research and demonstration activities.

PL 90-170 also expanded and extended many provisions of PL 88-164. More properly called the "Mental Retardation Amendments of 1967", this act extended the program of matching grants for the construction of university-affiliated and community mental retardation facilities and provided a way whereby part of the costs of the staff of such facilities could be paid through federal funds. It also provided for enforcement of certain minimum standards of operation of these facilities. Further amendments of PL 90-170 provided for the inclusion of individuals with other neurological conditions which are related to mental retardation (Gearheart, 1974).

#### Public Law 90-480

The 1968 Architectural Barriers Act (PL 90-480) required all buildings and facilities designed, constructed, altered or leased with federal funds to provide access to disabled persons. The Architectural and Transportation Barriers Compliance Board (A & TBCB) created through the Rehabilitation Act of 1974 (PL 93-112), ensured compliance with PL 90-480 and broadened its coverage to include all federally funded programs.

#### Public Law 90-538

This is the "Handicapped Children's Early Education Assistance Act", and it was signed into law on September 30, 1968 by President Johnson. This was considered a legislative landmark because it was



developed exclusively for the handicapped rather than as a rider with other legislative concern. The act authorized the Commissioner of Education, acting through the Bureau of Education for the Handicapped, to negotiate grants and contracts with both private and public agencies for establishing experimental preschool and early education programs for the handicapped (Reinert, 1980).

#### Public Law 90-576

The 1968 PL 90-576 is the Vocational Education Act which designated that ten percent of the allotment received by each state must be used for vocational education on behalf of the handicapped. This was further implementation of the principle of earmarked funds for the handicapped within other legislation (Gearheart, 1974).

#### Public Law 91-61

A National Center on Educational Media and Materials for the Handicapped was established through PL 91-61. An amendment to PL 85-905, this law provided for the establishment, construction, and operation of a national center which could serve as a source for the production and storage of specific material and media for the deaf, and for other handicapping conditions, as viewed essentially by the leadership of the Bureau of Education for the Handicapped. In addition, the center was intended to serve as a training facility for media specialists and as a coordinating center for all related activities of the Bureau. PL 91-61 was enacted in 1969 (Gearheart, 1974).

## Public Law 91-230

The Elementary and Secondary Act Amendments of 1969 were much more simple amendments to existing legislation. Title VI of this act consolidated all existing legislation for the handicapped into one package called "The Education of the Handicapped Act", and extended and enlarged a number of existing programs. There were two special provisions of PL 91-230. The first, "Special Programs for Children with Learning Disabilities" incorporated the features of a separate bill for children with learning disabilities. The second important feature of PL 91-230 was educational provision for the gifted and talented. A "Gifted and Talented Children Educational Assistance Act" had been proposed to the 91st Congress, and just as it appeared it could never pass, was included in PL 91-230 is that it established the principle that gifted and talented children and youth may need special assistance, not just to save the nation in time of emergency, or for the national welfare, but for their own sake, to meet their welfare, but for their own sake, to meet their own personal needs and to permit fulfillment of their individual aspirations (Gearheart, 1974).

## Public Law 91-517

This is "The Developmental Disabilities Services and Facilities Act" and it was designed to encourage and assist the states in planning programs for individuals with various developmental disabilities, including mental retardation, epilepsy, cerebral palsy, and others. This bill, enacted in 1970, emphasized the role of local communities in planning and implementing such programs (Gearheart, 1974).

## Public Law 92-424

PL 92-424 is "The Economic Opportunity Amendments of 1972", and it established that a minimum of 10% of the nation's places in Head Start programs be made available to handicapped children and that services be provided for handicapped children in this setting (Reinert, 1980).

## Public Law 93-380

The Education Amendments of 1974, was signed into law by President Ford on August 12, 1974. The primary focus of the law is the amendment of existing elementary and secondary programs in education. It also adds significant legislation, some of which affects handicapped children. Title VI extends and revises the Adult Education Act, the Education of the Handicapped Act, the Indian Education Act, and the Emergency School Aid Act. This legislation requires that states take steps to assure that all handicapped children are being served. It requires the state to protect the rights of handicapped children and their parents in making educational changes; it assures that handicapped are educated, so far as possible, with non-handicapped children, and it tries to ensure that evaluation is part of the services provided.

## Public Law 94-142

This is "The Education of All Handicapped Children Act", and it was signed into law on November 29, 1975. The act, an extension of PL 93-380, brought to fruition many years of efforts by courts of law and state legislators. The scope of the law is very broad, and its guidelines are very specific.

The major aspects of PL 94-142 include the following:

1. The development and use of individualized education programs for each handicapped child.
2. Contains policies that guarantee confidentiality of data and other information about the child.
3. Provides for nondiscriminatory evaluation procedures.
4. Assures that each handicapped child is placed in the least restrictive environment where maximum growth can also be achieved.
5. Includes physical ducation as part of the special education to be provided to all handicapped people.
6. Requires ongoing consultation with parents or parent surrogate.
7. Requires that due process procedures be followed (Reinert, 1980; Clelland, 1978; Bucher, 1983; and Annarino, Cowell, and Hazelton, 1980).

APPENDIX F

SPECIFIC ACTIVITY GUIDELINES FOR TEACHING/  
LEADING PROGRAM PARTICIPANTS WITH  
ORTHOPEDIC PROBLEMS

Specific Activity Suggestions for Teaching/Leading Program  
Participants with Orthopedic Problems

PHASE ONE: PRIMARY LEVEL

Individuals functioning at this foundational level are provided activities to develop basic movement patterns, fundamental motor skills, perceptual-motor skills, and self-awareness.

A. Rhythms, basic movement, movement exploration, perceptual-motor activities

1. Ensure that the physical facilities are large enough for any apparatus you need for the activity.
2. Instruct the orthopedically handicapped in the correct way to fall.
3. Use support apparatus for those individuals who have difficulty standing without crutches.
4. As a variation to moving in a wheelchair, have participants also explore space and do movement patterns on mats.
5. Encourage individuals to perform to their optimal capacity.
6. Instead of clapping hands to keep the beat of the music, have some participants keep the beat by an alternate method, such as tapping with a crutch.
7. Substitute wheelchair and crutch ambulation for locomotor skills.
8. Have a nonhandicapped child push a child who is in a wheelchair to help the second child express movement.

