

EVALUATION AND SELECTION OF COMMERCIALY AVAILABLE
RECREATION EQUIPMENT FOR USE BY
PHYSICALLY HANDICAPPED CHILDREN

by

Steven K. Paul

B.S. Landscape Architecture
Washington State University, 1974

A MASTERS THESIS

Submitted in partial fulfillment of the

requirements of the degree

MASTER OF LANDSCAPE ARCHITECTURE

College of Architecture and Design
Department of Landscape Architecture

Kansas State University

Manhattan, Kansas

1977

Approved by:

Richard L. Austin

Major Professor

Document

LD

2668

.T4

1777

P39

C.2

1

When paying tribute to those persons most influential in the development of a work, a problem arises: many have input, but one must select those who have given of their talents, knowledge, and themselves "beyond the call of duty".

My parents have, as always, been a constant and appreciated support. They have subsidized my education with their hearts and efforts, as well as financially. My indebtedness to them and the rest of my family goes beyond words.

God has given me many things. I am grateful to Him for all he's done for me, my family, and friends.

To all of those who cannot be listed here, as they are too numerous, a collective, but sincere, "Thank You".

Steven K. Paul

TABLE OF CONTENTS

	<u>Page</u>
Acknowledgements	i
Table of Contents	ii
Limitations of Study	iv
List of Figures	vi
List of Photographs	vii
Introduction	1
Program Evaluation Review Technique	2
Use of Research	3
Chapter One - Pre-Evaluative Phase	6
Introduction	7
Step 1 - Need for Equipment	8
Step 2 - Evaluator Selected	8
Step 3 - Children screened/objectives	9
Step 4 - Information resources	13
Step 5 - Organizations and agencies	16
Step 6 - Manufacturers	19
Step 7 - Therapists	20
Step 8 - Designers	21
Step 9 - Lay Individuals	23
Step 10 - Information Organized	23
Chapter Two - Evaluative Phase	25
Introduction	26
Step 11 - Experiential Evaluation	27
Coordination	28
Balance	28
Agility	32
Flexibility	33
Strength, Power, and Endurance	34
Speed	36
Experiential Checklist	40
Sample Evaluation	42
Step 12 - Structural Evaluation	46
Safety	46
Condition	51
Materials	51
Cost	52
Sample Evaluation and Checklist	54
Step 13 - Orientational Evaluation	59
Underfoot Materials	59
Environmental/Aesthetic	63

Step 14 - Compile Evaluation Data	64
Step 15 - Return for Multiple Evaluations	65
Chapter Three - Post-Evaluative Phase	66
Introduction	67
Step 16 - Record Data for Future	68
Step 17 - Selection	68
Step 18 - Purchase	69
Literature Sited	70
Appendix A	72
Physiologic Advantages to Movement	74
General Ambulation Disability Classifications	75
Common Motor Dysfunctions	76
Appendix B	78
Glossary	80
Appendix C	86
List One - National Organizations	88
List Two - State Personnel	94
List Three - Centers and Institutions	99
List Four - Directors, Programs of Special Education	105
Appendix D	113
Manufacturer's Cover Letter	115
Manufacturer's Checklist	116
Manufacturers	118
Appendix E	124
Accessibility Checklist	130
Appendix F	137
Posture Analysis	139
Gross Motor Evaluation	143
Fine Motor Evaluation	148
Sample Treatment Profile	152

LIMITATIONS OF STUDY

There are two major limitations to this study; equipment evaluated and children to which this research is directly applicable. Equipment evaluated was limited to commercially available equipment only. This is not to imply that home- or inhouse-built equipment is necessarily inferior, or not evaluable, but factors of this methodology required information available from commercial manufacturers.

Design, construction practices, specifications and unusual or highly specific therapeutic intentions tend to confuse the issues involved when dealing with home-built units. In addition, commercial equipment companies carry insurance against damages occurring as a result of design deficiencies. Those designing equipment as individuals assume this same legal responsibility. If equipment is designed by an individual, one should require the designer to demonstrate proof that he is legally insured against such claims.

Regarding the children with which this research deals, there were two limitations. The first limitation was that children be physically handicapped. This was not to imply that there is no possibility of applicability for other disabilities. Applicability is not limited to certain physical disabilities, (refer to Appendix A) as specific information concerning a child's disabilities is provided by persons versed in the child's specific area of disability, thereby making evaluation highly specific to each child's needs.

The second limitation was that the children be of preschool or elementary school age. This was due to the scale of normal equipment

v

to that age group and their general size physiologically. Secondary schooling usually introduces more specific physical education and recreation possibilities. Secondary programs will, of course, need to be accessible to the handicapped, and evaluated as to applicability.

There were also some assumptions made for this research. One was that use of equipment can be predicted. Part of the evaluative process requires this, and generally, it was felt that such prognostication can be accomplished with relative accuracy, particularly by those experienced in children recreation.

A second assumption was that the use of recreation has therapeutic potential. This is generally agreed on, but is based largely on theory, and therefore, is listed here as an assumption.

The third assumption was that there is such a phenomenon as "free" play. Although this method could be utilized in the evaluation of equipment used for highly controlled, therapeutic recreation, it was felt that its greatest potential was with those situations where children play with little control.

LIST OF FIGURES

		<u>Page</u>
0.1	Program Evaluation Review Technique	2
1.2	Resource Group Input	15
1.3	Matrix of Input Levels	16
1.4	Information Levels by Organisations and Agencies	18
2.1	Experiential Evaluation	39
2.2	Material Characteristics	52
2.3	Underfoot Materials	61

LIST OF PHOTOGRAPHS

All photographs included in this research were taken by the author, in various Manhattan, Kansas, locations. All equipment use portrayed was spontaneous, not contrived by author.

<u>Number</u>	<u>Topic</u>	<u>Page</u>
2.1	Coordination	29
2.2	Coordination	29
2.3	Balance	30
2.4	Psycho-Social Interaction	31
2.5	Balance	32
2.6	Agility	33
2.7	Flexibility	34
2.8	Strength, Power, and Endurance	35
2.9	Speed	36
2.10	Hazard	47
2.11	Hazard Correction	48
2.12	Hazard	49
2.13	Hazard	49
2.14	Hazard	50

INTRODUCTION

One of the more positive developments of the 20th century has been the increased awareness and attainment of the civil rights of our citizens. This includes those in minority groups, religious sects, and segments such as the handicapped. Recent legislation, such as Section 504 of the Rehabilitation Act of 1973 (PL 93-112) are supportive of this, and should be viewed with genuine optimism (For a synopsis of Section 504 and its ramifications, refer to Appendix E).

The purpose of this research was to continue this awareness, and to aid in the implementation of legislative mandates, thereby easing the transition period that is sure to occur. Specifically, its purpose was to enable a person, lay or professional, to understand the issues involved in recreation equipment evaluation and selection, and to perform the evaluative process, with the assistance of those knowledgeable in supportive fields.

The methodology presented here is in three major phases, with 18 steps from the establishment of the need for equipment to the recommendation to the board of directors.

Step #	Description		
1	Establish need for equipment		
2	Evaluation person(s) selected		
3	Children screened/ objectives established		
4	Establish Informational Resources		
5	Organizations and agencies		
6	Manufacturers	INFORMATION RESOURCES CONTACTED	PRE-EVALUATION
7	Therapists		
8	Designers		
9	Lay individuals		
10	Information gathered and organized		
11	Experiential Evaluation		
12	Structural Evaluation		EVALUATION
13	Orientalional Evaluation		
14	Compile evaluations for equipment		
15	If evaluation of more than one piece, return to step 11 for each.		
16	Compile and record data		
17	Selection recommendation		POST-EVALUATION
18	Purchase		

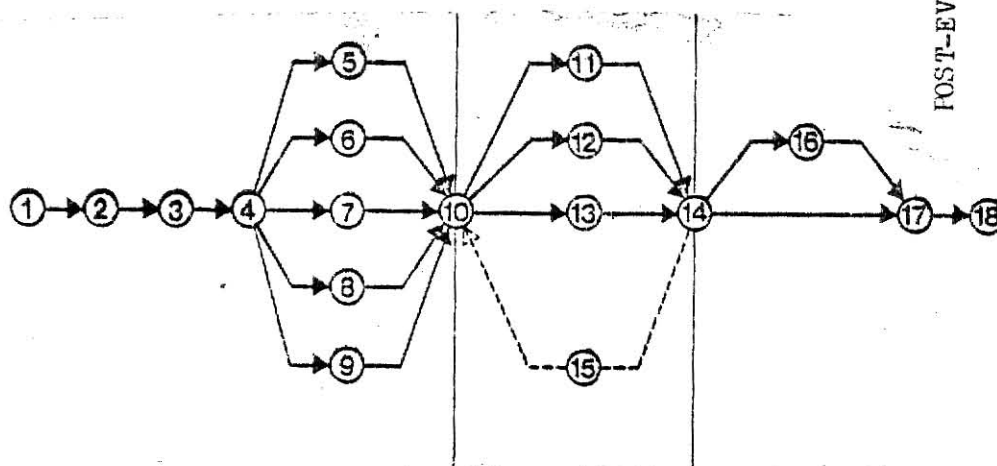


Fig. 0.1

USE OF RESEARCH

Play is a natural phenomenon (1). According to Aaron and Winawer, only pain and total restriction of movement will stop the desire to play (2). Due to benefits of play, experientially, it can be used as a learning process to support desired responses (3) in physiologic, psycho-social, and perceptual areas. With this in mind, it is imperative that evaluation be capable of demonstration of maximum therapeutic potentials of equipment, while remaining sensitive to child limitations.

The graphic representation of the process of evaluation (figure 0.1) is not actually a Critical Path, as there are no time allotments for the steps taken. This would vary according to specific projects, needs of different children, and reliability of resources to respond with relative haste.

This is, then, a Program Evaluation Review Technique (PERT). Its major function is to show graphically what steps are to be taken, and where, at any time, one is located in the process. (4)

The three major phases are:

1. Pre-evaluative
2. Evaluative
3. Post-evaluative

Pre-evaluative steps are concerned with administrative procedures, screening children for disabilities, establishment of rehabilitative objectives, and the establishment and contacting of information resources. Included are lists of manufacturers,

organizations, agencies, and individuals who, by virtue of their training or knowledge, can serve in such a capacity, using Kansas as a type of case study.

Evaluative steps comprise the second phase. In this phase, evaluation methods are introduced. Evaluation is also subdivided into three major steps. These are concerned with:

1. Experiential evaluation
2. Structural evaluation
3. Orientational evaluation

Experiential evaluation deals with the experiences and attributes of the equipment. Physical abilities, perceptual skills, and physiologic functioning can be improved through the use of recreation. Such improvements are gained through experiences, which are predictable and recognizable. Therefore, this evaluation is concerned with this prediction and recognition.

Structural evaluation is concerned with those physical characteristics of the equipment itself. This includes such criteria as cost, safety, materials, configuration, condition, color, and selected site requirements. Evaluation of these aspects of equipment require additional information beyond traditional catalogue pictures and price lists. Procedures for obtaining such information were also included.

Orientational evaluation deals with those aspects of equipment with respect to the site upon which it's used. Such criteria are environmentally and aesthetically oriented, and site requirements.

Post-evaluative steps concern themselves with utilization of evaluation data, comparison of more than one piece of equipment, and

the recommendation to decision-making bodies.

During the establishment of this project, procurement of information, and informal presentations, one question surfaced regularly, "What does this have to do with Landscape Architecture?" As a design profession, manipulation of man's environments, whether at work or play, is a major function of landscape architects. We are finding ourselves increasingly involved with design of recreation areas, and such design should reflect the needs of those expected to utilize the spaces.

Chapter One

Pre-evaluative Phase

INTRODUCTION

Steps preliminary to actual evaluation must occur for effective administration of the method proposed. These steps construct the first chapter.

The success of the proposed method requires use of other's expertise in their varying fields. During the pre-evaluative phase, such information resources were identified and contacted. These were varied as to input, the type of information generally available, and were expanded beyond traditional resources.

Equipment need

1

Organizations might have one or more of numerous reasons for needing additional equipment. As mainstreaming continues, the influx of impaired children will require additional, and more applicable equipment. This will be noticed in public systems first, and, as social acceptance of the handicapped occurs, such impact will be felt by private organizations. (5)

Within an institution, there is often a cyclical change of children abilities. As this cycle evolves, the equipment must reflect this change to be appropriate. Sometimes, the changes are minimal, other times, considerable.

Evaluator selected

2

The second step in the method proposed is selection of the person responsible for evaluation procedures, and assistants he/she might have. This is done to streamline the process. If no given person is responsible for information to be gathered, maintaining records of evaluation processes, and recommendations to the board of directors, information is less likely to be used effectively.

In many cases, this person would traditionally be the instructor or therapist. It is important that these persons have input into the decision-making, as shown later, but it is not necessary that they have sole responsibility of evaluation, as in times past. There are many phases in the process that can be accomplished by the responsible person, or a completely separate party.

As the evaluative processes utilize information and issues dealing with different disciplines, the person chosen to be in charge of evaluation would be better suited if he/she were versed in more than one of the areas to be considered. These major disciplines are briefly; child development, developmental disabilities, therapeutic processes, and construction and design. It is not essential that the person be expert in any of the above fields, as long as resource individuals are available to serve in tutorial-type roles, helping where needed.

Children Screened : Objectives Set



When dealing with school-aged children, disabilities have usually been recognized, and visits to doctors frequent. If however, a disability is found to exist after schooling has begun, or during regular pre-schooling screening, screening should be done to determine the exact extent of the disability and establish those therapeutic

measures most likely to correct the situation.

Those most likely to help in the diagnosis of problems are:

1. Orthopediatrists: These doctors specialize in orthopedic problems, and therefore, are often excellent resources for such data.
2. Physical Therapists: Trained in the correction of physical disabilities, PTs can give careful analysis of problems, and establish therapeutic goals and objectives for the correction of problems. They must, however, work under doctors' orders.
3. Pediatrists: These doctors are trained specifically in the development of children. As many physical disabilities are a result of development, such training allows them to recognize and diagnose malfunctions, lack of responses that should occur, perceptual problems, and others.
4. Occupational Therapists: Though they deal more in occupational skills, such persons can be accurate diagnosticians of disorders.
5. Special Education Persons: These persons would be contacted if the children will be involved with the public education system. They are generally aware of physical disabilities, and can act as a directory for specific screening personnel. If a given disability is recognized, they can often direct the parent to certain

doctors, therapists, and so forth. These persons are usually listed by state, and available through local education systems, or by writing to the state Board of Education. In Kansas, such a list is available and is included in Appendix C.

6. Public Health Nurses: These individuals are under the auspices of the Public Health Departments, and are capable of running tests on children to determine disabilities. Indications are that in diagnostic work, these nurses have been very effective. One of the most appealing aspects of their assistance, due to their funding by public financing, is their fee, or more correctly, their lack of it...it's free.
7. Developmental Centers: Those that are fortunate enough to reside in the area served by developmental centers might find that they can offer screening services, many times, free. This is dependent upon their funding, but can be easily determined with a phone call. In the state of Kansas, Developmental Centers are placed in many cities and towns. A directory (70 pages) of these centers and persons across the state of Kansas is available through:

The Division of Mental Health and Retardation
Dennis Pope, Coordinator
State Office Building
Topeka, Kansas 66612
(913) 296-3471

Though this directory is available through this office, it deals with developmental disorders, including those in the physical realm. Portions of this directory are

included in Appendix C.

Screening is called pediatric evaluation, and results in a full report concerning specific disabilities. This report is then followed by measures that would be taken to correct the situation, called objectives. Such an evaluation can be costly. Since the evaluation depends upon the severity of the disability, and the number of visits required for complete observation, costs vary a great deal. Generally, the range for such routine evaluations is \$30-50, with some running in the \$100 range. (6)

For those with limited financial resources, help is sometimes available through state agencies, such as Social and Rehabilitative Services. For such assistance, the parents of the child don't necessarily have to be proven poor. If they can not absorb additional, unexpected costs, medical cards are sometimes available which allow them to have needed screening done without cost to them.

The screening itself is done through observation of the child in given situations. The child is asked to perform given activities, and abilities, or disabilities, are recorded. This is generally recorded on forms such as those included in Appendix F. (7) These forms aid the therapist in evaluating posture and mobility skills, gross motor skills, and fine motor skills.

Following skill evaluation treatment profile pages outline activities recommended to improve the children's abilities. Each objective is stated to show what the activities are designed to improve. Also included in Appendix F is a completed set of such treatment profiles which demonstrate their use.

The importance of this step, then, is that objectives for the children are established, so that the needs of the child are recognizable. This is later used for the basis of the applicability of the experiences that will be gained from any given piece of equipment.

Information Resources



Effective evaluation, utilizing this method, requires use of persons with expertise in varied fields. The extent to which other resources are required depends upon the areas of expertise represented by those performing evaluation, and specific projects.

Resources are divided into five major groups (refer to figure 1.2). These groups are:

1. Organizations and agencies: These might be of private or public origin. Such would most likely be the source for general information regarding children or equipment, or to direct the evaluator to those who can give more specific information.
(refer to step 5)
2. Manufacturers: Traditionally, this has been overlooked as a resource of information. Generally, equipment catalogues and pricing data have been the

extent of their involvement. (refer to step 6)

3. Therapists: With academic training and experience, therapists are one of the more valuable of the resources. It is their responsibility to determine limitations of children, and therapeutic processes and activities that would best benefit each child. (refer to step 7)
4. Designers: As persons trained in manipulation of environments, and construction of elements within those environments, architects and landscape architects can be of value in those realms. The landscape architect is versed in construction and design, and is also aware of, and can work easily with, outdoor elements, that would affect recreation equipment use. (refer to step 8)
5. Lay individuals: Though no formal academic training is present in this group, they should not be routinely cast aside. Often, a mother, teacher, or concerned individual observes limitations of a child that the therapist might not be able to recognize. Civic groups can also enter the process, if there is a genuine interest. Decision-making is to remain with more trained persons, however. This is not to offend, but is for the general benefit of the children. (refer to step 9)

The evaluator should fall in one of the above groups. If a team of persons is involved in evaluation, it would be advantageous for members to represent different groups, as expertise would be represented in the group, solidifying reliability of information. This is not to imply, however, that in-house expertise is to be relied upon completely. As noted in figure 1.2, persons should rely on others in his/her resource group, as well as those in other groups.

Prior to evaluation, the involvement of different groups may be shown graphically, as in figure 1.3. This matrix is to demonstrate the input that each group would most likely have into the various types of evaluation. Input by any group might be only once in the process, or many times, depending upon information availability, reliability, and volume needed.

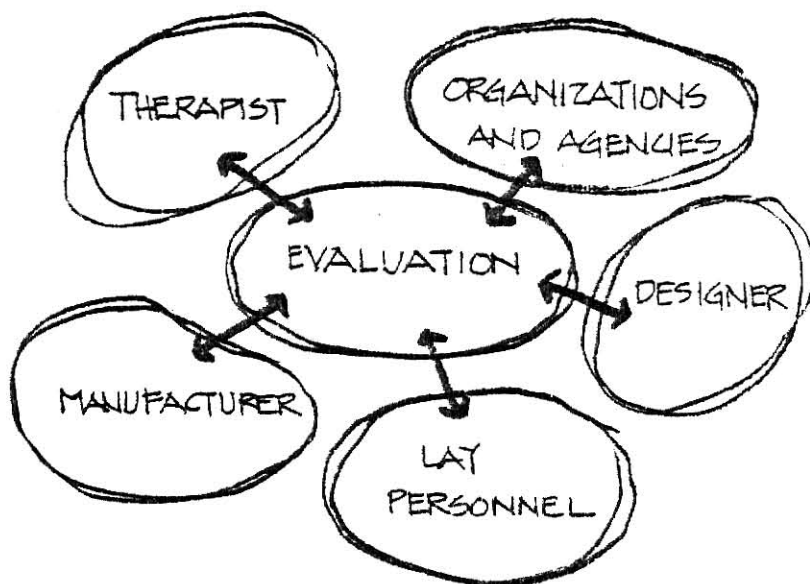


Figure 1.2

Resource group involvement in evaluation process.

