



Instrument for assessing day care play equipment as an indicator of program quality  
by Sheryl Marie Ries Anderson

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE  
in Home Economics

Montana State University

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Abstract:

A questionnaire was mailed to child development professionals in 114 land-grant colleges and state universities to determine if a play equipment list could be designed for use as an evaluation tool of child care centers. A response of 77.1% was received with 50.8% professionals qualifying to complete the questionnaire by teaching a class(es) in early childhood education and directing a preschool program.

An overall mean indicated that play equipment was recommended.

The variance of .91 suggested a high level of confidence in the mean. Ratings of equipment were most stable in the blockbuilding, housekeeping, manipulative task, and library areas. No substantial regional preference was indicated by means, variances or coefficients of variation. The Mountain region showed the greatest stability of ratings.

Data were representative of all states excepting California, Alaska, and Hawaii. It was concluded that an evaluation instrument could be designed. The representative distribution of responses justified the construction of an instrument. Instrument construction was further justified by the high means and low coefficients of variation, making it possible to identify specific play areas and equipment necessary for day care centers.

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Date May 28, 1976

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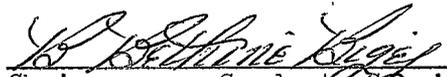
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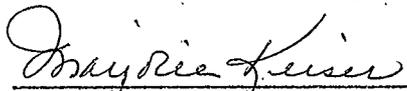
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## ABSTRACT

A questionnaire was mailed to child development professionals in 114 land-grant colleges and state universities to determine if a play equipment list could be designed for use as an evaluation tool of child care centers. A response of 77.1% was received with 50.8% professionals qualifying to complete the questionnaire by teaching a class(es) in early childhood education and directing a preschool program.

An overall mean indicated that play equipment was recommended. The variance of .91 suggested a high level of confidence in the mean. Ratings of equipment were most stable in the blockbuilding, house-keeping, manipulative task, and library areas. No substantial regional preference was indicated by means, variances or coefficients of variation. The Mountain region showed the greatest stability of ratings.

Data were representative of all states excepting California, Alaska, and Hawaii. It was concluded that an evaluation instrument could be designed. The representative distribution of responses justified the construction of an instrument. Instrument construction was further justified by the high means and low coefficients of variation, making it possible to identify specific play areas and equipment necessary for day care centers.

## CHAPTER I

### INTRODUCTION

#### Importance of the Study

Ambivalent attitudes toward the support of day care persist in contemporary American society. Day care has been, and still is, considered a necessary evil for working mothers.<sup>1</sup> Traditionally, the care of children from needy families has been accepted and seen as a way of preventing social problems such as delinquency and malnutrition. The term 'day care', however, generally implies care for the children of working mothers, and this definition has not been easily accepted by the public.<sup>2</sup> Regardless of why women work - to supplement family income, to get off welfare or to seek fulfillment - many are made to feel guilty for depriving their child of "an essential mother-child relationship".<sup>3</sup> It has been the popular opinion that young children should not be separated from their parents thus "making child care

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<sup>1</sup>Belle E. Evans, Beth Shub, and Marlene Weinstein, Day Care - How to Plan, Develop and Operate a Day Care Center (Toronto: Saunders of Toronto, Ltd., 1971), pp. x.

<sup>2</sup>Howard Schneider, Future Trends Affecting Day Care and Preschool Education. Final Report: VIII (Washington, D.C.: ERIC Document Reproduction Service, ED 068 196, 1971), pp. 19.

<sup>3</sup>Evans et al., p. x.

seem as an undesirable child-rearing practice" and causing day care to be minimally developed.<sup>4</sup>

Although the first day care center in the United States was opened in 1838, only during wars has day care been given top priority by society and the government due to women having to join the work force.<sup>5</sup> Generally, when care was needed by working mothers it was provided for by relatives, neighbors, and sometimes by maids or governesses.<sup>6</sup> The change in attitude, within the last ten years, toward working mothers, and women in general, has called national attention to the woefully inadequate state of day care.

Many contingent factors affect day care's status. Persons involved in child care research, planning, and operation are not easily able to find helpful information.<sup>7</sup> Day care goals are not oriented toward the needs of children, with no national goals for care of

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<sup>4</sup>Ronald K. Parker and Jane Knitzer, Day Care and Preschool Services: Trends and Issues (Atlanta: Avatar Press, 1972), p. 19.