B. Activities with small and large apparatus

1. Attempt to work on an individual basis whenever possible.

2. Provide activities that contribute to the general development of the body in addition to the deveopment of specific areas.
3. Avoid activities that require children to sit for long periods of time without back support if they are weak in this postural maintenance.
4. Use isometric exercises with those individuals who cannot perform the isotonic types.
5. Substitute a sitting or lying position for a standing position.
6. Use a low-set pull-up bar for those children confined to a wheelchair.
7. Make use of ropes and ladders for wheelchair-confined children to climb hand-over-hand; ensure that a soft area is present for landing if the child should fall.
8. Use wall weights for those in wheelchairs.
9. Substitute wheelchair ambulation for running and skipping activities.
10. Use light weight apparatus.
11. Use larger balls.
12. Give proper instruction on how to balance oneself on one crutch. This can enable the child to "kick" a ball with his crutch when the activity warrants this modification.
13. Use partner resistance exercises.

C. Game situations

1. Make modifications in the rules and area of play in addition to modifying the size and type of equipment used.
2. Have relay races combining wheelchair-confined children and

those on crutches on the same team.

3. Allow enough stopping space in the games selected.
4. Use the walk-through procedure when introducing a new game.
5. Make sure that the specific boundaries are known and understood by all children.
6. Try to use many locomotor skills in the games you select and make modifications as needed.
7. Make sure that every child has the opportunity to participate.

D. Individual and dual activities, body mechanics, developmental activities

1. Modify the rules of the activity as needed.
2. Modify the size of the playing area.
3. Be sure that all groups have plenty of room and that they avoid collisions with one another.
4. Match participants as closely as possible according to their ability levels.
5. For children on crutches, substitute the underhand throw for the overhand throw.
6. When accuracy or power is needed, allow the use of two hands instead of one.
7. Increase or decrease the size of the projectile.
8. Permit the student to stand while being supported by a table with a recessed area. These "standing" tables can be used for many table games.
9. Teach the child how to prop his crutches to support his weight and free his hands.



E. Self-testing, stunts, tumbling

1. Be sure that you have sufficient spotters.
2. Avoid having children compete with other individuals.
3. Let the child advance through the activities at his own rate.

F. Story plays, creative drama

1. Select stories that will enable the student to use his imagination.
2. Be sure that the child has fun dramatizing the story.
3. Be sure that the story selected is at the child's level of comprehension.
4. Use a wide variety of stories or dramas.
5. Shorten the story if it takes too long to act out.
6. Let children act out as much of the story as possible.
7. Make use of the crutches and wheelchairs as props for the story or drama.
8. Use as many opportunities as possible to teach concepts throughout the story.
9. Take part in the story yourself or assist the child in performing his specific part.

G. Aquatics

1. Provide experiences for the child that will help him to be acclimated to the water.
2. Care should be taken to prevent fearful, cautious individuals from being splashed suddenly.
3. Stress water safety.
4. Gain the child's trust before attempting to teach any skills.

5. Make sure the child fully understands what you are saying.  
Extensive use of demonstration is highly recommended.
6. Be sure that the child becomes totally familiar with the pool area, including the dressing room, showers, and pool deck.
7. Ensure that the surfaces of the pool area are not slippery.
8. Use flotation devices but try to avoid an overdependence on them.
9. Be sure to review all basic skills at the beginning of each lesson.
10. Provide instruction on a one-to-one basis; the child should receive instruction from the same person each lesson.
11. When possible, allow the child to be in the pool area with the wheelchair

#### PHASE TWO: INTERMEDIATE LEVEL

Individuals functioning at this level are provided activities that would apply and elaborate basic foundational skills to increasingly more complex situations. (Many of the suggestions from Phase One may be employed during Phase Two.)

##### A. Movement patterns, rhythms

1. Initiate guided discovery approaches to motor skills and rhythms.
2. Provide intermediate level rhythms and make any necessary modifications and substitutions of skills.

##### B. Developmental activities, individual and dual activities

1. Give the child an opportunity to work individually on his specific weaknesses.

2. Administer both pretests and posttests to determine progress or lack of progress.

### PHASE THREE: ADOLESCENT LEVEL

Activities for participation in specific sports, games, and higher organized activities are provided at this level; skills developed in Phases One and Two are applied. (Suggestions from Phases One and Two may be applied to Phase Three.)

#### A. Rhythmic activities and dance

1. Slow the tempo.
2. Simplify the patterns of movement and decrease the number of repetitions.
3. Help children achieve success in many activities by having them manipulate instruments with the knees and upper arms.
4. Provide kinesthetic cues, which may range from a signal, such as a tap on the shoulder, to actually leading the child through the movement.
5. Teach the participants how to fall correctly and safely.
6. Teach the child how to prop his crutches to support his weight and free his hands.
7. Have children who cannot stand but who can sit in a chair perform many activities while seated. Use safety belts, if necessary.
8. Omit movement of certain body parts if contraindicated.
9. Substitute crutch or wheelchair ambulation for running or other locomotor skills.
10. Coordinate the motion of functional limbs with wheelchair

11. Slow the tempo of dances slightly to give dancers time to move.

B. Developmental activities

1. Be certain each student exhibits competent use of assistive devices.
2. Spot most activities in the initial phase of instruction.
3. Provide progression in exercises from passive motion to active assistive motion to resistive motion, if necessary.
4. Soften landing spots with mats when tumbling.
5. In activities, substitute a sitting or lying position for a standing position.
6. Have children move the head, neck, shoulders, arms, hands, or trunk while sitting or lying.
7. Have children move in different directions and in various ways to develop dynamic and static balance.
8. Have students push and pull using the elbows, arms, hands, and trunk while lying, sitting, or standing.
9. Have children bend, stretch, twist, turn, and shake as many parts of the body as possible while standing, sitting, or lying. Be certain medical approval is obtained for these actions.

C. Lead-up games, game situations

1. Replace overhead throwing with underhand tossing.
2. Make the playing area smaller.
3. Use large balls or equipment.
4. Add more players to a team to reduce the amount of activity of activity of individuals in a game.

5. Make minor rule changes while still retaining as many of the basic rules of the game as possible.
6. Change the rules so they do not contain many limiting conditions that may lessen the success experienced by the individual.
7. Increase the size of the striking implement and the targets.
8. Reduce the amount of time allowed for play.
9. Reduce the number of points required to win a game.
10. Make free substitution, which will allow students to alternately have a chance to participate and then to have a rest period.
11. When teaching a nonambulatory student to catch, attach the ball to a string or to a piece of elastic for retrieval.
12. For wheelchair activities, use hard, flat, and smooth playing areas with no pitch or unevenness.