NOTE:

This is a graphic representation only.

Persons should rely on others in the same resource group, as well as others.

All resources might have input into any phase of the process.

Figure 1.3

Resource	Exper- iential	Struc- tural	Orienta- tional
Manu- facturers	2	5	4
Designers	2	5	5
Therapists	5	2	3
Organiza- tions	3	3	3
Lay Persons	3	1	1

Matrix showing relative input into evaluative process. All may vary.

Rating Scale:

- 1 - Low
- 2 - Medium-low
- 3 - Medium
- 4 - Medium-high
- 5 - High

Organizations, Agencies



When contacting organizations and agencies, one should be aware of the types of organizations and agencies, and the type of information they disseminate. The major types of organizations and agencies, as defined here, are:

Organization
or agency:

1. Federal Agency
2. State Agency

Example:

President's
Committee for the
Handicapped

Dept. of Social
Rehabilitation
Services

3. Local Agency	Topeka City Engineering Dept.
4. National Organization	National Association of Retarded Persons
5. State Organization	Kansas State Assoc- iation of School Admin.
6. Local Organization	Cappers Foundation
7. Disability-oriented Organization	United Cerebral Palsy Foundation
8. Professional Organization	American Society of Landscape Architects

The major types of information that seem to be available through such organizations and agencies are:

1. General: This type of information is non-specific to disabilities or implications of a disability.
2. Specific: This type is concerned with a given disability, and implications for recreation, or other particular activities.
3. Directory: The greatest importance some organizations and agencies have relate to their ability to direct inquiries to other more specific sources.

Combining these, it is possible to matrix the type of information usually available through each type of resource. (refer to figure 1.4)

Appendix C includes a partial listing of agencies, with all levels represented. Such lists are obtained by contacting agencies and asking of others they might recommend and for directories occasionally

available. Appendix D includes organizations active in barrier-free design, and therefore, having information regarding that aspect.

Appendix C concerns itself with Special Education directors across the state of Kansas. Similar lists are distributed by state organizations or agencies.

<u>ORGANIZATION/ AGENCY</u>	<u>GENERAL</u>	<u>SPECIFIC</u>	<u>DIRECTORY</u>
Federal agency	X		X
State agency	X		X
Local agency	X	X	X
National organization	X		
State organization	X		X
Local organization	X		X
Disability-oriented organization	X		
Professional organization		X	X

Fig. 1.4

Manufacturers



Manufacturers may be contacted prior to establishment of a need for equipment. However, equipment costs, construction, and prices change, thereby affecting applicability. Therefore, current data will be of most value.

Traditionally, manufacturers have not been utilized as a major source of information. Using the method proposed here, site requirements, shipping weights, and other data that one might not realize to be important considerations are covered.

When contacting a manufacturer, one should attempt to gain all possible information concerning the specific equipment, as well as photographs, plans, sections, or models. This additional information will be useful during the evaluative phase.

Appendix D includes a possible cover letter to be sent to manufacturers and a checklist that should be filled out by the manufacturers. It is intended to establish that a need exists, and that information supplied by the manufacturer will be used, in part, to evaluate equipment.

Also included in Appendix D is a list of manufacturers of equipment. This list is by no means an endorsement for any or all of those represented, nor do any omissions represent disfavor.

A sample checklist is also developed and included in Appendix D. The purpose of this is to stimulate self-evaluation by manufacturers, and give a guide of possible questions by the evaluator. It could easily be modified as the situation demands.

In any event, the minimum amount of information obtained should be:

1. Complete catalogue (with pictures)
2. Price list
3. Completed checklist

Optional data could be included such as:

1. Construction techniques required (holes that have to be dug, placement on site by crane, etc.)
2. Specifications for construction
3. Models (to scale)

The importance of this step is the data available from manufacturers, and possible methods of obtaining such data.

Therapists



One of the most productive groups of resources is that of therapists. With academic background, they are versed in rehabilitative aspects, but also spend great amounts of time with children, therefore having an "experience-oriented" viewpoint. This is important as many crucial evaluative aspects are based on ideosyncracies of children, and applicability is directly related to specific limitations.

Information gained from this group will be of two basic types,

general and specific. General information refers to information dealing with a disability in broad terms. Limitations of the "typical" child with a given disability, and data concerning such conditions. Specific information will be with respect to a given child, their limitations, equipment use (based on experience and observation, therapists often can offer tidbits of information and opinions), and possible problems.

Therapists may be contacted as individuals, at hospitals, clinics, and institutions. If none are easily found, organizations can usually direct one to a therapist.

Designers



Designers, by virtue of their training, can be of value as an information resource. This would most likely be in two ways.

These are:

1. Aesthetics: Would be in either structural or orientational evaluation. Design as it relates to hazards, support of structural members, and use within a given space can be dealt with by a competent member of the design community.
2. Barrier-free design: This would be concerned with

the equipment itself, but also with the spaces in which such equipment is to be used.

Where therapeutic recreation is to be conducted with tight control of environmental interference, designers can be used effectively. Those most likely utilized in this group would be those of the Architectural and Landscape Architectural fields. Landscape architects are trained to deal with outdoor elements of the environment, so could possibly be the most appropriate group to deal with, though there are a variety of competent architects who could also serve well as a resource.

Those members of either professional field that have worked extensively with recreation would be the best source. Members of the field can often direct one to other members who are versed in such design issues, and lists of professionals are also available from state registration boards for each field. In Kansas, such lists are available through:

Kansas State Board of Technical Professions
11th Floor
535 Kansas Ave.
Topeka, Kansas 66603

Professional organizations can also help to locate members in one's area who might be best suited for given projects. Two major professional organizations are:

American Society of Landscape Architects
1735 N. Y. Avenue, N.W.
Washington, D. C. 20006

American Institute of Architects
1750 Old Meado Road
McLean, VA 22101

Lay Personnel



Lay individuals and groups can possibly have input into the information-gathering process. It be recommended that the evaluator actively seek such input. Input from this resource group would probably be found in fundamental areas, but might have application in highly specific stages of evaluation such as experiential analysis (refer to step 11).

Information Organization



Information in response to inquiries to resources will cover one of two basic categories. These are:

1. Children: Dealing with requirements, limitations, disabilities, and further aspects.
2. Equipment: Data will deal with equipment aspects such as site requirements, experiential potential, etc.

Information can, then, be separated according to these groups, for organizational purposes.

Actual organization is at the discrimination of the evaluator, but whatever the system, it should remain consistent, so that later in

the process comparative evaluation can occur. This would be easier with all information for various pieces of equipment organized in the same manner.

Chapter Two

Evaluative Phase

INTRODUCTION

Evaluation, the second phase, is accomplished in three major stages. Each is dependent upon data and understanding gained in earlier steps. Major stages are: 1. Experiential, 2. Structural, and 3. Orientational. Experiential evaluation is performed to determine what experiences will be promoted or made available by equipment, with applicability to the children a function of the goals and objectives, as established in step 3 by the therapist. Structural evaluation analyzes equipment according to characteristics such as materials used, cost, and other physical entities. Orientational evaluation deals with the relationship of the equipment to the site upon which it sits, and the play space in which it's used.

Checklists are proposed in the research to facilitate an organized, efficient use of information gained. Such checklists should be color-coded (Experiential - pink; Structural - blue; Orientational - orange, etc.) to allow ease of reference and comparative use (refer to steps 15 and 16).

EXPERIENTIAL EVALUATION



Experiential evaluation can only be accomplished if the physiologic attributes of movement are briefly understood. Such attributes are: (8)

coordination,
balance,
agility,
flexibility,
endurance,
speed, and
strength.

Also increased through a quality program are:

1. Body image (laterality) and the spatial relation of the body to movement.
2. Attention and concentration.
3. Control, including reaction time.
4. Creativity.
5. Planning, visualization (imagery) and self-direction.
6. Associative abilities involving input and express, including the ability to follow direction (auditory-motor association).
7. Associative abilities involving two or more sense modalities, for example, kinesthesia and vision in any task requiring eye-motor coordination.
8. Keeping several ideas (bits of information) in mind

simultaneously while performing a movement.

9. Memory for sequential movements; awareness of objects (animate or inanimate, moving or stationary).

10. Provide for psycho-social interaction among children.

11. Motivation of children.

For the purpose of this research, the physiologic functions are used. To facilitate establishment of activities that will increase these functions, one should understand typical situations in which these functions are identifiable. To help with this task, the following pages briefly define physiologic attributes, and list activities which typify their development, with photographs included to further demonstrate their characteristics.

Coordination (refer to photos 2.1, 2.2)

A concise definition of coordination is difficult to find. Disagreement exists as to whether it requires one ability or several. The author of this publication feels, due to argumentation given, that coordination involves two or more abilities.

Activities: Balance on a moving plane (eye-foot), hitting or striking a moving object (eye-hand, eye-foot). Climbing: hand over hand and foot over foot (eye-hand, -foot).

Balance (refer to photos 2.3 - 2.5)

Balance relates to the child's ability to assume any position in equilibrium, and maintain that position. Also important is the ability to keep one's balance while in motion, or after being in the air (refer to Appendix B).

**THIS BOOK
CONTAINS SEVERAL
DOCUMENTS THAT
ARE OF POOR
QUALITY DUE TO
BEING A
PHOTOCOPY OF A
PHOTO.**

**THIS IS AS RECEIVED
FROM CUSTOMER.**

Photo 2.1



Coordination is required to hit the ball.

Photo 2.2



Foot-eye coordination is used in kicking the ball.

Balance is essential in daily living and participation.
Therefore, equipment should offer balance-developing experiences.

Activities:

Changing the size and number of the bases for the body balance (all fours, two legs, then one leg).

Increasing difficulty in duration of position or sequences of movement. (Stand on one leg for 25 seconds, 30, and so on; balance on right, then left leg, etc.)

Moving from air to ground. (Trampoline increases awareness of balance in air; jump from higher plane to lower one.)

Negotiation of balance-oriented movements. (Balance beam, straight, then curved; tumbler apparatus, etc.)

Orientation of body position in space. (Hang upside down on cross bar; verticle motion on side as in swimming the side stroke.)

Photo 2.3



Balance is required to remain upright on the horizontal bar.

Balance is well accomplished by the use of moving elements, as in photo 2.4.

Photo 2.5 demonstrates further balance challenges. The curvature of the base plane upon which the student walks requires perceptual ability, but manifests itself as an equilibrium issue. The movement of the underfoot surface adds to the complexity, and sharpens foot-eye coordination.

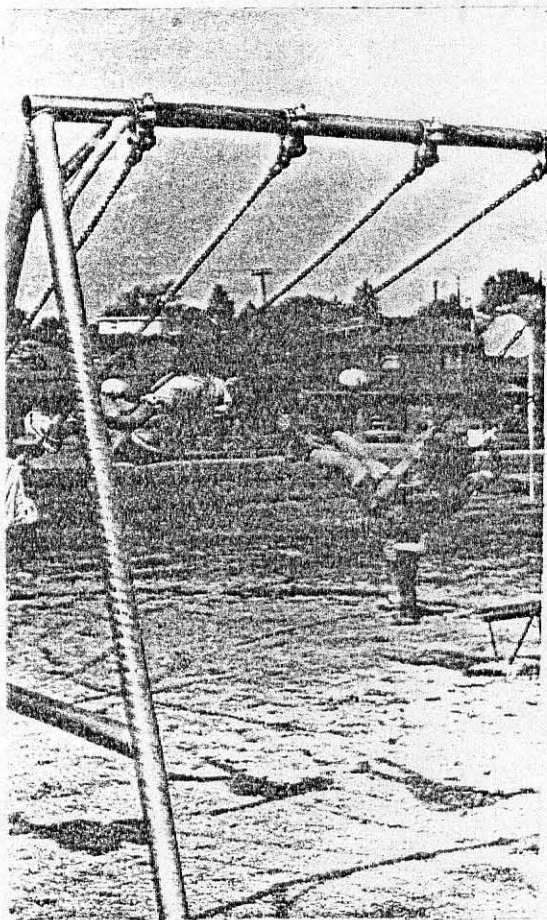


Photo 2.4

Psycho-social and rhythmic development are occurring simultaneously while the girls are swinging.

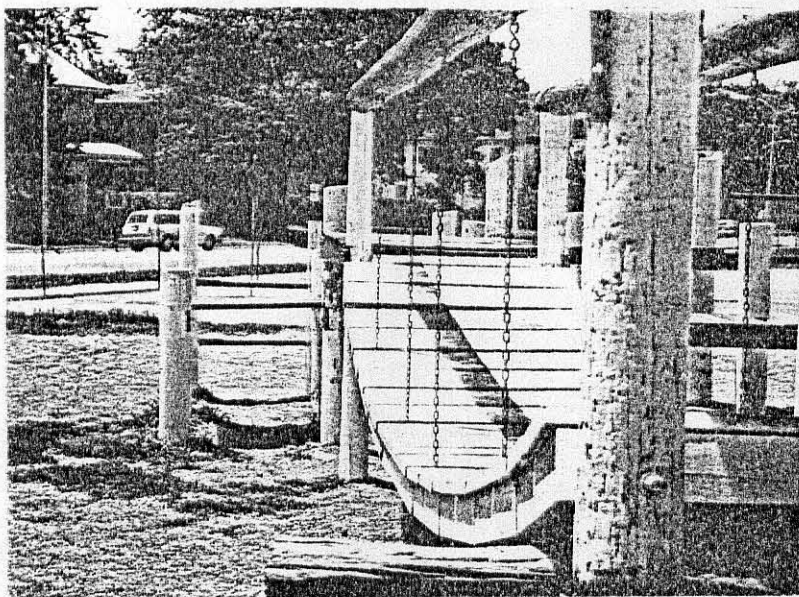


Photo 2.5

Balance and perception are improved with this flexible, multi-planed underfoot surface.

Agility (refer to photo 2.6)

Agility is the ability to move throughout a space and maintain control of body movements. This is particularly the case when in different directions in successive movements with efficiency and control, and a degree of speed. Generally agility requires strength, coordination, and speed (refer to glossary).

Equipment can offer a variety of movement possibilities in rapid succession. Most equipment has potential for development of agility in one form or another.

Activities:

Change direction of body movement on ground, and in the air. Could be done running, jumping, etc.

A variety of jumping movements. Jumping from one level to another, in, out, over, or through, or any combination.

Dodging. Can be done in stationary or moving situation.

Quick starts and stops.

Tumbling and typical floor exercises.



Photo 2.6

Dodging the ball develops better agility.

Flexibility (refer to photo 2.7)

Flexibility is the range of movement allowed by muscular and joint construction. It is an important asset for safe, efficient movement. Increase of flexibility is promoted by moderate, progressive, and regular stretching of the direction and range of motion (refer to glossary).

Equipment can foster flexibility by promotion of stretching of joints and muscles. Challenging climbing exercises and bending and reaching are good.

Activities:

Shoulder area:

- lifting
- pulling
- pushing
- sliding
- moving arms to various positions at various angles

The spinal/pelvic area:

- forward, sideward and backward bending, turning and twisting.

Even better use would be a combination.
Such as:

turning and lifting
sliding and reaching
bending and reaching, etc.

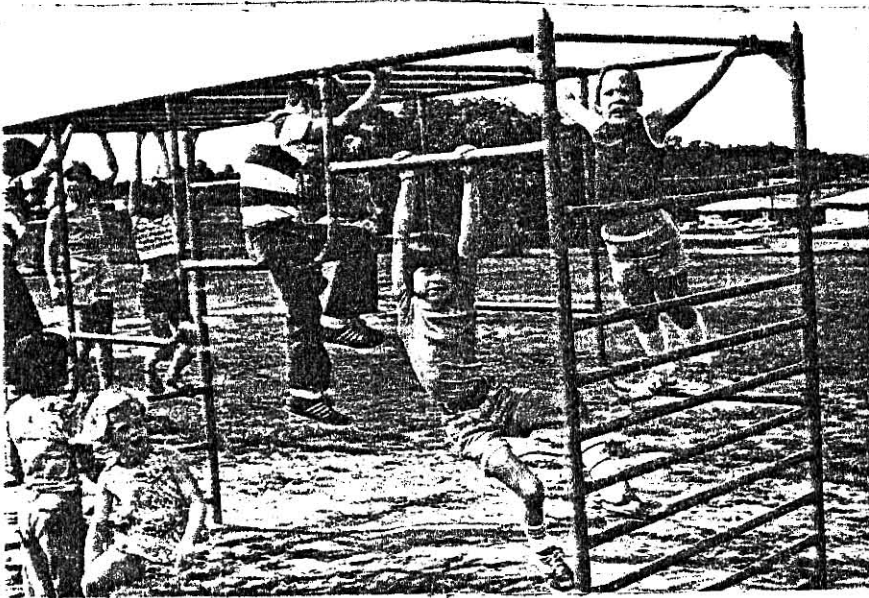


Photo 2.7

Flexibility is enhanced by the hanging, stretching, and twisting as in this photo.

Muscular Strength, Power, and Endurance
(refer to photo 2.8)

Strength is the ability to exert force or move against or withstand a resistance. This force is produced by a muscle or a group of muscles (refer to glossary). The quality of muscle (and resulting strength) is affected by: maturation, heredity, nutritional habits, and exercise. Strength can be increased only in exercised muscles. This makes exercise of all muscles important. With a lack of exercise, the disuse phenomenon occurs. Power is the ability to perform a movement requiring strength in an explosive

in a given period of time. Endurance is the ability to persist over a longer period of time. This ability also involves development of the respiratory and circulatory systems.

Activities:

Manipulations of the body or parts of the body in positions of support, or hanging (strength).

Pushing or pulling exercises (strength).

Jumping, throwing, and kicking objects for distance. (power, endurance).

Running, swimming, biking (endurance).



Photo 2.8

Strength, power, and endurance are increased by playing basketball.

Speed (refer to photo 2.9)

Movement is measurable in time. Speed refers to that time required, and is the ability to perform a given task or tasks in as short a period of time as possible (refer to glossary).

Equipment can be arranged to stimulate development of speed. If arranged to allow for a "race", it can be used as an informal system or in a formal diagnostic/rehabilitative manner.

Activities:

Practice in movements for familiarity. This allows quicker reaction time, resulting in more rapid succession of movements.

Moving feet or hands in or around objects. (Running tires is a good example.)

Racing or dodging.

Moving other objects at different speeds, again varying resistance.

Photo 2.9



Speed is increased by trying to beat the ball to home plate.

The achievement of these characteristics can be through the use of equipment, and the design of play spaces. Some characteristics, such as running, cannot occur on equipment itself, but in the play area. Good placement of elements, the correct underfoot materials, and design can stimulate this type of activity.

A typical need, particularly with handicapped children, is the development of good psycho-social interaction. Varying situations can stimulate such interaction. It can occur on equipment not designed with that use in mind. Where the see saw and high bar are better suited to increase balance and rhythm, they serve as points of interest at times, stimulating psycho-social uses.

As well as physical abilities, and experiences, there are also perceptual experiences. Such are based on the ability to read cues in the environment, and act accordingly. These cues might be perceptible by using one or more of the senses naturally occurring (sight, smell, taste, touch, and hearing). (9)

Visual cues can be stimuli by using characteristics such as color, shape, size, and texture. Though the affect of color is disputed, most generally agree that bright colors stimulate. This is an important consideration in the event that one is working with already over stimulated (hyper-active) children. In that event, more subdued colors would be more appropriate. (10)

Generally, the use of bright colors on recreation equipment can be seen as a positive point. This is due, again, to the fact that it stimulates the children, which increases the use of the equipment. The more the children utilize the equipment, the better.