<sup>5</sup>Evans, p. x.

<sup>6</sup>Dorothy Beers Goguslawski, Guide for Establishing and Operating Day Care Centers (New York: Child Welfare League of America, Inc. 1968), p. 3.

<sup>7</sup>U.S., Congress, Senate, Committee on Finance, Child Care Data and Materials, 2d ed., 93rd Cong., 2d sess., Committee Print (Washington, D.C.: Government Printing Office, 1974), p. iii.

children or guidelines for children's character development.<sup>8</sup> All centers receiving federal funds for providing day care must abide by The Federal Interagency Day Care Requirements.<sup>9</sup> Testimony to the Senate Committee on Finance in 1974, however, indicated that centers receiving funds are so poorly monitored that it cannot be assumed that these requirements are enforced or followed.<sup>10</sup>

Data summarizing state standards for day care are equally discouraging. Only twenty-eight states require the director of a child care center to have training beyond high school that is specifically related to children. Twenty-one of the twenty-eight states have like qualifications for the other staff in a child care center.<sup>11</sup> Only twelve states require centers to have a "written, posted program or evidence of such", and five states have no specific requirements at all

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<sup>8</sup>Edith H. Grotberg, ed., Day Care: Resources for Decisions (Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1971), p. 77.

<sup>9</sup>The Federal Interagency Day Care Requirements have as their purpose to coordinate programs providing day care so as to "obtain, if possible, a common set of program standards and regulations and to establish mechanisms for coordination at state and local levels". Acceptance of federal funds is an agreement to abide by the requirements. Requirements cover types of facilities, groups of children, educational, social, health and nutrition services to be provided, training of staff, parent involvement, administration and coordination, and evaluation. U.S. Congress, Child Care Data, p. 251-252.

<sup>10</sup>U.S. Congress, Child Care Data, p. 23.

<sup>11</sup>Ibid., p. 125.

for day care center programs.<sup>12</sup>

The people working in day care centers nationwide are, for the most part, neither well-educated nor well-paid. Most directors and teachers do not have college degrees and very few have had special training for day care work, e.g. courses in early childhood development. The median reported salary for both directors and teachers is less than \$360 a month. Nearly one-fourth of all staff members has less than a year's experience in group child care and 51 percent of all staff have been working in day care less than three years.<sup>13</sup>

As for the centers themselves, the 90 percent that are licensed do not always comply with state and local regulations, and it would be a mistake to assume that possession of a license assures that the day care program is developmentally sound for children. Apparently, the Senate committee has made a reasonable conclusion in stating that day care in America is an "unorganized, largely unregulated and unlicensed service, provided in ways that range from excellent to shockingly poor."<sup>14</sup>

Despite day care's dilemma, the need for day care continues to grow. Nearly six million children under the age of six have mothers in the work force. Working mothers, with children under the age of six,

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<sup>12</sup>U.S., Department of Health, Education, and Welfare, Office of Child Development, Bureau of Child Development Services, Day Care Licensing Study; Summary Report on Phase I: State and Local Day Care Licensing Requirements DHEW Pubn. No.(OCD) 73 - 1066 (1973), n.p..

<sup>13</sup>U.S. Congress, Child Care Data, p. 161. <sup>14</sup>Ibid., p. 167.

increased from 25 percent in 1964 to 34 percent in 1973.<sup>15</sup> Licensed facilities, either day care centers or family homes, can accommodate only one-sixth of these children. The others are tended by neighbors, relatives, inadequate day care operations, or saddest of all, left to shift for themselves.<sup>16</sup> It appears that the need for day care will continue to increase. The number of working mothers is predicted to grow due to economic need and smaller families. Also, influencing the increased day care need is the more positive attitude of young adults toward day care.<sup>17</sup> The rising employment of mothers despite the absence of adequate day care substantiates the belief that lack of adequate day care does not necessarily induce mothers to stay at home. "The presence or absence of adequate facilities affects principally the child."<sup>18</sup>

As more and more the importance of the first years of life becomes recognized, concern must be given to the effect of day care on children. A number of research centers carrying on longitudinal studies of child development have shown that the major development of personality takes place in the early years. Certain trends are already evident by the age of two years in such matters as intellectual

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<sup>15</sup>U.S. Congress, Child Care Data, p. 2.