#### D. Relays

1. Use a wheelchair relay surface that is flat and has at least 10 yards of unobstructed hard surface extending beyond the finish line.
2. Determine the starting point by the vertical plane of the forwardmost part of the chair, foot rest, or shoe. However, allow some participants to start closer to the finish line if it is necessary to equalize abilities.
3. Shorten the distances in relays.
4. Increase or decrease the amount of activity by reducing or increasing the number of participants on each team.

## E. Aquatics

1. Require each student to provide a doctor's certificate stating that he may participate; it should include medical recommendations for activities.
2. Use a deck that is wide, skidproof, and close to the surface of the water.
3. Use a pool with a nonslip bottom.
4. Try to have a one-to-one teacher-student ratio.
5. Use flotation devices but do not depend on them for continued instruction unless they are necessary.
6. Keep pupils in shallow water until they are able to swim.
7. Prevent unnecessary splashing.
8. Determine if any students swim more easily on their backs.
9. Assist pupils in getting into the pool. Use ramps or special apparatus, if necessary.
10. Assist the student in finding his balance point in the water.

## PHASE FOUR: YOUNG ADULT

Competencies and skills that have been developed in previous sequential stages are applied to more complex games, sports, and recreational activities. (See lead-up games in Phase Three for the modifications of basic games and sports skills. Also see Phases One and Two for other suggestions that may be appropriate.)

### A. Individual, dual, and team sports

1. Archery
  - a. Position students at right angles to the target.
  - b. Recommend the crossbow for students with hand impairments.

- c. Assist the student in anchoring and releasing the arrow.
- 2. Badminton
  - a. Reduce the playing area or lower the net.
  - b. Recommend the handle-extension racket for wheelchair players.
  - c. Have students use seat belts for wheelchair badminton.
- 3. Bowling
  - a. Use a stable guide rail.
  - b. Use lighter bowling balls.
  - c. Have students bowl from a chair or wheelchair.
  - d. Modify the approach by reducing the number of steps.
- 4. Floor hockey
  - a. Position as goalies players who lack coordination and balance.
  - b. Eliminate body contact.
  - c. Require seat belts.
- 5. Basketball
  - a. Allow an offensive player more time in the key.
  - b. Lower the goal.
  - c. Use wheelchair basketball rules.
- 6. Soccer
  - a. Use a regulation soccer ball with less air.
  - b. Use half of the regulation-sized goal or use two goalies.
  - c. Modify the rules so that the goalie need only touch the ball and the goal will not count.
- 7. Track and field

- a. Use track surfaces that are flat, hard, and smooth.
- b. In throwing events, stabilize the competitor's chair during the throw.
- c. Use a target in the javelin throw.
- d. Use obstacle courses marked by flags or gates.
- e. Use wheelchair track and field rules.

#### 8. Volleyball

- a. Lower the net.
- b. Increase the number of hits or volleys allowed on each side.
- c. Allow players to play the ball from a bounce on the floor.
- d. Modify the serving position, such as from a wheelchair, crutches, or a chair.
- e. Assign stationary positions on the floor.
- f. Have students use seat belts.
- g. Increase the number of players.

#### 9. Air riflery

- a. Use assistive devices such as a tripod gun holder.
- b. Hold the butt of the stock against the shooter's shoulder.
- c. Place a string from the trigger to the shooter's mouth if he has lost the use of both arms.
- d. Use sitting and prone positions.

Source: Geddes, D. Physical Activities for Individuals with Handicapping Conditions. St. Louis. C.V. Mosby, 1978. p. 107-120.



## APPENDIX G

### GUIDELINES FOR OBSERVING BEHAVIORS DURING THE ASSESSMENT PROCESS

# Guidelines for Observing Behaviors During the Assessment Process

Child's Name: \_\_\_\_\_ Observer: \_\_\_\_\_

Date: \_\_\_\_\_

## 1. Screening, adaptive or informal assessment

- A. What did the child do?
- B. Which tasks were the most difficult for the child?
- C. Which materials evoked optimal responses from the child?
- D. What was the average length of time the child attended to each task? Did any specific tasks hold his/her attention longer?
- E. How quickly did the child learn new tasks? Could she/he generalize new skills to other materials? Could she/he remember new skills over time?
- F. Through what means did the child approach the majority of tasks?
- G. What questions would you pursue based on the child's performance? What type of tasks will answer your questions?
- H. How did the child respond to the evaluator? Was rapport established and how was this accomplished?
- I. What type of behavioral management techniques were successful?
- J. What appears to be the origin of the child's cognitive/adaptive delay?
- K. What informal assessment instruments or subtests would you use to further investigate this child's skills?

Cognitive \_\_\_\_\_

Language \_\_\_\_\_

Motor \_\_\_\_\_

Social/Self-care \_\_\_\_\_

- L. What is the approximate level of this child's level of functioning?

0-6 mos. \_\_\_\_\_ 6-12 mos. \_\_\_\_\_ 12-18 mos. \_\_\_\_\_

18-24 mos. \_\_\_\_\_ 24-30 mos. \_\_\_\_\_ 30-36 mos. \_\_\_\_\_

36-42 mos. \_\_\_\_\_ 42-48 mos. \_\_\_\_\_ 48-54 mos. \_\_\_\_\_

54-60 mos. \_\_\_\_\_ 60-66 mos. \_\_\_\_\_ 66-72 mos. \_\_\_\_\_

Comments: \_\_\_\_\_

- M. What appears to be the most handicapping condition? Based on screening information, how would you rate this child's auditory, visual, physical, and intellectual systems?

Rating key: 0 = no or very minimal impairment

1 = impairment that interferes with performance  
but not significantly

2 = severe impairment, system is nonfunctional or  
extremely damaged.

Auditory \_\_\_\_\_ Visual \_\_\_\_\_ Physical \_\_\_\_\_ Intellectual \_\_\_\_\_

## II. Fine Motor Skills

- A. Did the child approach materials with one hand more than another? Which?
- B. Did the child: reach \_\_\_\_\_ grasp \_\_\_\_\_ release voluntarily \_\_\_\_\_?
- C. Did the child hold objects in both hands? \_\_\_\_\_
- D. Did the child use two hands together? In the same direction?  
In opposing directions?