Throughout life, one must be able to read visual cues, according to shape and size. The ability to do so, then, is an important one. If equipment has a number of shapes that are distinguishable, or elements of varying sizes, then this will sharpen the child's ability to make the necessary decisions accordingly.

For the visually impaired, who often depend upon the auditory skills to compensate for their disability, equipment could have sound as a cue to moving objects and elements, warning them of danger or easing the task of manipulation through the space, using sound as a guide.

Smell can be used as an environmental cue. Though not generally thought of as an equipment evaluation criterion, it possesses fair potential. Different materials from which equipment are made have distinctly different odors. The use of smell might best be used to support one of the other senses.

Touch is an important sense. Use of texture is an identifying means performed by most all people daily. This textural or tactile ability, then, should be developed. Equipment can be used to stimulate the child's tactile abilities, through the use of various textures.

Understanding physiologic and perceptual experiences, one can prognosticate how children will use equipment and resulting experiences. For ease in this prediction, a sketch or photograph of equipment is needed. (This should have been obtained from manufacturer in step 5) As in figure 2.1, draw arrows delineating uses graphically.

Not only those activities suggested by the goals and objectives are to be shown. As use of equipment will most likely be by various children with varying needs, this will portray versatility, and the equipment's full potential. Later, evaluation records could be used

again, without evaluation duplication. For use in recording data, the checklist (p.) may be utilized. As noted in the introduction to this chapter, such checklists could be printed on different colored paper as checklists proposed in other steps.

When performing evaluation, it is recommended that an overlay system be utilized. This has two main advantages:

1. As one will usually have only one photograph (or set of varying photographs), it allows photos to be re-used for all stages of evaluation.

2. Any single evaluation or combination of selected evaluations may be viewed simultaneously.

For overlays, sheets of acetate may be purchased in varying sizes. Each overlay should be clearly identified as to manufacturer, equipment name and number, and should have such information identified uniformly located on each sheet.

Sample evaluations are included to demonstrate completion of forms and graphics portrayed.

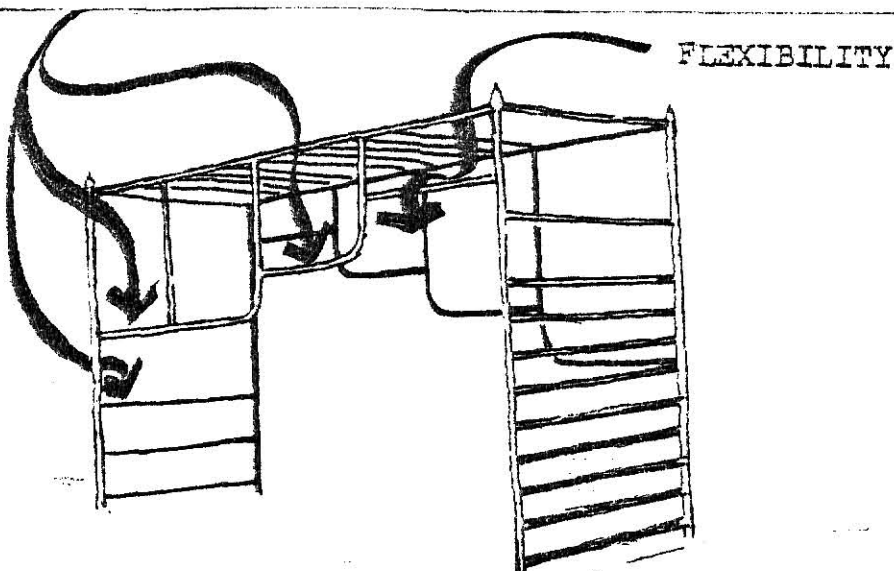


Figure 2.1

Equipment Name _____

JOB # _____ DATE _____

Manufacturer _____

EXPERIENTIAL

INSTRUCTIONS: Evaluation requires use of sketch or photograph of equipment evaluated.

Step 1: Draw arrows identifying points and activities where attributes are most likely developed. Attributes to be identified are:

Coordination,
balance,
agility,
flexibility,
endurance,
speed,
strength,
psycho-social interaction.

touch,
hearing,
sight, and
smell stimulation.

Step 2: Number arrows consecutively, with one number per arrow.

Step 3: Check box at left of following experiences giving brief explanations as needed for clarity.

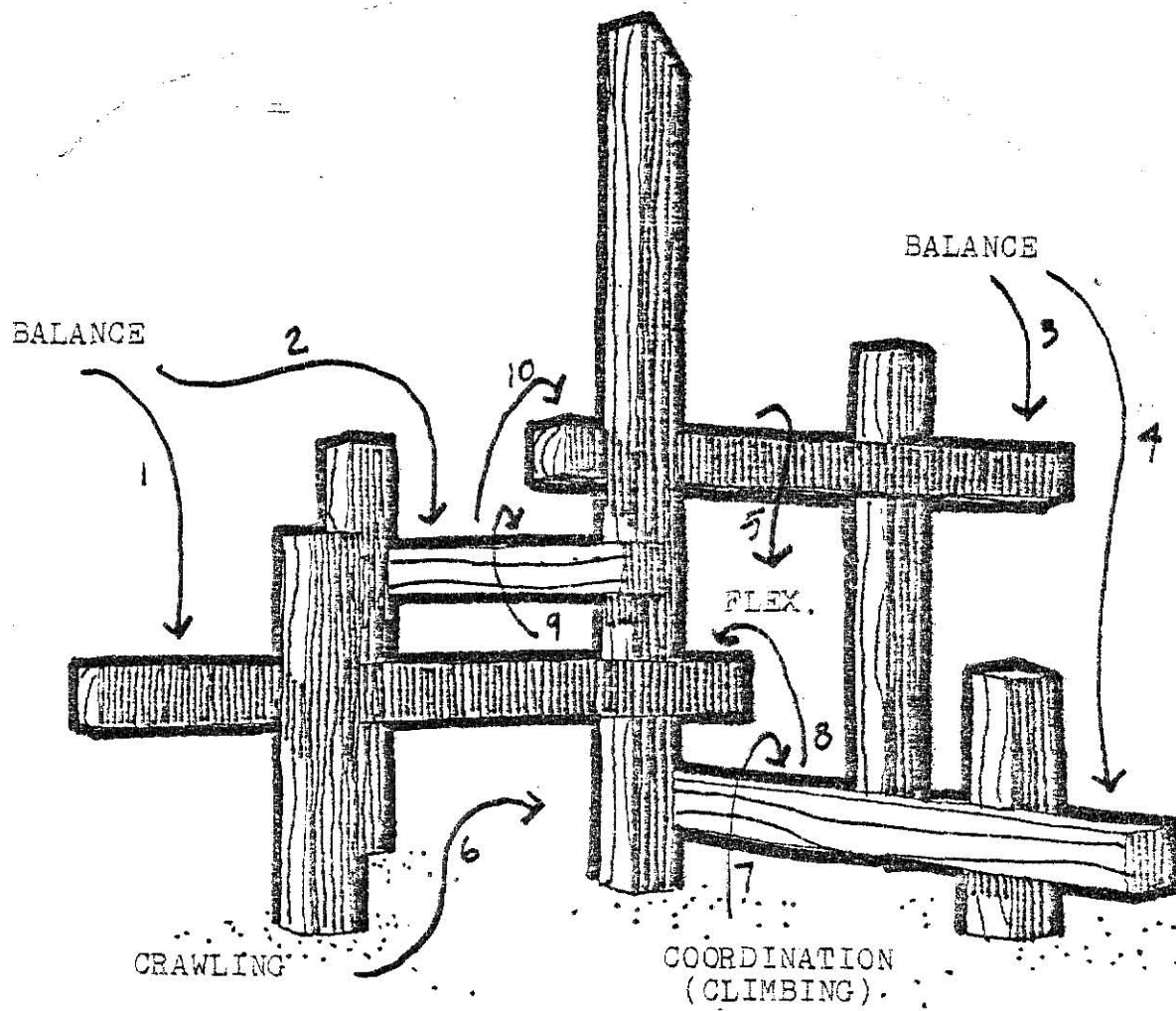
EXPERIENCE	ARROW NUMBERS	# OF ARROWS SHOWING SIMILAR EXPERIENCES	NOTES
COORDINATION			
hand-eye			
foot-eye			
BALANCE			
gross body			
static			
dynamic			
AGILITY			
FLEXIBILITY			
shoulder			
spinal/pelvic			
SPEED			
STRENGTH			
upper limbs			
lower limbs			
PSYCHO-SOCIAL			

Does this equipment stimulate perceptual learning of the following areas:

TOUCH:	Based on texture and change of, or unusual materials...	YES	NO
HEARING:	Based on sound-oriented cues in the equipment...	YES	NO
SIGHT:	Based on visual stimuli (color, texture, size shape)...	YES	NO
SMELL:	Based on odor-emitting materials (wood, rope, rubber, metal)...	YES	NO

SAMPLE EVALUATION

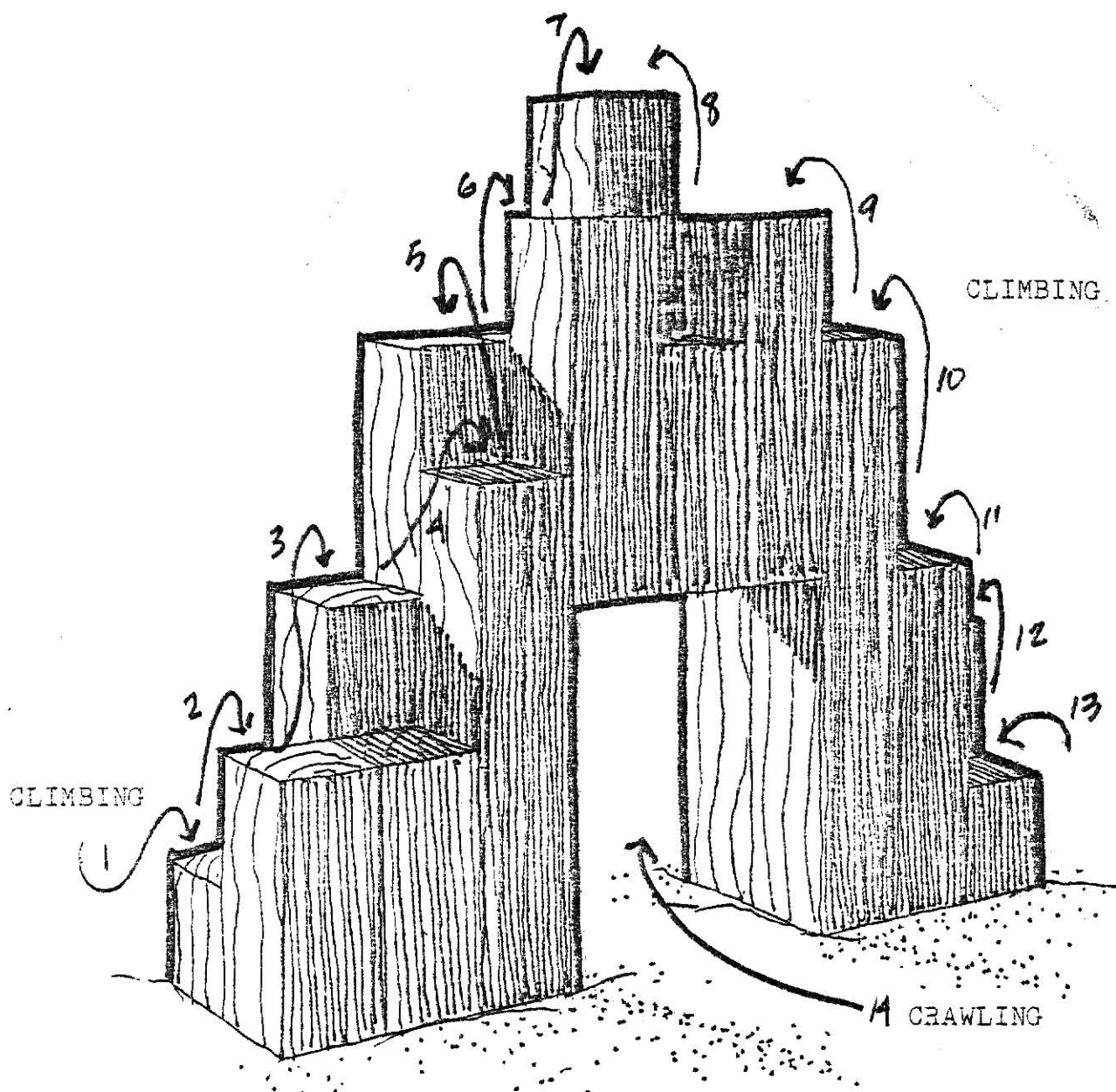
EXPERIENTIAL
(written evaluation on following page)



EXPERIENCE	ARROW NUMBERS	# OF ARROWS SHOWING SIMILAR EXPERIENCES	NOTES
<hr/>			
COORDINATION			
hand-eye			
foot-eye	7,8,9,10	4	Based on Climbing activity
<hr/>			
BALANCE			
gross body	1,2,3,4	4	Horizontal elements
static			
dynamic			
<hr/>			
AGILITY			
<hr/>			
FLEXIBILITY			
shoulder	5	1	Hanging from horizontal elements
spinal/pelvic			
<hr/>			
SPEED			
<hr/>			
STRENGTH			
upper limbs	Could be developed through climbing activities		
lower limbs			
<hr/>			
PSYCHO-SOCIAL	Good possibility of social interaction and problem solving		
<hr/>			
Does this equipment stimulate perceptual learning of the following areas:			
TOUCH:	Based on texture and change of, or unusual materials...	<input checked="" type="radio"/> YES	<input type="radio"/> NO
HEARING:	Based on sound-oriented cues in the equipment...	<input type="radio"/> YES	<input checked="" type="radio"/> NO
SIGHT:	Based on visual stimuli (color, texture, size shape)...	<input type="radio"/> YES	<input checked="" type="radio"/> NO
SMELL:	Based on odor-emitting materials (wood, rope rubber, metal)...	<input checked="" type="radio"/> YES	<input type="radio"/> NO

SAMPLE EVALUATION

EXPERIENTIAL
(written evaluation on following page)



<u>EXPERIENCE</u>	<u>ARROW NUMBERS</u>	<u># OF ARROWS SHOWING SIMILAR EXPERIENCES</u>	<u>NOTES</u>
COORDINATION hand-eye			
foot-eye	1-13	13	Based on climbing activities
BALANCE gross body	Can occur on any of the various horizontal planes. Unassisted balance occurs near the top of equipment.		
static			
dynamic			
AGILITY			
FLEXIBILITY shoulder			
spinal/pelvic			
SPEED			
STRENGTH upper limbs			
lower limbs	Will be developed through climbing		
PSYCHO-SOCIAL	Possibly occur...limited		

Does this equipment stimulate perceptual learning of the following areas:

TOUCH:	Based on texture and change of, or unusual materials...	<input checked="" type="radio"/> YES	<input type="radio"/> NO
HEARING:	Based on sound-oriented cues in the equipment...	<input type="radio"/> YES	<input checked="" type="radio"/> NO
SIGHT:	Based on visual stimuli (color, texture, size shape)...	<input checked="" type="radio"/> YES	<input type="radio"/> NO
SMELL:	Based on odor-emitting materials (wood, rope, rubber, metal)...	<input type="radio"/> YES	<input checked="" type="radio"/> NO

STRUCTURAL EVALUATION



Beyond experiential qualities, equipment possesses other characteristics that can affect applicability, and that can be analyzed. The second stage of this evaluation method, then, deals with structural characteristics. These are intrinsic qualities of the equipment. They are:

1. Safety,
2. Materials,
3. Condition, and
4. Cost.

It is possible for the evaluator to analyze some of these characteristics on his own, and for others, additional information from the manufacturer (refer to step 6) is needed.

Safety. In discussions with persons involved in rehabilitation, it seems safety is, justifiably, their number one concern. Liability for injured children is of great importance. Safety is dealt with here to include design liability and hazards. Law is not this author's realm of expertise. The aspects of design liability are presented only to stress to the evaluator that legal aspects should be thoroughly considered.

Many institutions and concerned groups have designed "build it yourself equipment" out of backyard materials such as tires, rope, planks, and so forth. As the designers, these groups are legally responsible for injuries resulting from use of equipment, if faulty

design were proven. In this respect, reputable commercial companies are fully covered, and liability would rest with them. It is suggested that a lawyer be retained as legal implications vary state to state.

Hazards can generally be broken into two groups: conflicts of use, and potential hazards. Conflict of use refers to instances where equipment, by virtue of its design, stimulates (or at least fails to deter) conflicts of use. As shown in photo 2.10, the horizontal bar at the end of the swing set has been used as a horizontal bar (note worn mid-section). As swings pass the bar, there is a good possibility of conflict of use, resulting in a danger for both children. This can be eliminated to a degree by use of different structural support, as in photo 2.11.

Recognition of such hazards requires one to imagine all uses and range of motion of moving elements. The ability to predict this type of hazard is sharpened by observations of use of such equipment by children.

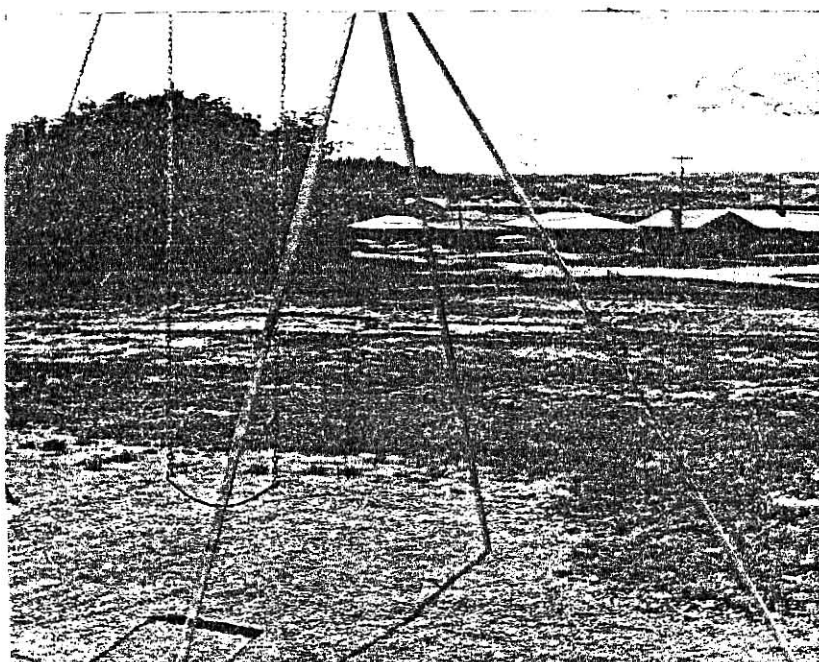


Photo 2.10

The horizontal element is a hazard, as use conflicts occur. For alleviation of the problem refer to photo 2.11.



Photo 2.11

Situation shown
is Photo 2.10
alleviated.

Potential hazards occur where use of equipment as meant to be used, creates potential for hazard. Swings, for instance, by virtue of moving elements, have potential danger. This should be taken into consideration in the selection of apparatus, and in placement of that apparatus in the playspace. Other, more subtle, hazards are present, however. An example of this is in photo 2.12. As the merry-go-round turns, the path of the points on the bench have a larger radius than midway on the bench. Therefore; if a child stands away from the bench (midway between corners) he can still be struck by the passing corner. For a child with perceptual, or mobility problems, this could present a dangerous situation. If the apparatus is in motion while he approaches, it is difficult to judge proximity to the apparatus, as it varies.

Further potential hazards present themselves with such design as steps on slides, and support pieces for the child. As in photo 2.13, the center of gravity of the child is above the child's

means of support. Therefore, a child with balance or perceptual difficulties could easily tumble while getting situated. Notice the necessity to bend over for support, keeping in mind that the child is 8 - 10' above the ground.