<sup>16</sup>*Ibid.*; p. 9.

<sup>17</sup>Schneider, p. 2.

<sup>18</sup>Research Service for Americana Encyclopedia, "Day Care Centers", New York, 1975. (Typewritten.)

interest, dependency and aggressivity in adolescence. ". . . . . it is very likely that the greatest receptivity for one's innate potential exists in the first few years of life."<sup>19</sup> Thus, the experience received by a preschooler in a day care center will be of vital significance to the child's future growth and success.

Beneficial day care provides the preschool child with an opportunity to learn through play with other children and with appropriate materials and toys. A day care center should be a place where the child's mental, emotional, and physical growth is fostered.<sup>20</sup> It is through play that the child learns about himself, others, and the world. Many theorists recognize that important learning takes place through play.<sup>21</sup> During play the child will have the opportunity to develop mentally, emotionally, physically, and socially, all at the same time.<sup>22</sup>

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<sup>19</sup>U.S., Department of Health, Education, and Welfare, Welfare Administration, Children's Bureau, National Conference on Day Care Services, Spotlight on Day Care: Proceedings, 13 - 15 May, 1965 p. 143.

<sup>20</sup>Boguslawski, p. 4.

<sup>21</sup>See Frank and Theresa Caplan, The Power of Play (New York: Anchor Press, 1973); R.E. Herron et al., eds., Child's Play (New York: John Wiley and Sons, Inc., 1971); Margaret Lowenfeld, Play in Childhood (New York: John Wiley and Sons, Inc., 1967); Susanna Millar, The Psychology of Play (New York: Jason Aronson, 1974).

<sup>22</sup>Boguslawski, p. 60.

### Justification for Study

There have been a "paucity of attempts" to develop evaluation instruments for day care and preschool programs.<sup>23</sup> Presently, there is no objective, short answer tool which assesses a day care center program or any one part of it. Assessment tools currently in use, either check only health and safety standards or are too lengthy with no means of summarizing observations. Thus, there is no practical method for determining if a day care or preschool program is excellent, good, mediocre, or poor.

The purpose of evaluating day care centers is to gather information about the many things which determine the quality of the day care center as a learning environment. Parents, instructors, and students of child development, day care directors, and evaluators should be interested in such an evaluation and could find use for a quality assessment tool. This tool would aid parents in determining if a day care center is the one in which they would like to enroll their child(ren). Those more directly involved in the day care center could use the assessment information to determine what the program is doing for

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<sup>23</sup>Roslyn Green et al., The Pennsylvania Day Care Study: Survey Questionnaire and Observation Reports (Pennsylvania State University: ERIC Document Reproduction Service, ED 089 867, 1972), p. 2.

the children and how the program could be improved.<sup>24</sup>

A day care program consists of many components. These components include the children, the staff, the physical facility and the equipment.<sup>25</sup> Equipment has been chosen as the criteria for evaluating a day care center because it is easy to identify and its use would be easy to observe. Evaluation of equipment could serve as an indicator of a day care center's quality as "too many toys available at one time can prove over-stimulating and too few may lead to a program that is unnecessarily narrow and monotonous".<sup>26</sup>

By giving the child access to many different kinds of materials and freedom to explore them in his own way, we make possible the first cognitive layer -- his ability to recognize objects and actions, to distinguish them from each other, to become aware of similarities and differences, and finally to abstract, to classify and to symbolize.<sup>27</sup>

In order for a day care center to offer successful play experiences and thus a good atmosphere for learning, it must provide an adequate supply of equipment and materials. It is through the use of

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<sup>24</sup>Ilse Mattick and Frances J. Perkins, Guidelines for Observation and Assessment: An Approach to Evaluating the Learning Environment of a Day Care Center, 3d ed. (Washington, D.C.: The Day Care and Child Development Council of America, 1974), pp. iv.

<sup>25</sup>Evans, p. 10.