- E. Did the child cross his/her midline? \_\_\_\_\_
- F. How did the child hold (grasp) pegs, blocks, beads, rings, cups, scissors, writing implements?
- G. Could the child rotate wrists to: RH? LH?
- turn the handle on a jack-in-the-box \_\_\_\_\_ open a door \_\_\_\_\_
- twist off tops and lids \_\_\_\_\_ operate an eggbeater \_\_\_\_\_
- wind a mechanical toy \_\_\_\_\_
- H. How would you describe his/her eye-hand coordination?
- Accuracy \_\_\_\_\_ Control \_\_\_\_\_ Rhythm \_\_\_\_\_ Speed \_\_\_\_\_
- I. Could she/he plan motorically?
- Paper and markers \_\_\_\_\_ Beads \_\_\_\_\_ Blocks \_\_\_\_\_
- Cutting \_\_\_\_\_ Paper folding \_\_\_\_\_ Washers and rings \_\_\_\_\_
- J. What is the primary origin of this motor delay?
- K. What other motor instruments or subtests would you further use?
- \_\_\_\_\_
- L. What is approximate developmental level? \_\_\_\_\_

### III. Gross Motor

- A. What is the primary origin of the gross motor delay?
- B. Does the child have basic movement patterns?
- Head control \_\_\_\_\_ Trunk control \_\_\_\_\_ Sitting balance \_\_\_\_\_
- Cutting \_\_\_\_\_
- C. Describe the child's highest level of movement: How did the child do it?
- D. Did the child maintain balance?
- From a sitting position \_\_\_\_\_ While walking \_\_\_\_\_
- While standing on one foot \_\_\_\_\_ While walking beams \_\_\_\_\_

- E. Did the child run? jump? climb stairs? HOW?
- F. Did the child interact with balls? Did the child tract pro-  
jectory? RH, LH  
Catch \_\_\_\_\_ Throw \_\_\_\_\_ Kick \_\_\_\_\_
- G. Did the child follow a series of movements?
- H. What formal gross motor instrument or subtests would you use  
to further evaluate these skills?
- I. What is the child's approximate developmental motor level?

#### IV. Socialization Self-Care Skills

- A. Did the child separate easily from the parent(s)?
- B. Was rapport establishment easily?
- C. Was eye contact established with the evaluator(s)?
- D. Did the child cooperate with the evaluators? Enthusiastically  
or passively?
- E. Did the child resist performing tasks?
- F. Did the child exhibit any unusual behaviors, i.e., self-sti-  
mulation?
- G. Was the child abusive or aggressive?
- H. Did the child interact with people and toys appropriately?
- I. To what extent could the child toilet self?
- J. To what extent could the child undress and dress?
- K. To what extent could the child wash hands?
- L. What further instruments would you use to gather more infor-  
mation?
- M. What was the approximate developmental level?

V. Other Observations/Impressions

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Source: Neisworth, J.T. Assessment in Special Education. Rockville,  
Maryland: Aspen Systems, 1982.

APPENDIX H

DESCRIPTION OF PHYSICAL EDUCATION OPPORTUNITY  
FOR EXCEPTIONAL-HANDICAPPED  
LEARNERS (PEOPEL)

Description of "Physical Education Opportunity for  
Exceptional-Handicapped Learners" (PEOPEL)

**Description:** PEOPEL is a specially designed, success-oriented physical education program for students with unique needs. PEOPEL emphasizes individualized learning made possible by utilizing peer-tutors (student aides). Students develop mental, social, emotional and physical abilities at their own pace. Individualized learning of a variety of physical activities is possible by utilizing student aides who have completed an orientation class and who are under the direct supervision of the physical education teacher. This provides a one-to-one instruction ratio in a coeducational class of 30 students (15 exceptional and 15 student aides).

**Rationale:** The intent of PEOPEL is to create a positive learning atmosphere in which students are not segregated from their peers due to their exceptionalities. Students and teachers discover that individuals enrolled in PEOPEL have many more similarities than differences, and that students who need physical education and activity the most, benefit from this environment.

**Inputs:** Instructional Units include a variety of thirty-five activities (individual, dual, and team/group activities). The Instructional Units are developed within the PEOPEL Teacher's Guide (587 pages). Each Unit contains a series of Performance Objectives, each of which has been Task



Analyzed for sequential progression. Performance Objectives deal with cognitive, affective and physical skill components of each Unit. Examples of Units are swimming, gymnastics, badminton, archery, softball, and others.

**Process:** The organization of the PEOPEL class is very similar to that of general physical education classes with a student-to-teacher ratio of 30:1. Students are pre-tested during each Unit to determine entry skill levels based on the Performance Objectives. At the conclusion of daily participation and instruction with the Unit, students are post-tested to demonstrate their improvement on a variety of Performance Objectives. PEOPEL classes meet and are conducted in accord with the general physical education class schedules.

**Outcomes:** Learner Based:

- 1) PEOPEL students improved physical education sports and games skills, knowledge and attitudes.
- 2) PEOPEL students improved attitudes toward physical education and activity, as measured on a modified Wear's Physical Education Attitude Scale.
- 3) Student Aides improved their knowledge of and attitude toward their exceptional-handicapped-peers through participation in the orientation class and experiences within PEOPEL classes.

**Key Elements of PEOPEL:**

- 1) Peer-teaching with exceptional learners and student aides together in a physical education class setting under the direction and supervision of the physical education teacher.
- 2) Student Aide orientation prior to their enrollment as an Aide in a PEOPEL class.
- 3) School and District Administrative support and co-operation.
- 4) Appropriate use of physical education personnel, facilities and equipment.
- 5) Ongoing inter-disciplinary cooperation and communications on campus.
- 6) Student evaluations.

#### Criteria Used in Selection of Adopters:

Schools must demonstrate a need for and interest in the key elements of PEOPEL, and identify two physical educators per campus who have a desire to become involved in PEOPEL development and teaching. Prior to adoption, the Adopter, State Facilitator and PEOPEL Project must cooperatively complete/sign the PEOPEL Implementation Agreement.