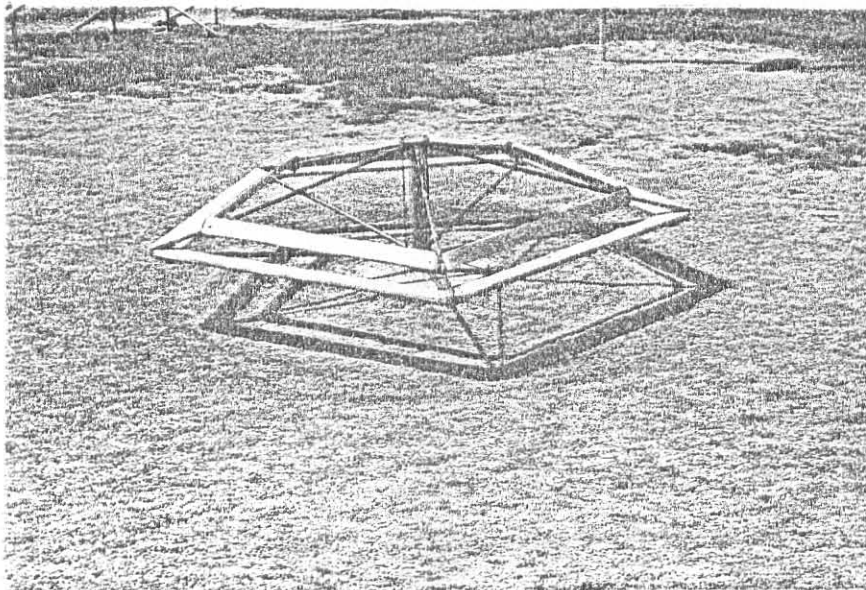


Photo 2.12

Hazards are found in such equipment as this, due to varying radii of the equipment, and an interior where a child can crawl, while equipment is in motion.



Photo 2.13

Child's center of gravity is above his means of support, increasing the chance of a fall. This can be corrected, as shown in photo 2.14.



Photo 2.14

The potential hazard in photo 2.13 can be corrected by bringing the support to a point above the center of gravity of the child.

This can be alleviated, however. With the means of support above the child's center of gravity, as in photo 2.14. A general consideration in evaluation would be, a child with perceptual, balance, or mobility difficulty should have the means of support present and above his center of gravity if very far off of the ground.

Supervision is a consideration closely related to safety, and refers to requirements of supervisory assistance while children are using equipment. This is an administrative consideration, also, as it increases personnel required.

Supervision required by equipment would be dependent upon control desired over experiences for therapeutic use, in free play situations, and numbers of children and their general abilities and limitations. It is, then, a function of the specific limitations of children, referring to step 3, screening of the children and establishment of objectives. Supervision requirements could be easily evaluated by persons experienced in child supervision.

Condition. The "condition" of equipment refers to the form in which it arrives on-site. The affect of this criterion is of concern in the question of construction, storage, resulting costs, and advantages/disadvantages.

There are two main forms or conditions encountered. These are:

1. "knock-down" - These are disassembled pieces or components which must be constructed after delivery.

2. prefabricated - This, though it may originally have consisted of separate components, arrives in one piece, fully assembled.

Advantages and disadvantages go beyond actual on-site considerations. Shipping and moving is one. Depending upon locale, transportation, and delivery systems available, and specific limitations, moving could be affected by the form of the raw product.

Approximate sizes of component elements and their weight are also a factor if storage is necessary during site preparation procedures. With some larger, more complex equipment, size of a storage area is a major consideration. Such equipment can take up large quantities of space. Such information can be acquired from the manufacturer, using Checklist (p.), step 6.

Materials. Materials used in equipment are broken here to five categories. They are generally: (refer to fig. 2.2)

1. wood,
2. concrete,
3. metal,
4. synthetics,
5. rubber.

In figure 2.2, materials are compared as to texture, odor, flexibility, and durability. In reference to objectives established in step 3, perceptual stimulation occurs with use of senses of touch, smell, and sight. Material texture, odor, and flexibility, are means of achieving the desired perceptual experience.

Figure 2.2

Material	Texture	Odor	Flexibility	Durability
Wood	smooth to medium	medium (good when set)	rigid	requires preservative
Metal	smooth	none	rigid	requires preservative
Synthetic	smooth	none	medium	good
Concrete	medium	none	rigid	good
Rubber	rough to smooth	medium	flexible	good

Durability refers to ability of equipment to last. This should take into consideration every use children will impose upon apparatus, weather, and inherent qualities of materials used in construction.

Cost. Cost of equipment must be a consideration, no matter what the funding source. With rising costs, budgeting gains importance as an administrative decision-making tool. Cost can be figured in two basic methods:

1. Straight cost: equipment carries a price tag. The cost is then evaluated at face-value.

2. Cost per capita: This method takes into consideration the number of children that can use it at any given time.

Example:

<u>Apparatus</u>	<u>Cost</u>	<u># of Children</u>	<u>Capita Cost</u>
slide	\$240	3	\$80
multi-experience	\$400	8	\$50

The use of this method implies that numbers of children on a given piece of priced equipment is necessarily an advantageous point. There are times in the rehabilitative process that this might not be the case.

It is recommended that cost be minimized as a criterion for selection, if the objective of rehabilitation is to better prepare the child and to provide him with quality experiences. Not always is the most expensive the best.

Another aspect is additional costs. These can occur early in construction or later. Early costs could be due to required site work, additional construction (concrete pads, etc.) as required by equipment. Later, the cost of maintenance and upkeep should be considered. Such costs are difficult to prognosticate, and do differ some, but are important to evaluate if possible. Criteria which might be used would be durability information, and outside expertise. Further criteria might relate to the underfoot materials required, and the upkeep needed for each. (refer to step 13). When dealing with cost as an evaluative criterion, the experiential needs of the client should govern selection as they are based on objectives (established in step 3) and are geared toward the child's improvement.

Structural
Evaluation Checklist

Instructions:

1. Graphically portray safety issues involved with this equipment. Number each arrow, each number being used once.
2. Identify materials used in construction

wood	concrete
metal	rope
chain	rubber
fiberglass	

According to manufacturers information:

3. What is the condition upon delivery

break-down
pre-cast
4. Cost: _____
Any identifiable continuing costs?
If yes, explain.

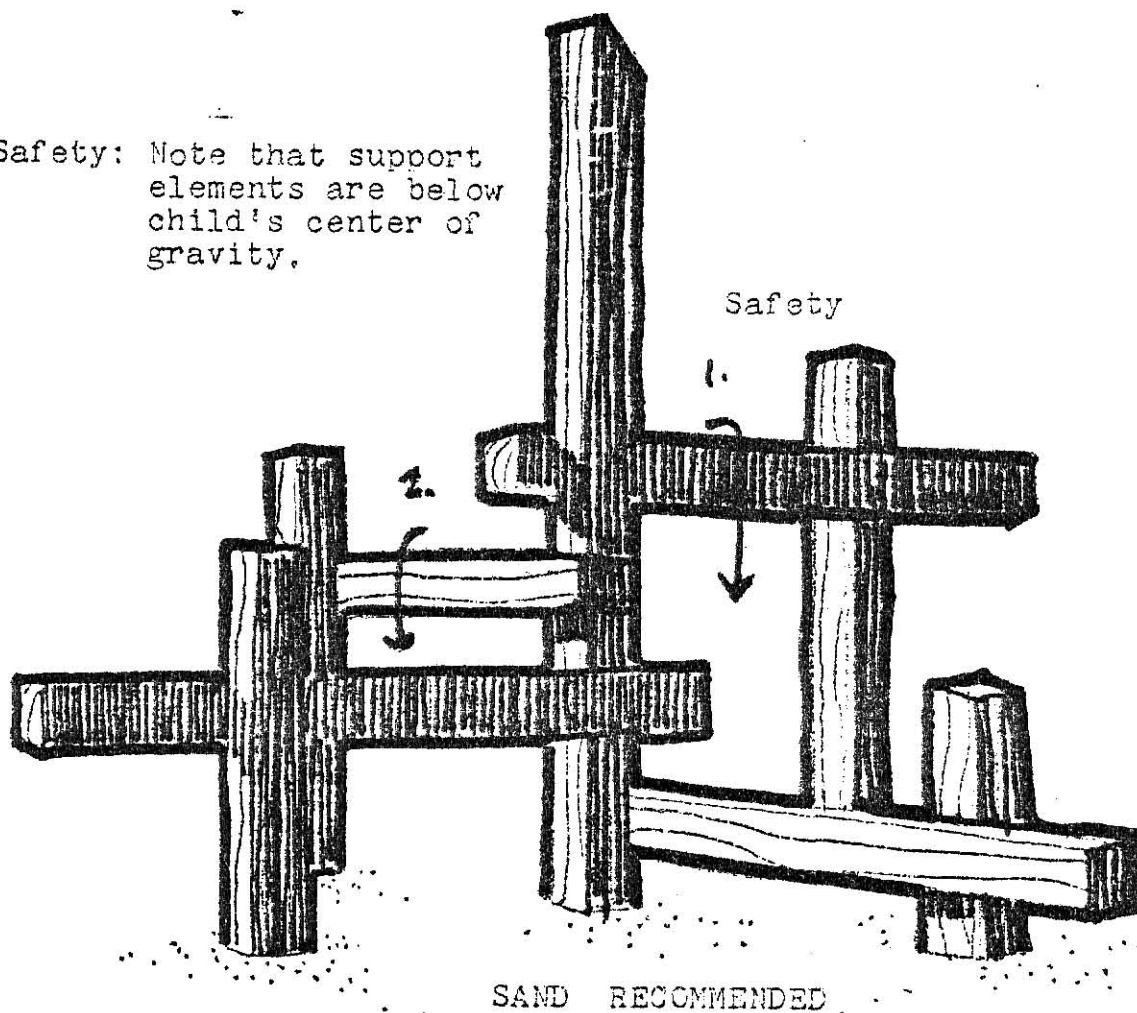
5. Supervision recommended: _____
6. Number of children that can use equipment simultaneously: _____

SAMPLE EVALUATION

STRUCTURAL

NOTE: Assumes information which would normally be obtained from manufacturers. Assumptions are made to allow completion, demonstrating use of method.

Safety: Note that support elements are below child's center of gravity.



Structural
Evaluation Checklist

Instructions:

1. Graphically portray safety issues involved with this equipment. Number each arrow, each number being used once.
2. Identify materials used in construction

wood	concrete
metal	rope
chain	rubber
fiberglass	

According to manufacturers information:

3. What is the condition upon delivery

break-down
pre-cast
4. Cost: \$ 760⁰⁰

Any identifiable continuing costs?
If yes, explain.

None

5. Supervision recommended: Minimal
6. Number of children that can use equipment simultaneously: 10-12

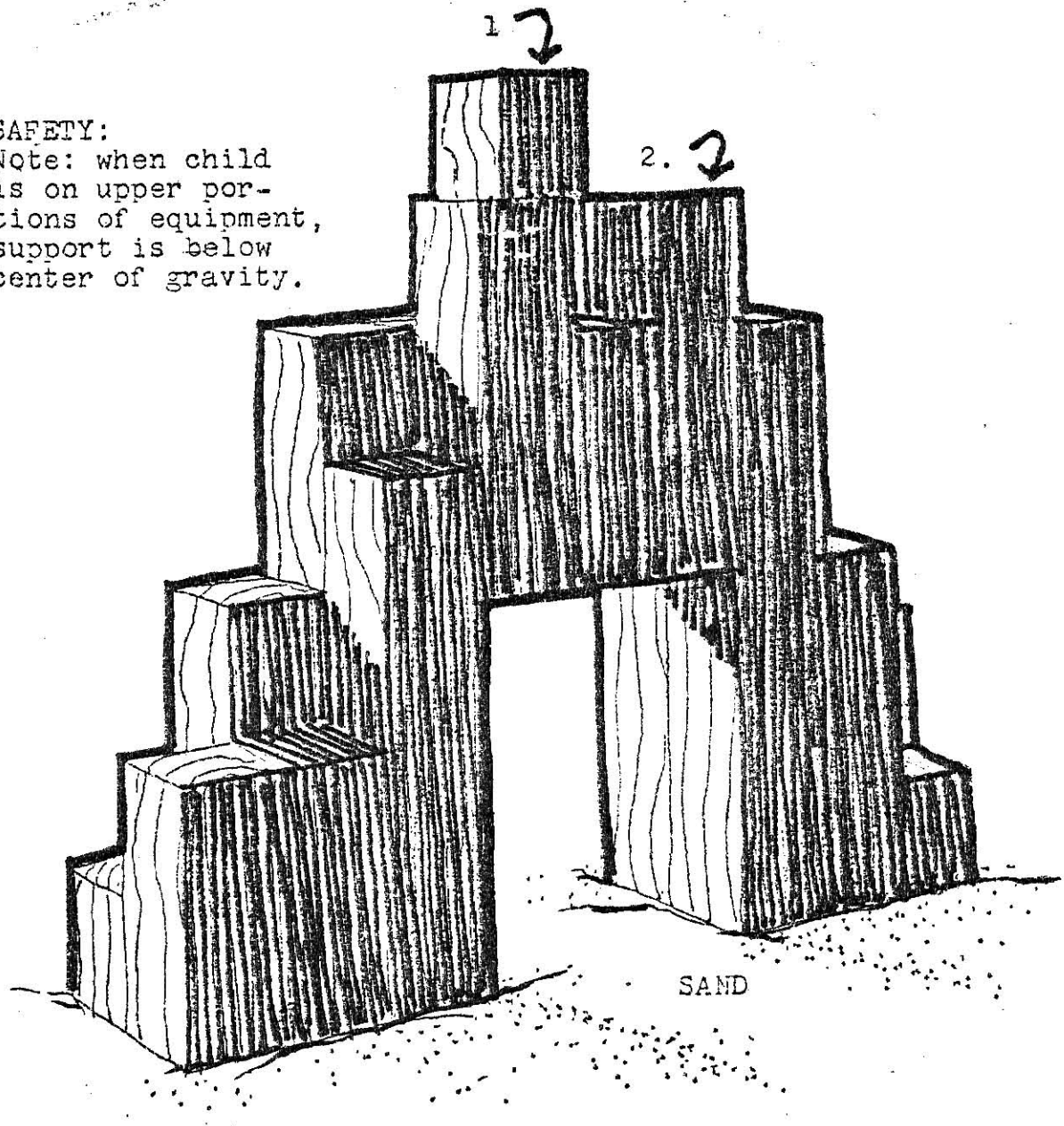
SAMPLE EVALUATION

STRUCTURAL

NOTE: Assumes information which would normally be obtained from manufacturers. Assumptions are made to allow completion, demonstrating use of method.

SAFETY:

Note: when child is on upper portions of equipment, support is below center of gravity.



Structural
Evaluation Checklist

Instructions:

1. Graphically portray safety issues involved with this equipment. Number each arrow, each number being used once.
2. Identify materials used in construction

wood	concrete
metal	rope
chain	rubber
fiberglass	

According to manufacturers information:

3. What is the condition upon delivery

break-down

pre-cast
4. Cost: \$250⁰⁰

Any identifiable continuing costs?
If yes, explain.

None

5. Supervision recommended: Minimal
6. Number of children that can use equipment simultaneously: 3-5

ORIENTATION EVALUATION



Orientational evaluation deals with the relationship of equipment to the site upon which it sets, and the requirements placed on the site due to selection of one piece of equipment over another. Major considerations here are:

1. Recommended underfoot materials:

That surface immediately below or around equipment.

2. Site work required:

Preparatory, and construction related requirements.

This would include holes that have to be dug, grading, and analysis which will possibly avoid later difficulties.

3. Environmental/aesthetic:

This deals with placement on the site according to environmental factors, and aesthetic or visual impact, and the use of the site.

Underfoot materials. Underfoot materials are an important consideration for two reasons. They should minimize problems related to safety and drainage, and adapt themselves to the intended use of the area in which it lies. The more common surfaces are: (refer to fig. 2.3)

1. loose - gravel/stone, sand, bark,
2. hard - asphalt, concrete,
3. turf - natural, artificial.

Surfaces on which the child walks must, in some cases be as stable as possible. This is due to disabilities limiting or altering the child's ability to negotiate on shifting or uneven surfaces. The surface below the child also is a concern in the event the child were to fall, not an uncommon occurrence. Tumbles can be minimized in number and severity.

Figure 2.3 is a checklist comparing various underfoot materials as they relate to such criteria as pricing, durability, texture, footing (dry or wet), glare and heat reflection, reclaimability of area, and maintenance.

Footing refers to stability as an underfoot surface. This is an issue where manipulatory skills are poor, or accessibility is required by wheelchairs. It is evaluated on the basis of whether the surface is wet or dry.

Glare and heat reflection are of importance as environmental factors. Heat reflection is an open area in summer is a consideration that needs attention.

Reclaimability of the area is based upon the permanence of the surface and damage done to subsurface structure, fertility, and other factors that would alter the area's ability to convert to a turfed area, if change in design were desired.

Maintenance is a factor based on the amount of repair or upkeep required. It is a function of durability, but also such aspects as the spreading of sand, fertilization of sod, and so on. Areas where severe use occurs, puddles often form, causing drainage problems (refer to photo 2.15). These problems can be corrected, however.

CHECKLIST 5 Underfoot Materials

	UNDERFOOT		SURFACE TYPE				RIVER ROCK	
	TURF		HARD				LOOSE	
	NATURAL	ARTIFICIAL	CONCRETE	ASPHALT	GRAVEL	SAND	BARK	
Wear (durability)	Poor, with high maintenance	----	Cracks in certain soils and weather	Good	----	----	Fair to poor	
Texture	Blades - fine to coarse	Varies	Smooth	Medium to smooth	Coarse	Fine to medium	Coarse to medium	
Footings (S) - Slippery	<u>Dry</u> : Good	S	Good	Good	Poor	Poor - Fair	Fair - Poor	
	<u>Wet</u> : Fair to S	S	S, unless special finish	Fair	Unchanged	Unchanged	Fair - Poor	
Glare & Heat reflection	NR	NR	R	Absorbs Heat: gets hot	Mod. Ref.	NR	NR	
Reclaimability	Poor	Poor	Poor	Poor	Fair	Good	Good	
Maintenance	Requires: mowing, fertilizing, water, rotation.		Difficult to repair. Salts tend to break it up. Cracks.	Good - easy to repair. Fewer Cracks.	Good - occasional addition of material.	Good - occasional addition of materials.	Good - occasional addition of material. Breaks down w/use.	

Fig. 2.3

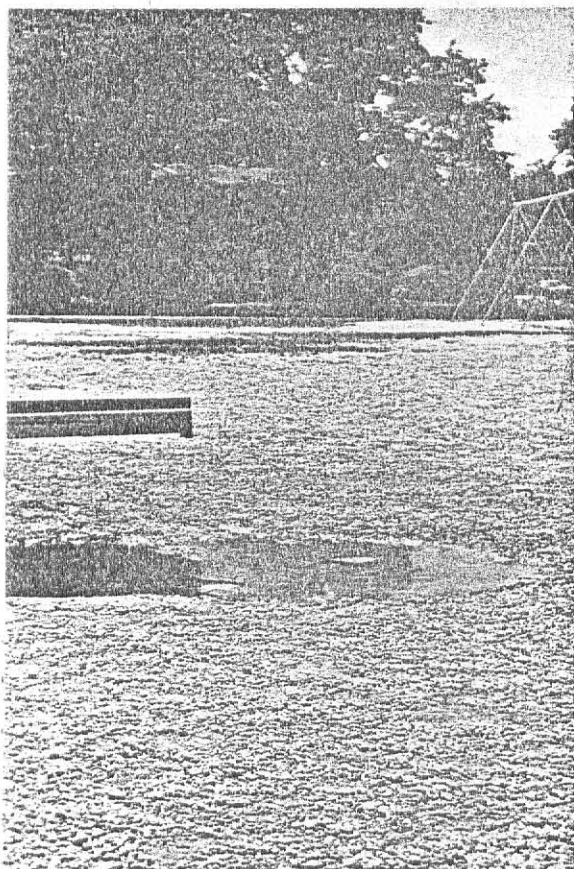


Photo 2.15

The area where children land when coming off of the slide becomes a problem from a drainage aspect.