<sup>26</sup>U.S., Department of Health, Education, and Welfare, Office of Economic Opportunity, Project Head Start - Equipment and Supplies #9, Pubn. No. 0 - 247 - 831 (1967), p. 2.

<sup>27</sup>Ruth E. Hartley, "Play the Essential Ingredient," Childhood Education 48(November 1971): 81.

creative materials that children can be encouraged and stimulated to be individuals and to share their ideas with others.<sup>28</sup> Children cannot be encouraged and challenged to grow in a tenuous atmosphere. Boguslawski maintained that even when a center must watch its budget, economies should not be made in the essential equipment for children. She further stated that the same basic equipment is needed in all centers--no matter what auspices they are under or by what name they are called, if they are to have a program that contributes to children's all-round development, growth and happiness.<sup>29</sup> It follows that "the quality of materials and equipment is one of the vital keys to how useful the program is for the children."<sup>30</sup>

.....particular settings invite children to involve themselves in particular activities, and the extent of children's constructive participation in the activity will depend in large part on how well certain concrete, measurable aspects of the surrounding physical space meet their 'hunger, attitudes, and interests'.<sup>31</sup>

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<sup>28</sup>U.S., Department of Health, Education, and Welfare, Office of Child Development, Day Care - 1 A Statement of Principles, DHEW Pubn. No. (OCD) 72 - 10 (1971), p. 21.

<sup>29</sup>Boguslawski, p. 40.    <sup>30</sup>Dept. of HEW, Statement, p. 2.

<sup>31</sup>Sybil Kritchevsky, Elizabeth Prescott, and Lee Walling, Planning Environments for Young Children (Washington, D.C.: National Association for the Education of Young Children, 1973), p. 4.

If the quality of day care is to be improved, ways must be developed to evaluate day care programs. Through evaluation, information is gathered that allows a program to be assessed as a learning environment. Evaluation provides information for making decisions and either provides a sense of satisfaction when compared with others or presents a challenge to do better.<sup>32</sup> By having professional workers in child development rate equipment and play areas, it is hoped an objective instrument can be developed which could be used as an indicator of a day care program's quality. Such an instrument would have value for parents, instructors in the field of child development, students of child development, day care directors, and day care program evaluators.

#### Statement of the Problem

The problem of this study is to develop an objective instrument, using the evaluation of play equipment by professional workers in child development as the basis for evaluation, which could be used as an indicator of a day care program's quality.

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<sup>32</sup>Nelson G. Price, Program Evaluation (Redwood City, California: ERIC Document Reproduction Service, ED 093 063, 1974), p. 2.

Questions to be Answered

Questions to be answered by this study are:

1. What play equipment do professional workers in child development think is a necessity for day care programs?
2. What play equipment is recommended by professional workers in child development for day care programs?
3. What play equipment is thought to have no negative or positive value in day care programs by professional workers in child development?
4. What play equipment do workers in child development think has occasional use in day care programs?
5. What play equipment do workers in child development think has little or no value in day care programs?
6. How are the areas likely to be found in a day care center rated in importance by professional workers in child development? The play areas under consideration are housekeeping, science, library, creative arts, music, blockbuilding, manipulative toy and table tasks, and outdoor/large muscle.
7. Is there a regional pattern in equipment ratings by professional workers in land-grant colleges and state universities?

### Assumptions

The following assumptions are made:

1. Day care center and preschool programs have the same educational goals for the children they are serving and thus would have the same kinds of equipment in their centers.

2. The educational program is the basis upon which space and facilities are planned.

3. An evaluation of equipment can serve as an indicator of a day care program's quality.

4. Professional workers in child development can be located in most land-grant colleges and state universities. Professional child development workers are the best sources available for determining the value of various pieces of equipment and play area importance.

5. Professional workers in child development in land-grant colleges and state universities are qualified to rate play equipment because they are working in their field and are therefore knowledgeable and well read in child development.

### Limitations

Limiting this study is the fact that not all types of populations are included as evaluators. A second limitation is the minimum development of evaluation tools for day care and there is little information upon which to build this study.