#### Population Characteristics of Adopter:

Students enrolled in PEOPEL are those who will benefit more from this specially designed program than from general physical education. This may be due to some physical, mental, social or emotional exceptionality or

need. Student Aides are students who enjoy physical education and are interested in sharing these experiences with their exceptional peers in PEOPEL.

Population Size Requirements:

Not Applicable. Key Elements of PEOPEL have been successfully implemented in schools of 150-3500 students.

Staff Requirements for Adoption:

Staff Training - Start-up Staff Training is a one-day process, and includes a "team" from each adopter school. The "team" should consist of an administrator, counselor, school nurse, special education chairperson, and physical education teachers.

Installation - Personnel primarily responsible for PEOPEL teaching should be teachers from the physical education department.

Instructional Material Requirements:

Commercially Prepared - None

D/D PEOPEL Prepared - Teacher's Guide (587 pages), 35

Units of Instruction; Administrative Guide (60 pages), detailed suggestions of procedures for program start-up and maintenance; Student Aide Manual (60 pages), materials necessary for Student Aide orientation.

Other Materials, Optional - PEOPEL Awareness Film/Video Tape, 10 minutes, color, sound orientation of PEOPEL concept and programming practices; PEOPEL Slide/Tape, 6 minutes, color, sound awareness presentation.

#### Facility Requirements:

PEOPEL utilizes the same facilities as the general physical education classes.

#### Equipment Requirements:

PEOPEL utilizes the same equipment as the general physical education class. No specialized equipment is required.

#### Financial Resources:

Start-up - Released time and/or substitute teacher expenses for adopter school "team", plus a portion of PEOPEL staff travel expenses.

Continuation - Teacher(s) salary based on costs per PEOPEL class.

#### Training Required of Adopters:

Pre-Adoption Awareness - Optional

Implementation Training - One day for one to four schools, two days for five or more schools. Training prior to school year or prior to second semester at the adopter site.

#### Implementation Stages:

Student Aides are identified and "trained" prior to the identification, placement and initiation of PEOPEL classes. PEOPEL classes must begin with aides and students together. Do not attempt to start the PEOPEL class with students and no aides, then incorporate aides into the class at a later date.

Costs Assumed by D/D PEOPEL:

Awareness: A variety of awareness activities are planned each year cooperatively between PEOPEL and SF Projects. Contact PEOPEL for Activities planned.

Training Costs: Start-up Staff-Training expenses for PEOPEL staff members to conduct sessions at the adopter site are negotiated in cooperation with the State Facilitator Project, the Adopter District and PEOPEL.

Follow-up Costs: Generally the responsibility of the PEOPEL Project.

Materials Costs: Teacher's Guide - \$10; Administrative Guide - \$2; Student Aide Guide - \$2; PEOPEL Video Tape - \$50; PEOPEL Film - \$200; PEOPEL Slide/Tape - \$40.

Follow-Up Services Provided by PEOPEL:

Follow-up services as needed range from phone and letter correspondence to on-sight visitation and monitoring.

Source: Long, M. "PEOPEL Project Portfolio". Phoenix Union High School District, 3526 West Osborn Road, Phoenix, Arizona, 85017. 1977.

## APPENDIX I

### AAHPERD GUIDELINES FOR ADAPTED PHYSICAL EDUCATION

## A.A.H.P.E.R.D. GUIDELINES FOR ADAPTED PHYSICAL EDUCATION

(Journal of Health, Physical Education, Recreation and Dance, 1981, (52) 6, pp. 44-45)

## 1.0 Biological Foundations

## 1.1 KINESIOLOGY

- 1.1.1 Demonstrate ability to apply understanding of motor dysfunction and their implications to adapted physical education programs.
- 1.1.2 Demonstrate ability to apply understanding of neurological disorders and their implications to motor functioning.
- 1.1.3 Demonstrate ability to apply understanding of deviations from normal physical growth and development to analyses of motor skills.
- 1.1.4 Demonstrate proficiency in evaluating and analyzing motor skills.
- 1.1.5 Demonstrate ability to apply understanding of unique structures of individuals with disabilities to individualized instruction in adapted physical education.
- 1.1.6 Demonstrate ability to apply biomechanical principles which affect motor functioning to wheelchair, crutch, braces, and artificial limb use.
- 1.1.7 Demonstrate ability to apply biomechanical principles which affect motor functioning to posture, and neurological, muscular, and other specific physical health needs.

## 1.2 PHYSIOLOGY OF EXERCISE

- 1.2.1 Demonstrate knowledge of how dysfunctions affect physiological

responses to exercise.

- 1.2.2 Demonstrate ability to design instructional physical education programs in accordance with essential physiological considerations and principles specific to individuals with disabilities.
- 1.2.3 Demonstrate proficiency in conducting instructional physical education programs in accordance with essential physiological considerations and principles specific to individuals and disabilities.
- 1.2.4 Demonstrate ability to apply research findings in the area of exercise physiology specific to individuals with disabilities.

### 1.3 PHYSIOLOGICAL AND MOTOR FUNCTIONING

- 1.3.1 Demonstrate ability to apply an understanding of physiological, mental, sensory, neurological and other specific health needs to programs designed to improve motor performances of these individuals with disabilities.
- 1.3.2 Demonstrate ability to apply an understanding of physiological motor characteristics for individuals with physical, mental, sensory, neurological and other specific health needs to programs designed to improve motor performance of these individuals with specific disabilities.
- 1.3.3 Demonstrate ability to apply techniques for the prevention and care of injuries specific to individuals with specific disabilities.



## 2.0 Sociological Foundations

### 2.1 SPORT, DANCE AND PLAY

- 2.1.1 Demonstrate ability to analyze the role and significance of sport, dance, and play in the lives of individuals with disabilities.
- 2.1.2 Demonstrate understanding of roles and significance of lifetime physical activities for individuals with disabilities.
- 2.1.3 Demonstrate understanding of influences of community social agencies on sport, dance, and play in lives of individuals with disabilities.

### 2.2 COOPERATIVE/COMPETITIVE ACTIVITIES

- 2.2.1 Demonstrate ability to apply understanding of potential for human interaction and social behavior occurring in cooperative/competitive activities for individuals with disabilities.
- 2.2.2 Demonstrate ability to work and cooperate with organizations which conduct adapted sport, dance, and play programs and activities for individuals with disabilities.

### 2.3 SOCIAL DEVELOPMENT

- 2.3.1 Demonstrate ability to apply understanding of the potential that sport, dance, and play provides for social interaction among individuals with and without disabilities.