Site Work Required. Again referring to step 6, where manufacturers supply information, site work required is covered on the checklist that is sent to the manufacturer. With this type of information, and with their recommended construction procedure, one may easily know what site work is required. Typical site work would include grading, holes dug, concrete pads poured in place, and access to site arranged.

It is important that site work be taken into consideration. Many have purchased equipment and later found that it required an essentially flat site. Last-minute grading would then be needed, or delivery delayed. In those cases where delivery can not be delayed, equipment must be stored. Information needed for storage are also obtained through the use of the checklist to be filled out by the

manufacturer.

Environmental and aesthetic. Environmental factors dealt with here are those which will possibly affect equipment selection, due to reaction of equipment to environmental factors such as sun, wind, or other external forces. Environmentally, material can be a consideration, as different materials have differing properties as to the conduction of heat or cold. Support elements that are usually grasped by children are those that are most important for the evaluation of environmental affects.

Generally, the following materials have properties as listed:

1. Metal: Conducts heat and cold. Metal elements in shade are considerably cooler than those of the same material, but located in sunlight.
2. Wood: Due to its natural insulatory affects, wood's temperature variation is minimal. Therefore, environmental affects are not as great with this material.
3. Rubber: Most rubber utilized is black. This makes it absorb heat when placed in sunlight.
4. Concrete: Concrete will absorb a degree of heat, but tends to remain cool.
5. Rope: Due to its construction, rope is a poor conductor of heat and cold. In both extremes, it will remain easily usable.
6. Chain: Due to the fact that its construction is of metal, it has the same characteristics listed above.

Aesthetics are difficult to judge, as they are based on individual preferences. Those trained in design can, however, present basic design-oriented principles that might affect selection of equipment. The form coloration of elements and size of equipment should blend with the surrounding areas, and with the site in which it is to be used. For placement on the site, professionals should be contacted and schemes arrived at that will provide efficient use of the space, while sufficiently satisfying rehabilitative objectives.

Compile Evaluations



With evaluation complete, data concerning experiential, structural, and orientational evaluation should be organized in a manner that is clearly understood, so that selection may occur, utilizing such data. It would be recommended that such organization follow the same steps and stages as listed above.

Completed checklists should be followed by supportive data. If checklists are color-coded as suggested in earlier steps, this would make comparative evaluation easier (refer to step 17) and would be organized for future needs, (refer to step 16). The importance of this step is organizational management for easier use of data by the evaluator, or by someone less involved in the actual process.

Multiple Evaluation Cycle



Evaluation concerns itself with individual pieces of equipment. Therefore, if numerous pieces are to be evaluated, one must return to previous steps for each. If information dealing with equipment is not complete, steps 6 and 10 will require completion prior to 11 - 13. The importance of this step is that it allows complete individual evaluation.

Chapter Three

Post-evaluative Phase

INTRODUCTION

With the evaluation step completed, administrative procedures are required prior to completion of the entire process. These steps concern recordkeeping for future reference, and selection of equipment if more than one piece satisfies stated objectives from step 3. These must be completed prior to purchase.

Upon completion of these steps, preparatory measures should be taken in expectation of equipment. These measures will be apparent referring to information obtained in previous steps. This would include site work, storage arrangements, and so forth.

Record Data For Future Use



Equipment deemed less appropriate for a given project are not necessarily totally inappropriate, and therefore, evaluation records should be kept for future reference. Use at a later date would require updating such changes as required by evolution of equipment design and costs. This would minimize duplication of evaluative processes, and would, in time, build a sizable assemblage of such records. The importance of this step is in future use of data resulting from previously completed steps.

Selection Recommendation



With evaluation completed for each piece of apparatus, selection may be accomplished. In the event more than one piece of equipment is deemed to be applicable, comparisons must be made between individual pieces. This is the first instance in which pieces of equipment are compared among each other.

If evaluation is complete, and only one piece of equipment stands out as being superior to any others, such formal comparison need

not be made. If a number of pieces seem to be indistinguishably comparable, a list of such pieces may be established and the decision of selection may be made by the decision-making body, such as a board of directors.

Purchase



The final step is purchase of equipment. With use of evaluation as proposed, recommendations should be sound and justifiable. Therefore, it is stressed that selection follow recommendations of those involved in the actual evaluation, rather than pre-empting such recommendations with administrative criteria.

With purchase complete, those in charge of preparations for equipment should refer to information gained as to site, construction, and storage requirements. Preparations for incoming equipment will allow for less disruption of normal operations, and quicken beneficial use of same.

Literature Cited

1. Aaron, David and Winawer, Bonnie P., Child's Play, Harper and Row, N.Y., p. 128.
2. Ibid, p. 129.
3. Friedberg, M. Paul, Play and Interplay, McMillan, London, 1970, p. 34.
4. Clough, Richard H., Construction Contacting, Third Edition, Wiley & Sons, New York, 1975, p. 262.
5. Russo, James K., Education Digest, January, 1975, p. 18.
6. Personal interview. Nancy Polsen, Director, Big Lakes Developmental Center, Manhattan, Kansas.
7. University of Kansas Medical Center, Physical Therapy Department, Kansas City, Kansas.
8. Frostig, Marianne, Movement Education: Theory and Practice, Follett Publishing Co., Chicago, 1970, p. 37-38.
9. Author's class notes, Design for Special Populations, Richard L. Austin, Instructor, Kansas State University, Manhattan, Kansas, Spring 1976.
10. Personal interview. Betty Schoenberger, Supervisor, Nebraska State School for Disabled Children, Beatrice, Nebraska.
11. Frostig, op. cit.
12. Design Aid Bulletin, Theraplan, Inc., Volume IV, Number 1.
13. Ibid.
14. Corbin, Charles R., Becoming Physically Educated in the Elementary School, Lea & Febiger, Philadelphia, 1971, p. 78.
15. Mosston, Muska, Development Movement, G. E. Merrill Book, Columbus, Ohio, 1965, p. 105.
16. Hawkins, Donald E., The Natural Environment and Human Development: Implications for Handicapped Children in Urban Settings, Hawkins & Associates, no city given, 1975, p. 6.
17. Vannier, Mary Helen, Foster, Mildred and Callahue, David L., Teaching Physical Education in Elementary Schools, W. B. Saunders, Philadelphia, Pa., 1973, p. 204.

18. Kansas Committee on Employment of the Handicapped, 126 South, State Office Building, Topeka, Kansas.
19. State Department of Equal Opportunity Employment, WHO TO CONTACT, A Network Referral Recruitment Directory, unpublished.
20. Kansas State Department of Education, 03-04 Special Education Directory.
21. Parks and Recreation, National Recreation and Parks Assoc., Buyer's Guide, Arlington, Virginia, January 1977, p. 83.
22. Amicus, National Center for Law and Handicapped, Volume 2, Number 4, June 1977.
23. Robert Mikesic, Kansas Committee on Employment of the Handicapped, Topeka, Kansas.
24. University of Kansas Medical Center, Kansas City, Kansas, Physical Therapy Department.

Appendix A

Included in this appendix are therapeutic-related terms and benefits of play (11) briefly listed, as are common motor disfunctions. The purpose of this information is the introduction of fundamental therapeutic information for those not acquainted with such.

Physiologic Advantages to Movement

1. Longer duration of effort before exhaustion. This refers to better endurance.
2. Slight decline in breath rate, and ability to attain a greater minute volume of ventilation. This indicates a more efficient use of respiration and an increase of lung capacity; important aid to better endurance.
3. Greater utilization of energy reserve. This helps to prevent an over supply of energy reserve, whether in sugars or fat.
4. Increased ability to store energy.
5. Lower resting heart rate. This indicates a stronger, more efficient heart effort, and better circulatory conditions.
6. Reduction of number of movements required to do a task. This is generally attained through ability to practice movements.
7. Increased range of motion of joints used in a particular activity. (Kinesthetics) This indicates a greater flexibility.
8. Increase in strength. Greater muscle strength and efficient use as a source of power against resistance.

General Ambulation Disability Classifications (12)

1. Non-ambulatory disabilities - impairments that, regardless of cause or manifestation, for all practical purposes, confine individuals to wheelchairs.
2. Semi-ambulatory disabilities - impairments that cause individuals to walk with difficulty or insecurity. Individuals using braces or crutches, amputees, arthritics, spastics, and those with pulmonary and cardiac ills may be semi-ambulatory.
3. Sight disabilities - total blindness or impairments affecting sight to the extent that the individual functioning in public areas is insecure or exposed to danger.
 - a. The partially sighted - those persons whose vision is between 20 - 70 and 20 - 200 in the better eye with correction.
 - b. The blind - those persons whose vision is less than 20 - 200 with corrections, or whose field of vision is significantly restricted.
4. Hearing disabilities - deafness or hearing handicaps that might make an individual insecure in public areas because he is unable to communicate or hear warning signals.
5. Disabilities of incoordination - faulty coordination or palsy from brain, spinal, or peripheral nerve injury.
6. Aging - those manifestations of the aging process that significantly reduce mobility, flexibility, coordination, and perceptiveness.

Common Motor Dysfunctions (13)

1. Cerebral Palsy - An impairment, or loss of neural activity caused by a lack of formation, malformation, or injury to the brain either before, during or after birth. The four general types of cerebral palsy include spastic, athetoid, ataxic, and tremor.

- a. Movements of the spastic are stiff, jerky, and uncertain (it exhibits itself by an exaggerated contraction of a muscle when suddenly stretched).
- b. The athetoid displays a twisting, rolling, purposeless motion which is continuous and slow. The individual's movements are exaggerated and he is unable to make a definite prescribed movement.
- c. The ataxic shows a disturbance of equilibrium and coordination, frequently feeling quite dizzy and light-headed. He walks with a reeling, unsteady gait and has a tendency to fall forward. Difficulty of orientation in space is common.
- d. The tremor is subject to involuntary movements which follow a regular rhythmic pattern in which flexors and extensors contract alternately.

2. Diplegia - refers to the involvement of all four extremities with greater involvement of the legs than the arms.

3. Hemiplegia - refers to the involvement of both upper and lower extremities on one side, with the arm more involved than the leg.

4. Monoplegia - refers to a weakness or paralysis of a single extremity.

5. Paraplegia - refers to the involvement of both lower extremities.

6. Quadriplegia - refers to the involvement of all four extremities but with equal or greater disability in the arms than the legs.

7. Triplegia - refers to the involvement of any three extremities.

8. Legg Perthes - a flattening of the growth part of the head of the large leg bone.

9. Congenital dislocation of the hip - a condition in which the head of the large bone in the leg above the knee is not situated in the socket. The leg on the side of the dislocation appears to be shorter than the other.

10. Scoliosis - a condition in which there is a lateral curvature at the spine.
11. Osteomyelitis - an inflammation of the bone marrow in the lower extremities.
12. Osgood-Schlatter disease - a partial separation of the growth end of the shin bone.
13. Spina bifida - a congenital deformation of the spine.
14. Muscular dystrophy - a defective nutrition of the muscular system.
15. Postencephalitic - the serious neurological and/or behavioral changes that persist after the patient has recovered from an acute encephalitis.
16. Osteogenesis imperfecta - an imperfect formation of the bones.

Appendix B

The glossary included here is not all-inclusive, but will give brief understanding of terms commonly used in therapeutic processes and rehabilitation. It is broken into two major categories:

1. Movement exploration, and
2. Perceptual motor learning.

Movement exploration is based on motion and it's required tasks. Perceptual motor learning deals with cue-reading and responses.

TERMS USED IN MOVEMENT EXPLORATION

1. Agility - one's ability to move his body through space and change direction. The ability to change directions quickly and to control body movements. (total body). (14) The ability to make successive movements in different directions as efficiently and as rapidly as possible. The ability to move one's body through space. (15)
2. Balance - equality in weight. Use to pinpoint the center of gravity of the body. The ability to maintain body position and equilibrium both in movement and in stationary body positions. (14) The ability to assume and maintain any body position against the force of gravity. (15)
3. Conceptualization - the ability to anticipate needs or consequences in a given problem situation, an understanding of the problem. (16)
4. Coordination - synchronized movement patterns. (8)
5. Crossing-Over - crossing the mid-line or center line of the body with the body extremities or with eyes. (16)
6. Directionality - by experimenting with movement patterns directed toward objects in space, the child learns that to reach an object he must make a movement, for example, to the right, up, down, etc. (16)
7. Dominance - preferred side (hand, foot, eye, ear) determined by cortical development. (16)
8. Endurance - the ability to persist in numerous repetitions of an activity involving strength. The ability of a muscle or group of muscles in one single maximum effort. (14)
9. Fine Motor Skills - smaller and more specialized muscle activity. (16)
10. Flexibility - ability to increase the range of motion at a given joint. The ability of muscle, or the ability of a joint to move through its possible movement range. (17)
11. Gross Motor Skills - large muscle activity (running, jumping, etc.) (16)
12. Growth - the physical and biological changes that naturally evolve in the development of an individual. (16)
13. Kinesthetic - the sense of muscular activity. The sensations caused by stimulation of sensory-end organs in the muscles and joints. (16)

14. Laterality - concept of left and right sidedness and the ability to control the sides of the body separately and simultaneously. (16)

 Bi-laterality - both arms or both legs moving simultaneously.
 Cross-laterality - opposite arm and leg moving simultaneously.
 Homolaterality - same leg and arm moving simultaneously.
 Multi-laterality - both arms and legs moving simultaneously.
15. Locomotion - movement of the body through space. (16)
16. Maturation - progress from one stage to a higher and more complex stage of development which is accomplished without the benefit of experience and as a function of time. (16)
17. Mid-line - vertical center line of the body. Children develop from the mid-line of the body out, and from head to foot. (16)
18. Motor-Educability - a capacity to learn. (16)
19. Motor Fitness - capacity to perform. (16)
20. Motor Perceptual - experimental background of movement exploration. (Time and space). (16)
21. Motor-sensory - muscular sensitivity to an object. Stimulus received upon sense organs and receptors which cause muscular behavior from reflective to controlled behavior. (16)
22. Neuromuscular - relationship of the nerves to the muscles, the development which depends upon the quality and quantity of use. (16)
23. Patterning - sequential, neuromuscular development. (16)
24. Perceptually Handicapped - lack of purposeful motor activity due to the inability to organize and interpret a situation based on sensory stimulation. (16)
25. Play - a flexible concept which includes the use of excess energy, the following of instinct, preparation for future life, rest from work, an outlet for frustration, an extension of a work activity, a seeking of stimulus, development, or activity pursued for its own sake. (14)

26. Power - the ability to display strength explosively or with speed. (17) The ability to perform one maximum explosive effort in the shortest time with the greatest efficiency. (16)
27. Rating Scale - an instrument to determine the performance of a child to permit this observation of perceptual motor behavior. (16)
28. Reaction time - the ability to perceive a stimulus, begin movement and finally complete a response. (15)
29. Recreation - any activity pursued for its own sake from which one may receive pleasure, satisfaction, self-actualization, and/or rest from work.
30. Sequence - a number of movements and positions, smoothly connected, and performed so as to reflect the accomplishments of the performer in one or several developmental qualities. (15)
31. Spatial Orientation - relationship between self and outside objects and between objects. Must have a point of reference to stabilize functions and put outside object into a proper perspective. (16)
32. Speed - the ability to move from one place to another in the shortest possible time. (14) The ability to perform rapidly successive movements over a short period of time in a single direction. (17)
33. Strength - the ability to do work, the ability to move against or withstand resistance. The ability to exert force such as lifting ones own body. (14) The ability to do work; the ability to move against or withstand resistance. (15) The amount of force that can be exerted by a single muscle or group of muscles in one single maximum effort. (17)

TERMS USED IN PERCEPTUAL MOTOR LEARNING (16)

1. Auditory - of or relating to hearing.
2. Bilateral - pertaining to the use of both sides of the body in a simultaneous and partial fashion.
3. Biocular - use of both eyes simultaneously.
4. Body Image - complete awareness of one's own body and its possibilities of movement and performance.
5. Concept - knowledge that at the moment need not be directly perceived through the senses but is the result of the manipulation or previously stored sensory impressions. A concept requires abstraction (the ability to recognize that the same "tag" or name may be used for several different objects). Example - our abstract knowledge tells us that a particular grouping of legs, seat, and back is a chair - the power to generalize lets us recognize that there are many types of chairs.
6. Cross-lateral movements - movements requiring the simultaneous use of different limbs on opposite sides of the body or the moving of the same limbs (as both arms) simultaneously but in opposite directions.
7. Differentiation - the ability to sort out and use independently different parts of the body and in a specific and controlled manner.
8. Directionality - the projection of right and left, up and down, fore and aft, and directions from the body out into space. The child must develop laterally within his own organism and be aware of the right and left sides of his own body before he is ready or able to project these directional concepts into external space.
9. Elaboration - embellishment by the addition of associated ideas or movements.
10. Experimentation - the ability, desire and willingness of the child to try or test newly learned movement or task to see how many different ways it can be used of itself or in correlation with movements or tasks.
11. Fine Motor Activities - activities or output in which precision in delicate muscle systems is required.

12. Form perception - the ability to conceive form in all its parts, put it together as a whole unit then again break it down into individual parts.
13. Generalized Movements - a wave of movements that sweeps through the whole body. Parts such as arms and legs are moved, not in relationship to their function but only as an adjunct to the total movement.
14. Gross Motor Activity - activities or output in which groups of large muscles are used and the factor of strength is primary.
15. Handedness - the choice of hand or side that is to lead in all activities. True handedness grows out of laterality, the inner knowledge of the two sides of one's body and the ability to call from the one needed for a prescribed task.
16. Integration - the pulling together and organization of all of the stimuli which contact the organism at a given moment. It also involves the tying together with the present stimulation experience variable retained from past activities. The organizing of many individual movements into a complex response.
17. Kinesthetic - the sense that yields knowledge of the movements of the muscles of the body and position of the joints.
18. Laterality - complete awareness of the two sides of the body and the ability to use them separately or both sides together as the task demands.
19. Midline - the child's own center of gravity. Unless he has a well-defined midline as the result of well-developed laterality, his space structure will not be stabilized and he may have difficulty orienting himself to his surroundings.
20. Monocular - the use of one eye.
21. Movement Patterns - the organization of single movements into complete wholes. The movement pattern allows the child to concentrate on the purpose of the movement rather than how the movement can be made.
22. Ocular - having to do with the eyes.
23. Orientation - the child's ability to locate himself in relation to the things surrounding him and/or to time.
24. Perception - an experience or sensation combined or integrated with previous experiences which give it added meaning. Perception is controlled by stimuli received, memory, and motivation. Input.

25. Perceptual Motor - the perceptual motor process includes input (sensory or perceptual activity) and output (motor or muscular activities). A division of the two is impossible for anything that happens to one area automatically affects the other. Any total activity includes input, integration, output and feedback.
26. Proximo-distal - the direction from the center outward. Movements of large muscle groups lying toward the center of the body develop before the independent movements of parts lying at the extremity. Thus movements of the total arms precede those of the wrist and fingers.
27. Readiness Skills - those skills which the small child is expected to develop one way or another and bring with him to "tackle" the first grade.
28. Space - the area in which the child exists and moves.
29. Tactual - having to do with the sense of touch.
30. Unilateral - one sided.
31. Vision - the interpretation and analysis of what is seen. Vision then, is the interpretive process that results from sight, and many authorities call this the act of perception. It certainly may be called perception as long as one realizes it cannot arise strictly from the sight response.