Terminology

For the purpose of this study, every time the words listed below are used they will mean:

day care center - a substitute for maternal care to serve the emotional, physical, social, and intellectual needs of children whose parents are not at home or are unable to care for them<sup>33</sup>

preschool program - a supplement to home experiences with the essential function and purpose of the program based on the training, education, and development of the child

professional worker in child development at a land-grant college or state university - a person who is employed at a land-grant college or state university as director of the child development program and whose duties include teaching early childhood classes and directing the school's child development, nursery school, and/or day care center

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<sup>33</sup>Jean Stephens Baringer, "Opportunities for Preschool Children in Montana", Bozeman, Montana, February, 1971. (Mimeographed.)

## CHAPTER II

### REVIEW OF LITERATURE

The purpose of this study is to develop an objective instrument, using the evaluation of play equipment by professional workers as the criteria to indicate the quality of a day care program. This literature review discusses three areas related to the purpose of the study: evaluation instruments for day care that are currently used or developed, a summary of studies related to day care and/or preschool equipment, and a brief synopsis of current equipment lists for preschools.

#### Evaluation Instruments

One form of evaluation for day care centers is licensing standards set by state licensing agencies. Licensing personnel in Montana use a short checklist covering the physical properties of the facility (sanitation, ventilation, telephone, adequate lighting), food service, number of children receiving care, health care, and supervision. No mention is made of equipment supply, use, or of program requirements.<sup>1</sup>

Thirteen states have licensing standards that evaluate equipment in day care programs in the general terms of equipment that includes experiences with music, nature, discussion and art, or equipment which

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<sup>1</sup>Montana State Board of Health, "Inspection Form for Day Care Centers," Helena, Montana, n.d.. (Mimeographed.)

encourages self-expression, creativeness, physical, social, and emotional development.<sup>2</sup> Less specific terms used by ten other states to describe equipment required in day care programs include equipment which meets children's developmental needs, equipment which provides activities appropriate to the age range, or equipment which provides educational play experiences. Utah is the only state that has a detailed list of equipment required for the licensing of day care centers. Items on the list include animals, crayons, paper, dolls, telephones, wagons, easel and paints, swings, and blocks. Twenty-five states list one to fifteen specific indoor items for play such as books, puzzles, scissors, unit blocks, and clay. Twenty states list one to fifteen items for outdoor play which include boxes and crates, climbing ropes, sandbox with sand toys, and low pedal toys.<sup>3</sup>

An evaluation instrument for day care and preschool programs has been developed by the Child Development Association.<sup>4</sup> This tool

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<sup>2</sup>U.S., Department of Health, Education, and Welfare, Office of Child Development and Office of Economic Opportunity, Abstracts of State Day Care Licensing Requirements - Part 2: Day Care Centers, DHEW Pubn. No. (OCD) 73 - 22 (1971), p. 2.

<sup>3</sup>Ibid..

<sup>4</sup>".....the Child Development Association program is a national effort to improve the quality and effectiveness of care provided for young children in Head Start, day care, nursery schools, and other preschool programs." U.S., Department of Health, Education, and Welfare, Office of Human Development and Office of Child Development, The Child Development Associate Training Information Series - No. I (Washington, D.C.: Government Printing Office, n.d.).

assesses the competencies of teachers trained to work in child care centers. A supervisor observes the teacher forty to eighty hours, then rates each competency on a scale of one to five; one meaning most inappropriate, very poor, and not acceptable, and five meaning excellent, outstanding, thorough, complete, and most appropriate. There are approximately four hundred competencies the observer must rate.<sup>5</sup> It becomes a time-consuming task and has little value for determining the quality of a day care center, especially when used by a parent.

Mattick and Perkins' tool for assessing day care centers has questions based on the physical setting, interactional setting (relationships), and program of the day care center. Examples of their questions are 1) What specific materials are there in activity areas that indicate intended use of the area? 2) Do most materials inspire children to thoughtful experimentation or do they merely lend themselves to perfunctory performance? and 3) List classroom equipment and materials that pertain to the children's home life. The extensive eighteen page instrument includes ninety questions of this type, which when completed has no means of summation. The observer is expected to make his own judgment as to whether or not the program is meeting the goals as described by the authors. The authors' rationale for such an

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<sup>5</sup>U.S., Department of Health, Education, and Welfare, Office of Human Development and Office of Child Development, "Child Development Association Assessment Tool used in Competency Based Training" (Washington, D.C.: Government Printing Office, n.d.).