## 3.0 Psychological Foundations

### 3.1 HUMAN GROWTH AND DEVELOPMENT

- 3.1.1 Demonstrate ability to apply understanding of deviations in

normal human growth and development of individuals with physical, mental, sensory, neurological, and other specific health needs.

- 3.1.2 Demonstrate ability to apply understanding of atypical motor development to individuals with disabilities.

### 3.2 MOTOR LEARNING

- 3.2.1 Demonstrate ability to apply principles of motor learning to individuals with specific physical and motor needs.
- 3.2.2 Demonstrate ability to apply principles of motivation on development of motor skills by individuals with disabilities.

### 3.3 SELF-CONCEPT AND PERSONALITY DEVELOPMENT

- 3.3.1 Demonstrate understanding of how participating in physical and motor activities contributes to positive self-concepts of individuals with disabilities.
- 3.3.2 Demonstrate ability to apply understanding how interpersonal relationships are affected by participation in physical and motor activities.
- 3.3.3 Demonstrate ability to apply skills and techniques to assist individuals with disabilities overcome additional barriers which can affect interpersonal relationships and development of positive self-concepts.

### 3.4 MANAGEMENT OF BEHAVIOR

- 3.4.1 Demonstrate ability to apply appropriate techniques for managing behavior (i.e., behaviorism, existentialism, hu-

manism).

- 3.4.2 Demonstrate ability to apply techniques of motivation to enhance acceptable behavior and promote motor performance.

#### 4.0 Historical-Philosophical Foundations

##### 4.1 HISTORICAL DEVELOPMENT

- 4.1.1 Demonstrate understanding of the historical development of adapted physical education.
- 4.1.2 Demonstrate understanding of roles and significance of professional and voluntary organizations on development of professional standards, ethics, and programs related to adapted physical education.

##### 4.2 PHILOSOPHICAL DEVELOPMENT

- 4.2.1 Demonstrate understanding of philosophies of adapted physical education.
- 4.2.2 Demonstrate ability to apply a personal/professional philosophy of adapted physical education.
- 4.2.3 Demonstrate understanding of current issues and emerging trends in adapted physical education and their philosophical significances.
- 4.2.4 Demonstrate understanding of ways individuals with disabilities realize and express their individualities and uniquenesses through physical education, sport, dance, and play program.

#### 5.0 Assessment and Evaluation

##### 5.1 PROGRAM GOALS AND OBJECTIVES

- 5.1.1 Demonstrate ability to apply goals and objectives of adapted

physical education.

- 5.1.2 Demonstrate ability to develop instructional objectives which lead to fulfillment of physical education goals in psychomotor, affective, and cognitive domains by individuals with disabilities.

## 5.2 SCREENING AND ASSESSMENT

- 5.2.1 Demonstrate proficiency in applying appropriate instruments and procedures for measuring levels of physiological, bio-mechanical, and psychomotor functioning of individuals with disabilities.
- 5.2.2 Demonstrate proficiency in applying appropriate criteria in constructing assessment instruments for measuring physical and motor performances of students with disabilities.

## 5.3 EVALUATION

- 5.3.1 Demonstrate proficiency in applying appropriate instruments in determining physical and motor needs of individuals with disabilities.
- 5.3.2 Demonstrate proficiency in applying principles of evaluation in determining student progress in adapted physical education.

## 6.0 Curriculum Planning, Organization, and Implementation

### 6.1 PROGRAM PLANNING

- 6.1.1 Demonstrate proficiency in planning instructional programs to meet needs of students with disabilities emphasizing the following areas:

- physical and motor fitness

-fundamental motor skills and patterns

-Skills in aquatics, dance, individual and group games

and sports, including lifetime sports and leisure skills.

6.1.2 Demonstrate ability to plan individual physical education programs based on goals and objectives established by an interdisciplinary team.

6.1.3 Demonstrate ability to adapt physical and motor fitness activities, fundamental motor skills and patterns, aquatics and dance, and individual and group games and sports, including lifetime and leisure skills, to accommodate needs of individuals with disabilities.

6.1.4 Demonstrate understanding of organizations that govern adapted sports and games.

## 6.2 INDIVIDUAL INSTRUCTION

6.2.1 Demonstrate ability to apply strategies for individualizing instruction for students with disabilities in a variety of instructional setting.

6.2.2 Demonstrate ability to apply task analysis technique in the process of individualizing instruction.

6.2.3 Demonstrate ability to implement appropriate physical education programs for individuals with disabilities based on each student's current level of performance.

## 6.3 PROGRAM IMPLEMENTATION

6.3.1 Demonstrate ability to implement appropriate physical education curricula for individuals with disabilities based upon

adequate supportive factors (i.e., administrative policies, facilities, equipment, faculty, and community).

6.3.2 Demonstrate ability to function effectively as a member of an interdisciplinary team.

6.3.3 Demonstrate ability to apply appropriate techniques for facilitating interdisciplinary communication among all persons working with individuals with disabilities.

#### 6.4 SAFETY CONSIDERATIONS

6.4.1 Demonstrate ability to apply principles of safety to wheelchair transfers, lifts, and assists needed when individuals with disabilities participate in physical activities.

6.4.2 Demonstrate understanding of scientific bases for specifically contraindicated exercises and activities for individuals with disabilities.

#### 6.5 HEALTH CONSIDERATIONS

6.5.1 Demonstrate ability to apply principles of appropriate health practices of participation in physical and motor activities by individuals with disabilities.

6.5.2 Demonstrate understanding of effects of medication, fatigue, and illness on mental, physical, and motor performance of individuals with disabilities.

6.5.3 Demonstrate understanding of implications of personal hygiene, posture, and nutrition for individuals with disabilities.

APPENDIX J

SAMPLE LETTER TO PARENTS FROM THE  
PHYSICAL EDUCATION TEACHER

\_\_\_\_\_ School

Date \_\_\_\_\_

Dear Parents:

The program of health and physical education at our school has a wide variety of activities to offer to all students. The activities are adapted to fit the special needs of each pupil regardless of his physical attributes. After receiving the recommendations of your family physician, it was found that your child could participate in the following activities which are being offered in physical education this year:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

By giving your child an opportunity to participate in these physical activities, we hope to achieve these objectives:

- Develop his physical fitness and health to optimum potential;
- Develop skills in the basic motor movements of sports and everyday living;
- Develop a variety of sport skills for use in worthy leisure time activity;
- Promote a desire for continuous physical improvement;
- Promote an understanding of his physical limitations and potentialities;
- Provide opportunities to play and participate socially with others.