Appendix C

The organizations, agencies, and individuals are involved in various services to handicapped individuals. Four lists are included. They are in the following order:

1. National Organizations
2. State personnel dealing with the handicapped (Kansas) (18)
3. Directors of various centers and institutions in Kansas which handle handicapped children (19)
4. Directors of special education programs in Kansas (20)

These, and similar groups and individuals, are potential information resources when dealing with handicapped children in Kansas. The purpose of their inclusion here is to demonstrate various avenues open to private individuals in need of technical assistance.

LIST ONE

National Organizations

Administration on Aging
U. S. Dept. of Health, Education and Welfare
330 C Streets S. W.
Washington, D. C. 20201

American Association of Workers for the Blind, Inc.
1511 K Street N. W.
Washington, D. C. 20005

American Congress of Rehabilitation Medicine
30 N. Michigan Avenue
Chicago, Illinois 60602

American Foundation for the Blind, Inc.
15 West 16th Street
New York, N. Y. 10011

American Institute of Architects
1735 New York Ave., N. W.
Washington, D. C. 20006

American National Red Cross
17th and D Streets N. W.
Washington, D. C. 20006

American Orthotic and Prosthetic Association
1440 N Street N. W.
Washington, D. C. 20005

The American Psychiatric Association
1700 18th Street N. W.
Washington, D. C. 20009

American Public Health Association
1015 18th Street N. W.
Washington, D. C. 20036

The Arthritis Foundation
1212 Avenue of the Americas
New York, New York 10036

Blinded Veterans Association
1735 DeSales Street N. W.
Washington, D. C. 20036

Boy Scouts of America
Scouting for the Handicapped Division
Boy Scouts of America
N. Brunswick, N. J. 08902

Bureau of Education for the Handicapped
U. S. Dept. of Health, Education and Welfare
400 Maryland Avenue S. W.
Washington, D. C. 20202

Center for Concerned Engineering
1224 DuPont Circle Building
Washington, D. C. 20036

Council of Organizations Serving the Deaf
Wilde Lake Village
Grn. #310
Columbia, Md. 20044

Department of Housing and Urban Development
Office of the Assistant to the Secretary for Programs
for the Elderly and Handicapped
Washington, D. C. 20410

Disabled American Veterans
3725 Alexandria Pike
Cold Spring, Ky. 41076

Eastern Paralyzed Veterans
432 Park Avenue South
New York, N. Y. 10016

Educational Facilities Laboratories
850 Third Avenue
New York, N. Y. 10022

Epilepsy Foundation of America
1828 L Street N. W.
Washington, D. C. 20036

Federal of the Handicapped, Inc.
211 West 14th Street
New York, New York 10011

Gerontological Society
1 Dupont Circle N. W.
Washington, D. C. 20036

Girl Scouts of the U. S. A.
Scouting for the Handicapped Girls Program
830 Third Avenue
New York, N. Y. 10022

Goodwill Industries of America
9200 Wisconsin Avenue
Washington, D. C. 20014

ICD Rehabilitation and Research
(Formerly Institute for the Crippled and Disabled)
340 East 24th Street
New York, N. Y. 10010

ICTA Information Center
Fack S-161 03
Bromma, Sweden

International Association of Rehabilitation Facilities, Inc.
5530 Wisconsin Ave. #995
Washington, D. C. 20015

Junior National Association of the Deaf
Gallaudet College
Washington, D. C. 20002

Muscular Dystrophy Associations of America, Inc.
1790 Broadway
New York, N. Y. 10019

Mayor's Office for the Handicapped
City Hall
New York, N. Y. 10022

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20927

The National Association for Mental Health, Inc.
1800 North Kent Street
Arlington, Va. 22209

National Association of the Physically Handicapped, Inc.
6473 Grandville Avenue
Detroit, Michigan 48228

National Association for Retarded Children
2709 Avenue E East
POB 6109
Arlington, Texas 76011

National Congress of Organizations of the Physically Handicapped, Inc.
7611 Oakland Avenue
Minneapolis, Minn. 55423

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Ill. 60612

National Federation of the Blind
218 Randolph Hotel Bldg.
Des Moines, Iowa 50309

National Industries for the Blind
1455 Broad Street
Bloomfield, N. J. 07003

National Multiple Sclerosis Society
257 Park Avenue South
New York, N. Y. 10010

National Paraplegia Foundation
333 N. Michigan Avenue
Chicago, Ill. 60601

National Park Service
U. S. Dept. of the Interior
Federal Division of State and Private Liaison
1100 L Street, N. W.
Washington, D. C. 20240

Rehabilitation International USA
219 East 44th Street
New York, N. Y. 10017

Rehabilitation Services Administration
HEW
330 C Street S. W.
Washington, D. C. 20201

United Cerebral Palsy Associations, Inc.
66 East 34th Street
New York, N. Y. 10016

U. S. Dept. of Agriculture
Division of Recreation
U. S. Forest Service
Washington, D. C. 20250

Veterans Administration Health Care Facilities Service
810 Vermont Avenue, N. W.
Washington, D. C. 20420

National Recreation and Park Association
1601 North Kent Street
Arlington, Va. 22209

National Rehabilitation Association
1522 K Street N. W.
Washington, D. C. 20005

National Therapeutic Recreation Society
(a branch of the National Recreation and Park Association)
1601 N. Kent Street
Arlington, Va. 22209

National Tuberculosis and Respiratory Disease Association
1740 Broadway
New York, N. Y. 10019

Paralyzed Veterans of America
7315 Wisconsin Avenue, N. W.
Suite 301-W
Washington, D. C. 20014

Perkins School for the Blind
175 N. Beacon Street
Watertown, Mass. 02172

President's Committee on Employment of the Handicapped
(Committee on Barrier-free Design)
1111 20th Street, N. W.
Washington, D. C. 20210

President's Committee on Mental Retardation
7th and D Streets S. W.
Washington, D. C. 20201

Rehabilitation Education Center
University of Illinois
Oak Street at Stadium Dr.
Champaign, Ill. 61820

LIST TWO

State Personnel,

Kansas

Belohlavek, Nancy
Counselor
Suite 400
1319 Lincoln
Topeka, Kansas 66612
(913) 235-5306

Clark, Kenneth
(Hearing Impaired)
324 Chester Terrace
Olathe, Kansas 66061
(913) 764-2975

Coberly, Diana
Member
Kansas Committee on Employment of Handicapped
Gove, Kansas 67736
(316) 397-2592

Coe, David
1099 Highland Court
Coffeyville, Kansas

Culver, Kenneth
President
Kansas Association for the Deaf
1209 Cynthia Street
Lawrence, Kansas
(913) 842-8232

Edlund, Richard
Job Placement Consultant
Division of Services of Blind for Kansas
7146 Kaw Drive
Kansas City, Kansas 66111
(913) 299-3201

Edlund, Richard
President
National Federation of Blind for Kansas
7146 Kaw Drive
Kansas City, Kansas 66111
(913) 299-3201

Erhart, Suzannah
Vocational Counselor
Services for the Blind
2700 West 6th Street
Topeka, Kansas 66606
(913) 295-9521
KANS-A-N 566-9344

Guinn, Patricia
Advocate for Handicapped
5530 Southwest Wanamaker
Topeka, Kansas 66619
(913) 862-2410

Helfrich, Linda
Placement Specialist
(Placement of Handicapped)
Division of Vocational Rehabilitation
Gateway II, Suite 424
4th and State
Kansas City, Kansas
(913) 371-6700, Ext. 407
KANS-A-N 565-4407

Lewis, Wendell
Disability Determination Services
Disability Examiner
Normandy Apartments
29th and Prairie
Topeka, Kansas 66614
(913) 235-9592
KANS-A-N 567-1210

Metzler, Karen
Health Care Consultant
Social Work Division Children's Rehabilitation Unit
H. C. Miller Building - KU Medical Center
Rainbow Boulevard at 39th
Kansas City, Kansas 66134
KANS-A-N 560-5633

Mikesic, Robert
Consultant for the Handicapped
Kansas Committee on Employment of the Handicapped
126 South-State Office Building
Topeka, Kansas 66612
(913) 296-5283
KANS-A-N 561-5283

Miller, Abe--1168
Vocational Counselor
(Placement Veterans)
2200 Gage Boulevard
Topeka, Kansas
(913) 272-3111

Mintun, Marge
Administrative Supervisor
Kansas Children's Service League
Respite Care home
225 Kansas Avenue
Topeka, Kansas 66603
(913) 232-0543

Moses, Howard
Director
Division of Disabled
Topeka/Shawnee County Human Relations Commission
Room 54
215 East 7th
Topeka, Kansas 66603
(913) 295-3880

Nork, Jack
(Placement Ex-Offenders from State Institutions)
Topeka Job Service Center
512 West 6th Street
Topeka, Kansas
(913) 296-5180
KANS-A-N 561-5180

Olson, Phil
Supervisor
Vocational Rehabilitation Unit
3215 West 11th
Topeka, Kansas 66604
(913) 296-4811
KANS-A-N 561-4811

Redford, Dr. John B.
Department of Rehabilitative Medicine
KU Medical Center
39th and Rainbow
Kansas City, Kansas 66103
(913) 588-6795

Rennick, Kathy
Counselor
(Placement Mentally Retarded)
Vocational Rehabilitation Unit
3107 West 21st Street
Topeka, Kansas
(913) 296-5446
KANS-A-N 561-5446

Rowlands, Robert
Supervisor
(Placement of Handicapped)
Division of Vocational Rehabilitation
Gateway II, Suite 424
4th and State
Kansas City, Kansas
(913) 371-6700, Ext. 407
KANS-A-N 565-4407

Rugge, Dorothy
Director
Deaf and Hard of Hearing Counsel
1646 East Central Avenue
Wichita, Kansas
(316) 264-8881

Schutz, Richard
Director
Services for the Blind
2700 West 6th Street
Topeka, Kansas 66606
(913) 296-4454
KANS-A-N 561-4454

Strickler, Joan
Kansas Commission on Advocacy
1523 University Drive
Manhattan, Kansas 66502
(913) 539-4752

Strong, Don E.
Placement Counselor
(Placement of the Handicapped)
Division of Vocational Rehabilitation
155 South Hydraulic
Wichita, Kansas
(316) 268-7991
KANS-A-N 567-7991

Tyrell, Chuck
(Placement of Handicapped)
Division of Vocational Rehabilitation
2700 West 6th Street
Topeka, Kansas 66606
(913) 296-4811
KANS-A-N 561-4811

White, Anne
Advocate for Handicapped
8201 West 74th Street
Overland Park, Kansas 66204
(913) 831-2258

LIST THREE

Institutions and Care
Centers, Kansas

Mr. Dan L. Andrews, Director
Franklin Co. Rehabilitation Facility
R. R. #2
Ottawa, Kansas 66067

Ms. Emma Lou Arensberg, Director
Atchison County Association for Retarded
Citizens
524 North 9th
Atchison, Kansas 66002

Mr. Don Beamgard, Director
Educational Care, Inc.
105 Logan
Atwood, Kansas 67730

Sister M. Veronice Born, Director
Holy Family Center
619 South Maize
Wichita, Kansas 67209

Mrs. Scotty Brezgiel, Director
Leavenworth Developmental Serv.
426 Miami
Leavenworth, Kansas 66048

Mr. Joe Brooke, Director
Tri-Valley Developmental Center
Highway 169 N., Box 5
Humboldt, Kansas 66748

CLASS Limited
2021 Gabriel, P. O. Box 913
Parsons, Kansas 67357

Dr. Gary Condra, Director
Cottonwood, Inc.
2801 West 31st
Lawrence, Kansas 66044

Mr. Gary Cook, Director
Occupational Center of Central Kansas
370 Schilling Road
Salina, Kansas 67401

Mr. Maurice Cummings, Director
Reno Occupational Center
127 East Avenue B
Hutchinson, Kansas 67501

Mr. Edward G. Downs, Director
Johnson County MR Center
11800 West 63rd Street
Shawnee, Kansas 66203

Mr. Larry Elmquist, Director
McPherson County Diversified Service
P. O. Box 68
McPherson, Kansas 67460

Mr. Max Field, Director
Sedgwick County Board of MR
1801 East Tenth
Wichita, Kansas 67214

Mr. John C. Frye, Director
Starkey Developmental Center
144 South Young
Wichita, Kansas 67209

Mr. Edward Gibbons, Director
Capper Foundation for Crippled Children
3500 West 10th
Topeka, Kansas 66604

Mr. Howard Hasler, Director
S. W. Develop. Services, Inc.
P. O. Box 1443, W. Highway 50
Garden City, Kansas 67846

Ms. Marnette Hatchett, Director
Mid-Kansas D. D. Services, Inc.
P. O. Box 467 - 1901 East 1st St.
Newton, Kansas 67114

Mr. Ed Henry, Director
Twin Valley Develop. Services
Box 81
Greenleaf, Kansas 66943

Dr. Ibrahim Hussein, Director
Big Lakes Develop. Center, Inc.
230 A Poyntz Avenue
Manhattan, Kansas 66502

Mr. William Jenks, Director
Hetlinger Developmental Center
707 South Commercial
Emporia, Kansas 66801

Mr. John Jonas, Jr., Director
Cerebral Palsy Research Foundation of Kansas, Inc.
4320 E. Kellogg, P. O. Box 8217
Wichita, Kansas 67208

Mr. Randall J. Kitch, Director
Help Unite Human Relations, Inc.
816 Lane
Topeka, Kansas 66606

Frank R. Kleffner, Ph.D., Dir.
Institute of Logopedics
2400 Jardine
Wichita, Kansas 67219

Mr. Clair Kuszmaul, Director
MR Governing Bd. of Wy. Co.
9400 State Avenue, Room 100
Kansas City, Kansas 66112

Mrs. Marilee Larson, Director
Sheltered Living, Inc.
1216 Fillmore
Topeka, Kansas 66604

Ms. Sheryl Lorange, Director
Hays Day Care for Except. Children
94 Lewis Drive
Hays, Kansas 67601

Ms. Donna L. May, Director
Verdigris Valley Development Ctr.
P. O. Box 652
Independence, Kansas 67301

Jerry Miller, Director
Topeka Assoc. for Retarded Children
Shawnee Co. MR Center
2701 Randolph
Topeka, Kansas 66614

Mr. Edwin B. Minter, Director
UCP Assoc. of Greater K. C., Inc.
3914 Washington
Kansas City, Missouri 64111

Mr. Don Morrill, Director
Terramara, Inc.
2375 West Central
El Dorado, Kansas 67042

Ms. Barbara Olivas, Director
Grant County Day Care Center
108 West Flower
Ulysses, Kansas 67880

Ms. Sara Osborn, Director
Russell Child Development Center
621 Garden City Avenue
Garden City, Kansas 67846

Mr. Don Pendergast, Director
Arrowhead West, Inc.
Military & Avenue K, Box 1353
Dodge City, Kansas 67801

Dr. Nancy Peterson, Director
Douglas County ARC
U. A. F. Clinical Training Ctr.
K. U., Sunnyside Avenue
Lawrence, Kansas 66044

Mr. Gene Post, Director
Sunflower Training Center, Inc.
Box 838
Great Bend, Kansas 67530

Mr. Robert Powers, Director
Continuing Care, Inc.
P. O. Box 1975
Wichita, Kansas 67201

Mr. Dave Ranney, Director
Nemaha Co. Sheltered Workshop
516 Main
Seneca, Kansas 66538

Mr. H. E. Rohrig, Director
Parents of Spastics
2203 South Grove
Wichita, Kansas 67211

Mr. William Sampson, Director
Chikaskia Area Training Center
P. O. Box 201 - 206 South Main
Medicine Lodge, Kansas 67104

Richard R. Saunders, Ph.D.
Crossroads D. D. Center, Inc.
2721 Boulevard Plaza
Wichita, Kansas 67211

Mr. Dean Settle, Director
Kansas Elks Training Center for the Handicapped
619 South Maize Road
Wichita, Kansas 67209

Mr. Robert E. Smith, Director
Develop. Services of NW Kansas
P. O. Box 1016
Hays, Kansas 67601

Mr. Jack Sturman, Director
Tri-Ko., Inc.
P. O. Box 296
Parker, Kansas 66072

Ms. Gloria Terrill, Director
Franklin Co. Child Development and Services, Inc.
410 South Hickory
Ottawa, Kansas 66067

Dr. John Throne, Director
Lakemary Center
100 Lakemary Drive, Box 449
Paola, Kansas 66071

Sister Anna Totta, Director
Community Service Center
2048 North 5th
Kansas City, Kansas 66101

Bill Vardy, Director
Cowley County MR/DD Center
425 North 2nd
Arkansas City, Kansas 67005

Mrs. Earl Wall, Director
Anderson School of Hope
8th & Anderson
Victoria, Kansas 67671

Ms. Linda Weir, Director
Rainbows United, Inc.
2615 Wellesley
Wichita, Kansas 67204

Mrs. R. T. Wentling, Director
Brown County Day Care Center
512 Shawnee Street
Hiawatha, Kansas 66434

Mrs. Virginia Ziesmer, Director
We Care, Inc.
318 Exchange
Emporia, Kansas 66801

LIST FOUR

Directors, Programs of
Special Education, Kansas

FT. HAYS STATE COLLEGE
 Dr. Lyman Boomer, Chairman
 Special Education Department
 Hays, Kansas 67601

KANSAS STATE EXTENSION SERVICE
 Martha Brill
 Kansas State University
 Umberger Hall
 Manhattan, Kansas 66502
 KANS-A-N 562-1317

Cori Brown, President
 KUAF/Bureau of Child Research
 348 Haworth Hall
 University of Kansas
 Lawrence, Kansas 66044

Bernard Brull, Psychologist
 1100 State Avenue
 Kansas City, Kansas

EMPORIA KANSAS STATE COLLEGE
 Dr. Dal Cass, Chairman
 Special Education Department
 1200 and Commercial
 Emporia, Kansas 66801
 KANSAN 5651317

KANSAS ASSN. OF EDUCATION OF YOUNG CHILDREN
 Alita Cooper
 145 Haworth Hall
 Kansas University - Haworth Hall
 Lawrence, Kansas
 864-3831

KANSAS HEADSTART DIRECTORS ASSOCIATION
 c/o Theresa Counts, Acting Chairman
 520 Norwood
 Topeka, Kansas 66607
 232-8249

CHILDREN SERVICES
 Deb Davis
 Box 451
 Colby, Kansas 67701
 462-6757

KANSAS STATE UNIVERSITY
 Dr. John DeMand,
 Special Education Department
 Kansas State University
 Manhattan, Kansas 66502
 KANSAN 562-5827

KANSAS FEDERATION FOR THE BLIND
Mr. Richard Edlund, President
Edlund's Hardware Store
Muncie, Kansas 66057
913-299-3201

SERVICES FOR THE BLIND
Jayne Frost
Biddle Bldg. - State Hospital
2700 West 6
Topeka, Kansas 66606
296-4454

KANSAS ASSOCIATION OF SCHOOL PSYCHOLOGIST
Greg Gaither
Box 67
Baldwin City, Kansas 66006
913-594-3112

COUNCIL FOR EXCEPTIONAL CHILDREN
(Kansas Federation)
Hershel Glover, President
3713 East Skinner
Wichita, Kansas 67218

KANSAS ASSOCIATION FOR MENTAL HEALTH
Charles Gray, President
1205 Harrison
Topeka, Kansas 66612

UNITED CEREBRAL PALSY
Jerry Green
4320 East Kellogg
Wichita, Kansas 67218
316-684-1738

Am. ASSOC. OF UNIVERSITY WOMEN AND CHURCH AFFILIATED
ORGANIZATIONS
Ruth Groves
Box 4013
Topeka, Kansas 66604
272-6874

KANSAS ASSOCIATION OF SOCIAL WORKERS
Ms. Margaret Gwinn
6559 W. 49th Street
Mission, Kansas 66202
Home 913-262-7071

CHILDREN/s COMMITTEE MENTAL HEALTH ASSN. OF KANSAS

Dorothy M. Hanks
5830 Clarendon
Wichita, Kansas 67220
316-744-1889

KANSAS STATE NURSES ASSOCIATION

Pat Hathaway (representative)
1912 Seabrook
Topeka, Kansas
Home 272-6757
Office 296-4525

KANSAS ASSOCIATION FOR SCHOOL HEALTH

Helen Hocker
Health, Physical Education Dept.
Washburn University
Topeka, Kansas 66604
235-5341

WICHITA STATE UNIVERSITY

Chairman Art Horenicke
Special Education Department
1845 North Fairmount
Wichita, Kansas 67208
KANSAS 563-3144
or 316-689-3689 or 3324

KANSAS ASSOCIATION OF SCHOOL ADM.

Dr. Harold R. Hosey
Unified School District #253
Emporia, Kansas 66801
316-342-4455

KANSAS SCHOOL FOR THE DEAF

Gerald Johnson, Superintendent
450 East Part Street
Olathe, Kansas 66001
764-1973

DEVELOPMENTAL DISABILITIES COUNCIL

Mr. Jack Jonas, Chairman
P. O. Box 8217
Wichita, Kansas 67208

KANSAS ASSOCIATION OF SCHOOL SOCIAL WORKERS

Ms. Edith Jorns, President
2031 Poyntz
Manhattan, Kansas 66502
913-539-6052

KANSAS PUBLIC HEALTH ASSOCIATION

Karen Kirk (representative)
 Kaw Valley Heart Association
 Kansas City, Kansas
 913-432-3747

KANSAS SPEECH AND HEARING ASSOCIATION

Ms. Nancy Lamb, Director
 7415 El Monte
 Prairie Village, Kansas 66208

Mrs. Georgia Layton, President

2313 S. 25th St. Dr.
 Topeka, Kansas 66611
 233-1023
 Office 296-5434 (KNI)

KANSAS STATE SCHOOL FOR THE VISUALLY HANDICAPPED

Burton Lewis, Superintendent
 1100 State Avenue
 Kansas City, Kansas 66102
 281-3308

KANSAS PARENT ASSOCIATION FOR HEARING HANDICAPPED CHILDREN

Tom McDavitt
 1037 Terry
 Wichita, Kansas
 316-265-8084

KANSAS ASSOCIATION OF SCHOOL BOARDS

Dr. Marion A. McGhelhey, Exec.
 5401 SW 7th
 Topeka, Kansas 66606
 273-3600

LeAnne McKelvey

K. U. Medical Center
 Kansas City, Kansas 66103
 913-831-5961

Dr. Edward Meyen, Chairman
 Special Education Department
 New Haworth Hall
 University of Kansas
 Lawrence, Kansas 66045

Dr. Hugh Morrison, Chairman
 Special Education Department
 Pittsburg State College
 Pittsburg, Kansas 66762
 KANSAS 8-566-4267

Florence Nelson
820 Quincy, Room 210
Topeka, Kansas 66612

KANSAS EASTER SEAL ASSN.
Monty Nelson
P. O. Box 1774
Topeka, Kansas 66601
354-9501

BUREAU OF MATERNAL AND CHILD HEALTH
Shirley Norris
Forbes Air Base - Building 740
Topeka, Kansas 66620

SHAWNEE MISSION, USD #512
Donna Osness
Supervisor of Nurses
8101A W. 95th St.
Shawnee Mission, Kansas 66207
913-649-5255

HEADSTART
Betty Rintoul
K. U. Medical Center
29th and Rainbow
Kansas City, Kansas 66103
KANSAS 560-5906
913-831-5961

DIVISION OF MENTAL HEALTH AND RETARDATION
Dr. Roy Rutherford
Social and Rehabilitation Service
5th Floor - State Office Bldg.
Topeka, Kansas 66612
913-296-3563

KANSAS ASSOCIATION ON MENTAL DEFICIENCY
William Sampson, Director (representative)
Chekaskia Area Training Center
P. O. Box 201-206 South Main
Medicine Lodge, Kansas 67104

MENTAL HEALTH CENTER OF EAST CENTRAL KS.
Phyllis Serwich
1201 Triplett B-B
Emporia, Kansas
Home 343-1081 Work 342-0548

EPILEPSY FOUNDATION OF AMERICA

(Kansas Chapter)

Mr. Merlin Sezilove, Exec. Director

702 Bitting Building

Market and Douglas

Wichita, Kansas 67202

316-262-3241

KANSAS HOSPITAL ASSOCIATION

Larry Shaffer, Dir. of Education

1301 Topeka

Topeka, Kansas 66612

KANSAS MEDICAL SOCIETY

Jerry Slaughter, Exec. Director

1300 Topeka

Topeka, Kansas 66612

MO-KAN CHAPTER FOR AUTISTIC CHILDREN

Betty Smith, President

6812 Larson Lane

Shawnee, Kansas 66203

KANSAS ASSOC. OF REHABILITATION FACILITIES

Bob Smith, President

Homer R. Reed Training and Adjustment Facilities

317 West 13th

Hays, Kansas 67601

KANSAS SPECIAL EDUCATION ADMINISTRATORS

Barry Stanley, Director

Unified School District #353

P. O. Box 648

Wellington, Kansas 67152

316-326-3841

KANSAS ASSOCIATION FOR RETARDED CITIZENS

Ms. Joan Strickler, Program Specialist

1523 University Drive

Manhattan, Kansas

539-4752

KANSAS ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES

Mr. Joe Swallwell

5507 W. 15th

Topeka, Kansas 66604

272-0033

KANSAS ASSOCIATION FOR THE BLIND

Mrs. Esther V. Taylor

7850 Freeman Avenue

Kansas City, Kansas 66112

913-334-0484

KANSAS PARENT/TEACHER ASSOCIATION
c/o Mrs. Virgil Tims, President
128 So. Cottonwood
Emporia, Kansas 66801

CRIPPLED CHILDREN'S COMMISSION
Mr. L. M. Vance, Director
727 First National Bank Building
Wichita, Kansas 67202
316-262-4142

KANSAS COUNCIL FOR CHILDREN AND YOUTH
Dr. Lee Wastell, President (Representative) Ruth Groves
715 East 10th Box 4013
K. N. E. A. Topeka, Kansas
Topeka, Kansas 66612 272-6874

KANSAS ASSOCIATION FOR THE GIFTED/TALENTED/CREATIVE
Dr. Robert C. Wherritt, President
2913 North Vassar
Wichita, Kansas 67202
316-683-7241

DEVELOPMENTAL SERVICES OF NORTHWEST KS.
Kelly White
Box 451
Colby, Kansas
462-6757

KANSAS CHAPTER, AMERICAN ACADEMY OF PEDIATRICS
Dr. Ted Young
Medical Arts Bldg. West
Topeka, Kansas
232-0576

Appendix D

Manufacturers can be utilized effectively as an information resource. To increase effectiveness however, it is necessary to specifically inquire as to additional aspects concerning equipment characteristics.

Included is a cover letter introducing one's needs to the manufacturer, and a checklist to be completed by the manufacturer. This is then used during evaluative steps.

Also included are 59 manufacturers of recreational equipment and products. This is not an endorsement for any or all listed, but for reference and convenience. (21)

Date

Your name and
Address, and
Town

Equipment manufacturer
Their address and
Town, etc.

Dear Sirs:

We are presently in the market for recreation equipment to be used by (disability) children. The selection process shall begin soon, as funds are available, and we are in need of additional pieces. If you have any equipment that you feel would be particularly well suited for these children, please respond to that affect.

Before selection, we would appreciate some further information concerning the pieces indicated. This is to ensure that the equipment will offer the children the correct experiences and benefits desired. Please assist us in this needed evaluative process by having the enclosed checklist completed and returned to us.

If we have not heard from you within a reasonable length of time, it will be assumed that your equipment is not of interest to us.

As we are also soliciting information from other companies, it would be to your benefit to handle this matter as soon as possible.

Sincerely,

Your name

CHECKLIST FOR
MANUFACTURERS

116

Manufacturer: _____

(____) _____
Phone number

Nearest
Representative: _____

Equipment
Name: _____

Number: _____

Cost: _____ Does this include shipment
and taxes? _____

Materials:
Wood
Metal
Concrete
Fiberglass
Others: (rope, chain, etc.)

Construction:
Precast

Knockdown

PLEASE answer the following questions with brief, yet as complete as possible, statements. Recognizing that they require value judgements on your part, such answers will be evaluated on that basis.

Which of the following underfoot materials would you recommend to be used with this piece of equipment?

Asphalt
Bark
Concrete

Gravel
Sand
Turf

Is this equipment considered to be portable? _____
yes/no

If so, what is the weight of the equipment? _____
weight #

What process would be required for moving the equipment?

What prior site work would be required for this equipment? (grading, holes dug, concrete pads, etc.) List and explain briefly, OR INCLUDE CONSTRUCTION DETAILS AND INSTRUCTIONS.

What qualities does this equipment have that would make it particularly well-suited for use by handicapped children? (optional)

Educational/Recreation Supplies and Equipment:

J. L. Hammett Co.
Parks & Recreation Dept.
2393 Vauxhall Rd.
Union, N. J. 07083

Park Structures International
P. O. Box 746
Vero Beach, FL 32960

Handicapped Recreation and Park Equipment

Columbia Cascade Timber Co.
"Timberform"
1975 S. W. Fifth Ave.
Portland, Oregon 97201

Everglide Playground Division
P. O. Box 1068-P
Erie, PA 16512

Flexi-Dyne, Inc.
Graham House Place Rd.
South Pittsburg, TN 37380

General Playground Equipment
P. O. Box 608
Kokomo, IN 46901

Hammatt & Sons
P. O. Box 2004
Anaheim, Calif. 92804

Jayfro Corp.
P. O. Box 400
Waterford, CT 06385

Kay Park-Rec Corp.
Janesville, IA 50647

North American Recreation Convertibles, Inc.
P. O. Box 758
Bridgeport, CT 06601

Park Structures International
P. O. Box 746
Vero Beach, FL 32960

Patterson-Williams Mfg. Co., Inc.
P. O. Box 4040
Santa Clara, CA 95054

GENERAL PLAYGROUND EQUIPMENT

Adirondack Chair Co.
276 Park Avenue S.
New York, NY 10010

Belson MFG. Co.
111 North River Drive
P. O. Box 207
North Aurora, IL 60542

Big Toys Play Structures
3113 S. Pine Street
Tacoma, WA 98409

J. E. Burke Co.
Fond du Lac, WI 54935

Columbia Cascade Timber Co.
"Timberform"
1975 C. W. 5th Ave.
Portland, OR 97201

Everglide Playground Division
P. O. Box 1068 P
Erie, PA 16512

Glad-a-tag Co.
Box 11010
Tucson, AZ 85734

Flexi-Dyne, Inc.
Graham Home Place Rd.
South Pittsburgh, TN 37380

Form, Inc.
12900 West Ten Mile Rd.
South Lyon, MI 48178

Game Time, Inc.
900 Anderson Rd.
Litchfield, MI 49252

General Playground Equipment
P. O. Box 608
Kokomo, IN 46901

Gerber Mfg., Inc.
Box 163
Middleton, WI 53562

Hammatt & Sons
P. O. Box 2004
Anaheim, CA 92804

The Delmer F. Harris Co.
Box 288
Concordia, KS 66901

Howell Playground Equipment Co.
1714 E. Fairchild
Danville, IL 61832

Jamison, Inc.
Highway 6 West
Grinnell, IA 50112

Jayfro Corp.
P. O. Box 400
Waterford, CT 06385

Kay Park-Rec. Corp.
Janesville, IA 50647

Landscape Structures, Inc.
300 Dawn Heather Drive
Delano, MN 55328

Leisure Craft, Inc.
P. O. Box 224
College Park, MD 20740

Mastercraft Woodworking Co., Inc.
P. O. Box 153
Mohrsville, PA 19541

Mexico Forge/Kilgore Corp.
P. O. Box 565
Reedsville, PA 17084

Miracle Recreation Equipment Co.
Highway 6 West
Grinnell, IA 50112

North American Recreation Convertibles, Inc.
P. O. Box 758
Bridgeport, CT 06601

Outdoor Products Co.
1761 Smith Avenue
San Jose, CA 95112

Park Structures International
P. O. Box 746
Vero Beach, FL 32960

Patterson-Williams Mfg. Co., Inc.
P. O. Box 4040
Santa Clara, CA 95054

Play Crete Co.
185 North 15th Street
Bloomfield, NJ 07003

Playground Corp. of America
29-24 40th Avenue
Long Island City, NY 11101

Quality Industries, Inc.
Box 120
Hillsdale, MI 49242

Recreation Equipment Corp.
Box 2188 PR
Anderson, IN 46011

Recreonics Corp.
1635 Expo Lane
Indianapolis, IN 46224

Sea-Lawn Products, Inc.
P. O. Box 719
Long Beach
Long Island, NY 11561

Sportsplay Products
2298 Grissom Drive
St. Louis, MO 63141

Standard Playground Equipment Co., Inc.
P. O. Box 2097
Anderson, IN 46011

Sun Aired Bay Co., Inc.
8669 Fenwick St.
Sunland, CA 91040

Trojan Playground Equipment Mfg. Co.
11-Second Avenue, N. E.
St. Cloud, MN 56301

U. S. Games, Inc.
1393 Cypress Avenue
Melbourne, FL 32935

Wood Products
2852 Walnut Hill Lane
Dallas, TX 75229

Playground Surfacing MaterialsAsphalt:

Allied Chemicals Corp. - easy steps
P. O. Box 1139R
Morristown, NJ 07960

Chevron Asphalt Co.
555 Market
San Francisco, CA 94120

Game Time, Inc.
900 Anderson Rd.
Litchfield, MI 49252

Rubber:

Game Time, Inc.
900 Anderson Rd.
Litchfield, MI 49252

Recreonics Corp.
1635 Expo Ln.
Indianapolis, IN 46224

Rubber Products
Division of Frankland Enterprises, Inc.
4521 West Crest Avenue
Tampa, FL 33614

Synthetic:

The Flintkote Co.
480 Central Avenue
East Rutherford, NJ 07073

Appendix E

The following are partial guidelines for evaluation of accessibility of structures and spaces, taken from various standards. When dealing with accessibility, many are unfamiliar with area requirements of the typical wheelchair. Following the accessibility checklist are measurements and requirements of the typical wheelchair.

On April 28, 1977, Joseph Califano, Jr., Secretary of the Department of Health, Education, and Welfare (HEW) signed regulations implementing section 504 of the Rehabilitation Act of 1973 (PL 93-112). It was published in the May 4, 1977 Federal Register, and became effective June 3, 1977. (22)

The act forbids discrimination against qualified persons on the basis of a handicapping condition in education or employment, and the accessibility to programs and facilities receiving financial assistance from HEW.

The regulations is constructed in seven sub parts.

- A - General provisions,
- B - Employment,
- C - Program accessibility,
- D - Preschool, Elementary and Secondary Education,
- E - Post Secondary Education Admission,
- F - Post Secondary Education Services, and
- G - Complaint and Enforcement Procedures.

Of particular importance to this research are sub-sections C and D. Subpart C requires all new facilities be constructed readily accessible to, and usable by, handicapped persons. Program accessibility for existing facilities does not require all buildings be physically accessible, as long as the program as a whole is available.

Subpart D provisions are closely coordinated with those of the Education Act of 1975 (PL 94-142). Basically, it provides that recipients operating public education institutions, and its resulting

programs, provide free appropriate education to each qualified child. To be appropriate, these services and programs must be designed to meet the handicapped children's individual needs to the degree that those of non-handicapped children are met. This, then, would apply to recreation equipment.

With the Federal Architectural Barriers Act of 1968 (also requiring buildings and facilities receiving federal financing . . . as most schools do) and section 504 of the Rehabilitation Act of 1973, there is no question of the rights of handicapped children with respect to accessibility.

If, however, a child is denied admission to a school solely due to lack of accessible facilities, complaints may be directed to:

The Office of Civil Rights
Room 3460-N
Department of Health, Education & Welfare
340 Independence Ave., S. W.
Washington, D. C. 20201

Bureau of Education for the Handicapped
U. S. Office of Education
7th and D St., S. W.
Washington, D. C. 20202

(The Bureau of Education is responsible for compliance with Section 504 by public education institutions.)

If a person feels that a facility is being built in violation of the Architectural Barriers Act, complaints may be directed to:

Architectural and Transportation Barriers Compliance
Board
330 C St., S. W.
Washington, D. C. 20201

(The Board enforces the Federal Architectural Barriers Act.)

The State agency is responsible for enforcement of state requirements. In Kansas, this is:

State Architect
Architectural Division
State Office Bldg.
Topeka, Kansas 66601

Complaints may also be lodged with the following offices, depending upon the state in which alleged offense occurs. Merely locate the state in one of the regions, and direct correspondence to that office. (23)

Region	I	(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont): RKO General Building Bulfinch Place Boston, Massachusetts 02114 (617) 223-6397
Region	II	(New Jersey, New York, Puerto Rico, Virgin Islands): 26 Federal Plaza New York, New York 10007 (212) 264-4633
Region	III	(Delaware, D. C., Maryland, Pennsylvania, Virginia, West Virginia): Gateway Building 3535 Market Street Philadelphia, Pennsylvania 19104 (215) 596-6772
Region	IV	(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee): 50 Seventh Street, N. E. Atlanta, Georgia 30323 (404) 526-3312
Region	V	(Illinois, Indiana, Minnesota, Michigan, Ohio, Wisconsin): 300 S. Wacker Drive Chicago, Illinois 60606 (312) 353-7742

Region VI (Arkansas, Louisiana, New Mexico,
Oklahoma, Texas):
1200 Main Tower Building
Dallas, Texas 75202
(214) 729-3951

Region VII (Iowa, Kansas, Missouri, Nebraska):
Twelve Grand Building
1150 Grand Avenue
Kansas City, Missouri 64106
(816) 374-2474

Region VIII (Colorado, Montana, North Dakota, South
Dakota, Utah, Wyoming):
Federal Building
1961 Stout Street
Denver, Colorado 80202
(303) 837-2025

Region IX (Arizona, California, Hawaii, Nevada):
Phelan Building
760 Market Street
San Francisco, California 94102
(415) 556-8586

Region X (Alaska, Idaho, Oregon, Washington):
Arcade Plaza Building
1321 Second Avenue
Seattle, Washington 98101
(206) 442-0473

Accessibility Guidelines and Checklist

1. Assure that recreation facilities, buildings and ground areas are well posted with direction and identification signs and symbol marking of areas equipped to accommodate the handicapped.

2. Provide general accessibility to facilities for the handicapped. This will include rampways or curb cuts in lieu of steps, door of adequate size to accommodate wheelchair entrance, and general improvements.

3. Provide smooth, firm, level, non-slip walkways to and within the recreation site. Standard walkways will be concrete or asphaltic-type mat. When budgets will not allow the expense, the standards can be waived as long as a compacted, permanent, all-weather surface is used that does not require constant maintenance. Concrete should be considered at least for heavy congested areas such as to the rest rooms. The minimum width of walks is set at 32 inches, but 36 inch width is preferable.

4. Provide at least one stall each in men's and ladies' restrooms in at least one sanitary facility at state recreation areas to accommodate the disabled. Handrails and door clearances are a "must". Accommodations should include lavatories, dispensers, and receptacles mounted to specific heights.

5. At facilities equipped for handicapped use, designate and mark parking space of adequate size for wheelchair maneuvering next to a car. Locate such parking areas as near to facility entrances as feasible. The parking surface is to be smooth and level.