We hope that our plans meet with your approval. If you wish to discuss the program further, please call me at \_\_\_\_\_.

Yours truly,

Source: Fait, H.F. Special Physical Education: Adapted, Corrective, Developmental. Philadelphia: W.B. Saunders, 1978.



APPENDIX K

CHECK LISTS FOR EVALUATING  
INSTRUCTIONAL MATERIALS

## Checklist A: Appropriateness

Below are questions for determining the appropriateness of materials to your program and students.

Materials selected: Target population \_\_\_\_\_

Age range \_\_\_\_\_

Student(s) \_\_\_\_\_

Special needs \_\_\_\_\_

Yes    No

- |              |  |
|--------------|--|
| ____    ____ | 1. Is there a direct relationship between the materials and the program goals and objectives?  |
| ____    ____ | 2. Do the objectives of the materials have practical applicability to the present or future needs of the students as judged by parents and significant others? |
| ____    ____ | 3. Do the objectives of the materials directly relate to instructional activities and games recommended to facilitate student progress toward program goals?   |
| ____    ____ | 4. Are the prerequisite skills or abilities needed to achieve the desired level of skill clearly defined?  |
| ____    ____ | 5. Do the materials include high motivation games and activities and other devices to maintain student interest?   |
| ____    ____ | 6. Is the level of language difficulty to be used by the teacher to present the materials compatible with the student's development?                           |

- \_\_\_ 7. Do the objectives of the materials specify sequential steps for progressing toward mastery which are compatible with the student's development and experience?
- \_\_\_ 8. Do the materials allow for alternative teaching strategies and learner responses compatible with the learner's characteristics?
- \_\_\_ 9. Do the materials have options for organizing the learning environment (e.g., structured or unstructured; formal or informal)?
- \_\_\_ 10. Are the materials flexible so they can easily be adapted to fit the needs of a particular student or group of students?

Criterion: Nine out of 10 (90 percent) responses should be "Yes" to indicate that the materials can be considered appropriate. Or you may wish to set you own criterion.

## Checklist B: Quality

Below are questions for determining the quality of materials and content for an individualized learning program.

Materials selected: Target population \_\_\_\_\_

Age range \_\_\_\_\_

Student(s) \_\_\_\_\_

Special needs \_\_\_\_\_

Yes    No

- |              |  |
|--------------|--|
| ____    ____ | 1. Are the skills and concepts of the instructional materials described accurately and clearly?                    |
| ____    ____ | 2. Is the content of the instructional materials appropriate?  |
| ____    ____ | 3. Does the content include skills and concepts in social and cognitive areas as well as the psychomotor area?     |
| ____    ____ | 4. Are the objectives stated in behavioral terms (including conditions and standards of performance)?              |
| ____    ____ | 5. Do the objectives represent logical and sequential instructional learning tasks?                                |
| ____    ____ | 6. Are criterion-referenced tests (CRTs) provided for assessing the student's entry level?                         |
| ____    ____ | 7. Are assessment instruments (CRTs) provided for frequent evaluation of student progress and continuous feedback? |
| ____    ____ | 8. Are class and individual record-keeping procedures provided for recording and evaluating student progress?      |

- \_\_\_ 9. Is there a direct relationship between the specified instructional activities and games and the stated instructional objective?
- \_\_\_ 10. Do the instructional activities include options for co-planning and programming with other curriculum areas?
- \_\_\_ 11. Is the obtained assessment data useful for setting annual goals and short-term objectives for all students?
- \_\_\_ 12. Can the obtained assessment data be used to program for individualized learning so that each learner's need is the constant focus of his or her instructional activities?
- \_\_\_ 13. Can assessment of the student's needs be conducted by the teacher or staff in a reasonable time period?
- \_\_\_ 14. Do the instructional materials provide means and tools for evaluating student progress and checking on the appropriateness of instructional decisions?
- \_\_\_ 15. Do the materials lend themselves to use with individuals with varying skill levels and interests?
- \_\_\_ 16. Can the materials be easily adapted for use in:
  - \_\_\_ self-contained special education classes
  - \_\_\_ regular education classes
  - \_\_\_ regular education classes with part-time learning resource rooms or tutorial settings

Criterion: A minimum of 90 percent of the responses (14 of the 16 responses) should be positive. For Question 16, a "Yes" answer for each setting is required. Or you and other staff may set the criterion for a given situation.

## Checklist C: Feasibility

Below are questions for determining the feasibility of using the instructional materials.

Materials selected: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Target population \_\_\_\_\_

Age range \_\_\_\_\_

Student(s) \_\_\_\_\_

Special needs \_\_\_\_\_  
 \_\_\_\_\_

## Costs:

1. How much does this program cost to institute?

a. Materials	_____	
b. Inservice	_____	
c. Supportive Services	_____	
d. Facilities	_____	
e. Staff	_____	
f. Equipment	_____	
g. Other	_____	TOTAL _____

2. How much does this program cost to maintain on a yearly basis?

a. Materials	_____
b. Inservice	_____
c. Supportive Services	_____

- d. Facilities \_\_\_\_\_
  - e. Staff \_\_\_\_\_
  - f. Equipment \_\_\_\_\_
  - g. Other \_\_\_\_\_
- TOTAL \_\_\_\_\_

**Facilities:**

3. Does this program require a gym? \_\_\_\_\_  
\_\_\_\_\_
4. Are there special facilities needed?
- a. Locker Room \_\_\_\_\_
  - b. Swimming Pool \_\_\_\_\_
  - c. Track \_\_\_\_\_
  - d. Athletic Field \_\_\_\_\_
  - e. Indoor or Outdoor  
Courts \_\_\_\_\_
  - f. Storage \_\_\_\_\_
  - g. Other \_\_\_\_\_

**Staff:**

5. Does this program require a trained specialist? \_\_\_\_\_  
If so, in what area of specialty? \_\_\_\_\_
6. If inservice is necessary, does the school have the personnel or  
must outside consultants be brought in? \_\_\_\_\_  
\_\_\_\_\_
7. Does the program necessitate teacher aides, other volunteers, or  
paid assistants? \_\_\_\_\_  
If so, how many? \_\_\_\_\_

8. What type of support people are necessary? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Scheduling:

9. How much staff time is required to plan, implement, and evaluate this program? \_\_\_\_\_

\_\_\_\_\_

10. Would implementation of this program require changes in some or all of the school or building schedule? \_\_\_\_\_

\_\_\_\_\_

To what extent? \_\_\_\_\_

\_\_\_\_\_

What are the implications of this rescheduling for other scheduled programs? \_\_\_\_\_

\_\_\_\_\_



### Feasibility Summary Questions

With information from the prior questions, you are now ready to answer the following questions and make your decision.