6. Provide at least thirty-two (32) inch clear opening entrances and maintain at least thirty-two (32) inches between any guard rails.

7. Keep wheelchair users in mind and provide control switches, knobs, and handles within convenient reach of such users. Further, drinking fountains should not be recessed or set within a narrow alcove, but be of convenient height and free of surrounding obstacles for wheelchair visitors use.

8. Provide unaided telephone use by the handicapped by pole-mounting the phone equipment, or if an alcove is used, make it wider than a wheelchair. Locate the coin slot, handset and dial no higher than forty-eight (48) inches from the ground or floor.

Following is a partial check list of architectural barriers for the handicapped. This list may serve as a guideline for compliance with handicapped minimum requirements at state administered recreation sites. Changes in ANSI and state standards is occurring, thus a periodic review is advisable.

1. SITE DEVELOPMENT:

- _____ Site grading is such that ground does attain a level with which to make the building accessible to individual with physical disabilities.
- _____ A public walk for wheelchair access from parking lot to a principal entrance is provided as a continuing surface without steps or abrupt change level. Check deficiency:
 - _____ Stairs or steps prevent access.
 - _____ Curb prevents "rolling" access from parking space to sidewalk.
 - _____ Walk is less than 36" wide. _____ Less than 32" wide.
 - _____ Abrupt change in level (1" or more) prevents "rolling" access.
 - _____ Slope steeper than 5% gradient (7-1/4" in 12') requires walk to meet ramp standards.
- _____ Walk which serves physically handicapped access requirement does

have a level platform at the top which is at least 5' wide and extends at least 1' beyond each side of doorway and which is at least:

_____ 5' deep if the door swings out onto the platform.

OR

_____ 3' deep if the door does not swing onto the platform.

_____ One or more parking spaces in the parking lot are sized or properly designated for the use of physically disabled.

2. RAMPS (interior or exterior)

_____ Ramp or ramps do comply with requirements for use by the physically handicapped because:

_____ (a) The slope does not exceed 1' rise in height for each 12' of length.

_____ (b) Handrails are provided on at least one side that is:

_____ 32" in height

_____ Smooth surfaced

_____ Extend 1' beyond top and bottom of ramp.

_____ (c) The ramp surface is non-slip.

_____ (d) The ramp does have a level platform at the top which extends at least 1' beyond each side of the doorway and is at least (check one):

_____ 5' by 5' if door swings onto platform.

_____ 3' deep by 5' wide if door does not swing out onto ramp.

_____ (e) At least 6' of straight clearance is provided at the bottom.

_____ (f) Level of platforms are provided at 30' maximum intervals or at turns.

3. ENTRANCES

_____ A primary entrance is provided which is usable by individuals in wheelchairs.

_____ (Multi-story buildings only) An entrance usable by individuals in wheelchairs is provided on a level that would make elevators accessible.

4. DOORS AND DOORWAYS

_____ Doors to the following areas are usable by the physically handicapped because (check function and note a, b, c, or d for each):

_____ Primary entrance door

_____ Interior doors

_____ Corridor door

_____ Toilet room door

_____ Media Center door

_____ Dining, recreation area door

_____ Gymnasium door

(a) Does (do) provide a clear opening of at least 32".

(b) Is (are) operable by a single effort to provide 32" opening.

- (c) Floors inside and outside doorways are level for a distance of 5' in the direction of door swing.
- (d) Thresholds not more than 3/4" high or sharp incline or abrupt change in level prevent use of door by handicapped.

5. STAIRS

- _____ Stairs required to be used by those with disabilities are usable because:
 - _____ (a) Steps do not have abrupt (square) nosing which prevents a hazard to handicapped use.
 - _____ (b) Handrails at stairs are provided at 32" high measured vertically from tread at face of riser.
 - _____ (c) At least one handrail is provided that extends at least 18" beyond the top step and 18" beyond the bottom step.

6. FLOORS

- _____ Floor surfaces are non-slip.
- _____ Floors on a given story are of a common level throughout or are connected by complying ramps if level changes are present.

7. TOILET ROOMS

- _____ Each toilet room is equipped for access to and use by the physically handicapped. Code complying water closet, lavatory, mirror, dispensing and disposal units are required in each facility. Check rooms below:
 - _____ (a) Public toilet room(s) usable by visitors or staff who are handicapped are provided.
 - _____ (b) Toilet room facilities accessible from corridor for use by males who are handicapped are provided.
 - _____ (c) Toilet room facilities accessible from corridor for use by females who are handicapped are provided.
- _____ Toilet facilities for the physically handicapped are not deficient because (Check and note a, b, or c):
 - _____ (d) Toilet rooms have sufficient space for traffic of individuals in wheelchairs.
 - _____ (e) A 5'0" x 5'0" clear floor area unobstructed by fixtures or door swing to facilitate the turning of a wheelchair.
 - _____ (f) Partitions and other obstructions located not less than 3'8" from the face of the entrance door to allow the turning of a wheelchair.
 - _____ (g) Water closet for use by physically handicapped is:
 - _____ Located in a space at least:
 - _____ 3'0" (36") wide
 - _____ 4'8" (56") long
 - _____ 20" (nominally) high from floor to top of seat.
 - _____ Served by a door (if doors are used) at least 32" clear width.
 - _____ Door swings out.
 - _____ Equipped with handrails on each side.

- _____ Handrails are parallel to the floor
- _____ Handrails are 33" high.
- _____ Handrails are 1-1/2" in outside diameter.
- _____ There is a 1-1/2" clearance between rail and wall.
- _____ Handrails are securely fastened at ends.

_____ (h) Lavatories are of narrow apron or higher mounted standard type to permit use by individual in wheelchairs (30" from floor to bottom of apron is needed for knee clearance).

_____ Mirrors are not mounted higher than 40" above the floor (or are tilted for wheelchair use if higher).

8. WATER FOUNTAIN

_____ A water fountain is provided which is accessible to and usable by the physically disabled. Access or use is not prevented because:

- _____ (a) Spout and controls are located at front of basin.
- _____ (b) Fountain is hand or hand and foot operated.
- _____ (c) Basin is not mounted more than 36" high above the floor.
- _____ (d) Fountain is not mounted in recess or alcove which precludes access or approach by individuals in a wheelchair (less than 36" wide)

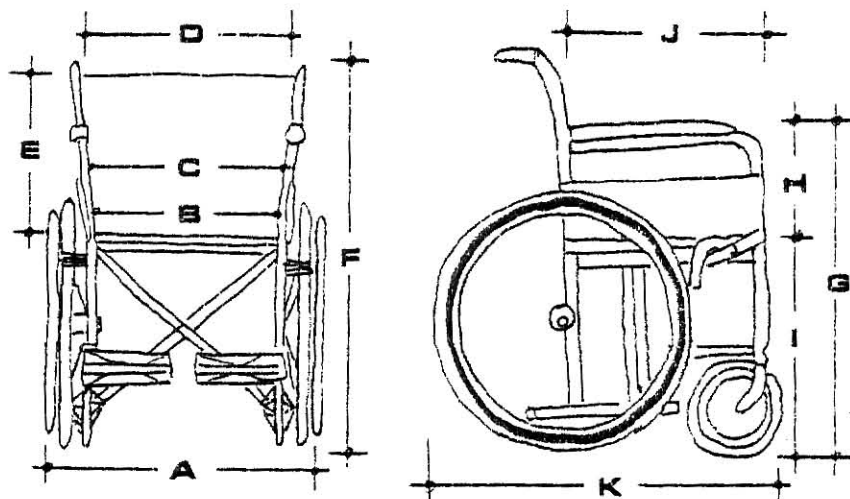
9. PUBLIC TELEPHONE

_____ A public telephone is accessible to and usable by the physically disabled.

ILLEGIBLE

**THE FOLLOWING
DOCUMENT (S) IS
ILLEGIBLE DUE
TO THE
PRINTING ON
THE ORIGINAL
BEING CUT OFF**

ILLEGIBLE



WHEELCHAIR SIZES (12)

Specification	Adult	Narrow Adult	Junior
C - Width of seat at seat level (fixed arm)	18	16.5	16
C - Width of seat at seat level (detachable arm)	18	16	16
D - Width between uprights, arm level	16 $\frac{1}{4}$	14 $\frac{1}{4}$	14
D - Width between uprights, of flared back	17 $\frac{1}{2}$	15 $\frac{1}{2}$	15 $\frac{1}{2}$
B - Width between uprights at seat level	16	14 $\frac{1}{2}$	14
A - Width open, fixed arm	24 $\frac{1}{2}$	22 $\frac{1}{2}$	23 $\frac{1}{2}$
A - Width open, detachable arm	26	24	25
A - Width closed	10 $\frac{1}{2}$	10 $\frac{1}{2}$	11
J - Seat depth	16	16	14
I - Seat to floor	19 $\frac{1}{2}$	19 $\frac{1}{2}$	18
F - Height overall	36 $\frac{1}{2}$	36 $\frac{1}{2}$	36 $\frac{1}{2}$
E - Height of back	16	16	16
G - Height of arm to floor	30	30	27

			136
H - Height of arms to seat	9½	9½	9
K - Overall length	31	31	30½
K - Overall length with footrests	43	43	42½
Net weight of fixed arm models	41 lbs.	41 lbs.	39 lbs.
Net weight of reclining back models	59 lbs.	59 lbs.	55 lbs.

Appendix F

Therapy of children is accomplished through a set system of evaluation and therapeutic activities. Included here are analysis forms, gross and fine motor evaluation sheets, and a sample treatment profile sheet. (7) This is included to acquaint the evaluator with those abilities typically screened by therapists and organizational materials.

CHILDREN'S REHABILITATION UNIT
PHYSICAL THERAPY DEPARTMENT

ANALYSIS OF POSTURE AND MOBILITY

Name _____ Birthdate _____

Date _____ Diagnosis _____

- Key:
- 1) Observe the child's posture and movement patterns in different positions.
 - 2) Describe the posture movements observed in brief phrases or sentences.
 - 3) Indicate those reflexes and reactions seen in the different positions and indicate their influence on posture and mobility.
 - 4) Indicate whether the child performs independently or with assistance.

A. Supine - Posture

Asymmetry: _____

Head: _____

Trunk: _____

Upper Extremities: _____

Lower Extremities: _____

Change in Posture on Stimulation: _____

Supine - Mobility

Rolling to prone: _____

Pull to sitting: _____

Sitting up: _____

Hands to midline: _____

Reaching out: _____

Grasp and release: _____

Other movements in supine: _____

Supine - Reflexes and Reactions

Rooting: _____

Sucking: _____

Traction: _____

Palmar grasp: _____

Plantar grasp: _____

Crossed extension: _____

Flexor withdrawal: _____

Tonic labyrinthine: _____

Asymmetrical TNR: _____

Neck righting: _____

Body-on-body righting: _____

Labyrinthine neck righting: _____

Moro: _____

B. Prone - Posture

Asymmetry: _____

Head: _____

Trunk: _____

Upper Extremities: _____

Lower Extremities: _____

Change in Posture on Stimulation: _____

Prone - Mobility

Rolling to supine: _____

Prone pivoting: _____

Crawling: _____

Getting to four point: _____

Prone - Mobility, cont'd.

Four point: _____

Creeping: _____

Getting to sitting: _____

Getting to kneeling: _____

Kneeling: _____

Reach: _____

Grasp and release: _____

Other movements in prone: _____

Prone - Reflexes and Reactions

Tonic labyrinthine: _____

Galant response: _____

Labyrinthine neck righting: _____

Symmetrical TNR: _____

Landau: _____

Protective extension arms forward (parachute): _____

Postural fixation reactions - prone on forearms: _____

- prone on extended arms: _____

- all fours: _____

- upright kneeling: _____

C. Sitting Posture

Asymmetry: _____

Head: _____

Trunk: _____

Upper Extremities: _____

Lower Extremities: _____

Change in posture on stimulation: _____

Sitting posture: _____

Support for sitting: _____

**THE FOLLOWING
PAGES ARE BADLY
SPECKLED DUE TO
BEING POOR
QUALITY
PHOTOCOPIES.**

**THIS IS AS
RECEIVED FROM
CUSTOMER.**

Sitting Posture, cont'd.

Long leg: _____

Side sitting: _____

Sitting in chair: _____

Best sitting posture: _____

Preferred sitting posture: _____

Sitting Mobility

Pivoting: _____

Scooting: _____

Trunk rotation: _____

Sit to four point: _____

Sit to stand: _____

Reach: _____

Grasp and release: _____

Transfer: _____

Sitting - Reflexes and Reactions

Labyrinthine neck righting: _____

Protective extension arms - forward: _____

- sideways: _____

- backwards: _____

Positive supporting reactions (arms): _____

Postural fixation - forward: _____

- backwards: _____

- left: _____

- right: _____

D. Standing Posture

Asymmetry: _____

Head: _____

Trunk: _____

**THIS BOOK
CONTAINS
NUMEROUS PAGES
WITH DIAGRAMS
THAT ARE CROOKED
COMPARED TO THE
REST OF THE
INFORMATION ON
THE PAGE.**

**THIS IS AS
RECEIVED FROM
CUSTOMER.**

**CHILDREN'S REHABILITATION UNIT
PHYSICAL THERAPY DEPARTMENT
GROSS MOTOR EVALUATION**

143

NAME: _____ HOSP. NO. _____ BIRTHDATE _____

DIAGNOSIS _____

REFERRING SERVICE/CLINIC _____ PHYSICIAN _____

SCORING: Column A - Accomplishes activity, but in more than average time, or in an awkward manner, or requiring assistance.

Column B - Accomplishes activity within normal limits and within average time.

Place dash when unable to complete test items.

Total the number of checks for each column and refer to score sheet for values.

TEST RESULTS		Chronological Age Date Examiner Test											
				1	2	3	4	5					
Equivalent level of normal accomplishment (composite score Column B)													
Functional level of accomplishment (composite score of Column A & B)													
				Test No.		1	2	3	4	5			
Level (Months)		A	B	A	B	A	B	A	B	A	B	A	B
0-1	1. Turns or lifts head to free mouth and nose - prone.												
	2. When held at examiner's shoulder, holds head erect for 3 or more seconds.												
	3. When active makes reciprocal leg motions-prone or supine.												
2	1. When held at examiner's shoulder, holds head erect and steady - 15 seconds.												
	2. Lifts head in prone, 2-3 inches off surface, 3 times with stimulation in 30 seconds.												
	3. Turns from side to back.												
3	1. Lifts head and chest by arms, sternal notch 2 inches from surface - prone.												
	2. When held at examiner's shoulder, head is erect and steady when child is moved gently.												
	3. When held in standing position, child will lift one foot.												
4	1. No head lag when pulled to sit with shoulder support.												
	2. Can sit 30 seconds when placed in long sitting with support at low back.												
	3. In supine position head is held predominantly in midline with symmetrical posturing of arms.												

		Test Number		1	2	3	4	5			
Level (Years)	Items	A	B	A	B	A	B	A	B	A	B
4	1. Goes up and down stairs alternating feet with rail.										
	2. Balances on 1 foot, eyes open - 4-8 seconds.										
	3. Skips on one foot (gallops).										
	4. Walks on balance beam forward (8 ft, 14 sec.) with 3 missteps.										
	5. Catches large ball at 5 ft. with arms flexed at elbows (1 of 3 trials).										
	6. Tandem walks backwards.										
5	1. Skips with alternating feet.										
	2. Stands on one foot, eyes open, more than 8 seconds.										
	3. Hops on one foot - 16 feet.										
	4. Walks balance beam forward (8 feet, 12 seconds) with 2 missteps.										
	5. Catches ball with hands rather than arms.										
6	1. Jumps from 12" height, lands on toes.										
	2. Throws with accurate placement, stepping forward with one foot.										
	3. Standing broad jump - 38 inches.										
	4. Catches small ball with one hand.										

References: Gesell Developmental Diagnosis
 Illingworth, Development of Infant & Youth
 Bayley Scales of Infant Development
 Cattell, Intelligence of Infants & Young Children
 Gross & Cohen, Developmental Pinpoints

CHILDREN'S REHABILITATION UNIT - PHYSICAL THERAPY DEPARTMENT
SCORE SHEET FOR GROSS MOTOR DEVELOPMENT EVALUATION

[illegible]

		Test Number									
Level (Years)	Items	1		2		3		4		5	
		A	B	A	B	A	B	A	B	A	B
4 yr.	1. Copies train										
	2. Copies bridge										
	3. Imitates gate										
	4. Copies cross										
	5. Imitates square										
	6. Traces diamond										
	7. Cuts straight line										
	8. Folds paper 3 times imitatively										
5 yr.	1. Copies gate										
	2. Copies square										
	3. Copies triangle										
	4. Draws recognizable man (6 parts)										
	5. Finger to nose to pencil - smoothly										
	6. Alternation supination-pronation (overflow, poor rhythm, slow)										
	7. Serial opposition (overflow, touch errors, poor rhythm, slow)										
	8. Cuts curved line										
	9. Cuts angled line										
	10. Imitates 6-block steps										
6 yr.	1. Copies diamond										
	2. Prints name										
	3. Alternation supination-pronation (smoothly but without much speed)										
	4. Serial opposition (touch errors, slow)										
	5. Copies 6 block steps										
	6. Folds triangle from 6 inch paper square in imitation										

- REFERENCES: (1) Gesell Developmental Diagnosis
 (2) Illingworth, Development of Infant and Young Child
 (3) Denver Developmental Screening Test
 (4) Bayley Scales of Infant Development

[illegible]

CHILDREN'S REHABILITATION UNIT
PHYSICAL THERAPY DEPARTMENT
TREATMENT PROFILE

NAME SAMPLE CURRENT ASSESSMENT SAMPLE

BIRTHDATE _____

RESPONSIBLE PERSONS _____ FREQUENCY _____

Date (top square) & Initial (bottom square)

OBJECTIVE STATEMENT	TRAINING ACTIVITIES	7/12/77	7/17/77																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
---------------------	---------------------	---------	---------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

EVALUATION OF COMMERCIALY AVAILABLE
RECREATION EQUIPMENT FOR USE BY
PHYSICALLY HANDICAPPED CHILDREN

by

Steven K. Paul

B.S. Landscape Architecture
Washington State University, 1974

AN ABSTRACT OF A MASTER'S THESIS
submitted in partial fulfillment of the
requirements for the degree of
MASTER OF LANDSCAPE ARCHITECTURE

College of Architecture and Design
Department of Landscape Architecture
KANSAS STATE UNIVERSITY
Manhattan, Kansas

1977

One of the more positive aspects of the 20th century legislation is increased awareness and attainment of civil rights for various segments of our society previously discriminated against, in one manner or another.

The purpose of this research is to ease implementation of legislative mandates. More specifically, it should present those persons involved in selection of recreation equipment used by handicapped children a method and general understanding of issues involved for effective evaluation.

Information required during the evaluative process is supplied by persons in various fields. Reliance on others, and their expertise, is crucial to the success of the method proposed here.

The process is constructed of 18 steps, sub-divided into three (3) major phases. These are:

Phase one	Pre-evaluative
Phase two	Evaluative
Phase three	Post-evaluative

During the pre-evaluative phase, establishment of administrative aspects, screening children for limitations, and contacting information resources equip the evaluator with preliminary information needed for evaluation.

Evaluation is performed during the second phase. It is further broken into three (3) major stages. These are:

1. Experiential,
2. Structural, and
3. Orientational.

Post-evaluative steps complete the process with administrative and selection steps.

To date, no such procedures as those introduced here are in existence, and lack of such information has been evidenced. Poorly suited, or totally inappropriate equipment has been purchased. The monetary factor is staggering, but of greater importance is the negative impact on the lives of thousands of disabled children.

As this method is based on highly specific information from persons qualified in various related fields such as design, construction, and rehabilitation, it is felt that applicability will be effectively analyzed. With effective evaluation, use by handicapped children should result in positive improvements of both children and equipment.