Yes    No

- |              |  |
|--------------|--|
| ____    ____ | 1. Are facilities needed to implement the materials available?   |
| ____    ____ | 2. Do you have staff who can use the materials?  |
| ____    ____ | 2a. If not, is needed inservice training available?  |
| ____    ____ | 3. Do you have sufficient staff to implement the program?  |
| ____    ____ | 3a. If not, are monies available to hire the number of staff needed?   |
| ____    ____ | 4. Do you have staff time available in the school program to plan and implement the program?   |
| ____    ____ | 5. Is the instructional time recommended for using the program within the constraints of your instructional setting?                     |
| ____    ____ | 6. Can consumable portions of the materials be easily and inexpensively reproduced by the school?  |
| ____    ____ | 7. Can component materials as well as the total program be purchased?  |
| ____    ____ | 8. Is the cost for the total program or selected materials to supplement your program within the budget allocations for school programs? |
| ____    ____ | 9. Is the cost to maintain the program within the projected annual budget for school programs?   |

- \_\_\_ 10. Are scheduling changes required to institute this program possible without detriment to other scheduled programs?

Criterion: Nine out of ten responses (90 percent) should be "Yes" to indicate that the materials can be considered feasible.

Or you can set your own criterion. Count either 2 or 2a or 3 or 3a as one response.

## Usability of Specific Materials

Below are questions for determining the usability of the materials with your program and students.

Materials selected: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Objectives selected: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Target population: \_\_\_\_\_

Age range: \_\_\_\_\_

Student(s): \_\_\_\_\_

Special needs: \_\_\_\_\_

\_\_\_\_\_

Assuming that you have narrowed your selection of materials and chosen a program that has the potential for meeting your needs, you are now ready to review the materials using either an interview approach or a structured observation approach. For each objective selected for implementation, formulate questions which will give you the information asked for below. The same questions can be used for interviewing other teachers or for observing your students during instruction.

### A. Planning

1. The performance objectives listed for your students' age level are:

- a. Totally appropriate for your students.

- b. Generally appropriate with some additions or deletions.
- c. All inappropriate.

If you answered b, indicate additions or deletions; if you answered c, explain WHY.

2. The time estimates given are:

- a. Accurate projections for teaching your students.
- b. Inaccurate and should be modified.

If you answered b, explain HOW.

B. Assessment

Examine the performance objective and the skill level descriptions.

1. For each skill level, the conditions under which the student is expected to perform.

- a. Are appropriate for your students.
- b. Would be appropriate if they were changed.
- c. Are totally unrealistic for your students.

If you answered b, explain HOW. If you answered c, explain WHY.

2. The criteria for performance of each skill level (e.g., 2/3 times, 50 yds, etc.)

- a. Are reasonable for your students.
- b. Should be changed.
- c. Are totally unreasonable for your students.

If you answered b, explain HOW; if you answered c, explain WHY.

3. Within this performance objective, the skill levels

- a. Are sequenced appropriately.
- b. Need to be expanded or modified.
- c. Are totally meaningless.

4. The subcomponents of each skill level (if present)
  - a. Represent adequate units for assessment and instruction as they are now written.
  - b. Need to be more discrete (i.e., broken into smaller units).
  - c. Should be combined for assessment and instruction.

If you answered b or c, explain HOW.

5. The directions on the assessing activities are
  - a. Clear and understandable as written.
  - b. Unclear and need to be rewritten.

If you answered b, explain HOW.

6. The assessing activity as described
  - a. Is appropriate for obtaining an initial assessment of your students' performance.
  - b. Is inappropriate for your students and should be changed.

If you answered b, explain HOW.

7. The class record sheet
  - a. Is usable for recording assessment information.
  - b. Would be better if it were modified.

If you answered b, explain HOW.

#### C. Prescription

8. The format of the instructional activities
  - a. Is clear and easy to use.
  - b. Should be changed to be more understandable.

If you answered b, explain HOW.

9. The organizations suggested on the instructional activities
  - a. Are feasible for use with your students.

- b. Need to be changed to make them appropriate for your group of students.

If you answered b, explain WHICH ONES (refer to skill level and focal point) and HOW they should be changed.

#### D. Teaching

- 10. The teaching prompts or strategies ("what to do") suggested on the instructional activities are

- a. appropriate for teaching your students.
- b. Inappropriate and need to be modified.
- c. Totally inappropriate and should be thrown out.

If you answered b, explain WHICH ONES and HOW. If you answered c, explain WHY.

- 11. The verbal cues ("what to say") suggested on the instructional activities are

- a. Appropriate for teaching your students.
- b. Inappropriate and need to be modified.
- c. Totally inappropriate and should be thrown out.

If you answered b, explain WHICH ONES, and HOW. If you answered c, explain WHY.

- 12. The provisions in the instructional activities for coordinating with other subject matter areas are

- a. Useful for teaching and reinforcing other skills and concepts to your students.
- b. Would be useful if they were changed.
- c. Have no value whatever.

If you answered b, explain HOW. If you answered c, explain

WHY.

E. Evaluation

14. The class record sheet with reassessment information

a. Is a useful tool for evaluating and reporting student progress.

b. Would be more useful if it were changed.

If you answered b, explain HOW.

15. The individual student record

a. Has utility in evaluating and reporting student progress.

b. Would be more useful if changed.

If you answered b, explain HOW.

F. Criterion

16. Note: You should establish your own criterion for determining the useability of the materials based upon your responses to questions above.

Source: Wessel, J.A. Planning Individualized Education Programs in Special Education. Northbrook, Illinois: Hubbard Publishers. 1977.

2  
VITA

Taoheed Abdul Adedoja

Candidate for the degree of  
Doctor of Education

Thesis: OPERATIONAL GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION  
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