extensive questionnaire is that the issues are too complex and interdependent to allow evaluation of one or a few areas if one hopes to have a valid assessment of the day care center.<sup>6</sup>

The Pennsylvania State Day Care Study designed a battery of survey instruments for evaluating day care centers and family homes. The state needed a means of storing and gathering information on day care to aid in the planning and management of the day care system. Questions pertained to eleven areas - administration, staff, staff training, children, services, family, community outreach, physical plant, program and equipment, evaluation, and funding. All of the information sought could not be provided by one person making completion of the questionnaire less likely. It was concluded that the length of the instrument was threatening to mothers and time-consuming to teachers and directors. They believed the group's effort to design an evaluation instrument was hampered because the task was a major undertaking and there were few models to follow. The only models available to them were the "Preschool Environment Inventory" and the "ABT Day Care Survey Instrument". The former provides a means of characterizing preschool environments while the latter describes and evaluates the characteristics of quality day care programs through in-depth

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<sup>6</sup>Mattick and Perkins, pp. 6 - 8.

examination.<sup>7</sup> Most of their help in developing an instrument came from reviewing the research of Kritchevsky, Prescott and Walling.<sup>8</sup>

#### Studies Related to Equipment

All of the studies discussed indicate that equipment, materials, and supplies play a major role in day care programs. Children use equipment in certain defineable ways with predictable learning taking place. The studies reinforce the belief that a need does exist for an evaluation tool which assesses physical space.

Kritchevsky, Prescott, Walling and Jones did a series of studies related to physical space in day care centers. In the first, space quality in day care centers was appraised by evaluating play units and potential units according to their complexity, e.g. simple, complex, and super. Play units were defined as 1) space containing something with which to play, 2) space which may or may not have visible boundaries, 3) space that needs open area for proper use, and 4) space that is generally not free for other uses. Potential units were defined as empty space, most often surrounded by visible or tangible

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<sup>7</sup>V. Stern and A. Gordon, Development of Observation Procedures for Assessing Preschool Classroom Environments, Document 4 (New York: Bank Street Evaluation and Research Center, 1967); and ABT Associates, Inc., A Study in Child Care, 5 vols. (Cambridge: ABT Associates, Inc., 1971) as quoted in Green et al., pp. 2 - 15.

<sup>8</sup>See below.

boundaries, e.g. empty table, empty corner. The researchers contended that high quality of space indicated teachers that were sensitive and friendly in their manner toward children, teachers that encouraged children in self-chosen activities, and teachers who taught consideration for rights and feelings of self and others. Low spatial quality showed children to be less involved and interested and showed teachers to be neutral or insensitive and more restrictive.<sup>9</sup>

Having made these assumptions, Prescott, Jones, and Kritchevsky proceeded to evaluate fifty Los Angeles, California, public and private day care centers. Their evaluation consisted of observing teacher behavior, physical space, and children's responses. The data indicated that good programs have a rich and varied physical environment with age-appropriate materials. Once again, they found that high quality of space positively affects children's and teachers' behavior. The researchers reasoned that high spatial quality offers more diversity and more opportunities for experiences. They concluded that the nature of space strongly influences day care centers.<sup>10</sup>

These researchers' next step was to devise a method calculating indoor and outdoor space quality. Space quality was rated on a

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<sup>9</sup>Kritchevsky et al., pp. 5 - 10.

<sup>10</sup>Elizabeth Prescott, Elizabeth Jones, and Sybil Kritchevsky, Day Care as a Child-Rearing Environment (Washington, D.C.: National Association for the Education of Young Children, 1972), pp. 4 - 41.

seven-point continuum ranging from high to low. Space was evaluated for organization, complexity, and variety. The rating was used as a predictor of children's behavior. The method was found to work well as a predictor of outside behavior, but was not as workable for predicting inside behavior. Inside behavior was more difficult to predict because use of space indoors is apt to be regulated by staff policies, whereas outdoor space is used by children in a relatively self-regulating manner.<sup>11</sup>

As part of a total evaluation of early childhood education programs in Kansas City, Missouri, Griffith also assessed materials, equipment, and supplies. Categories rated were 1) classroom furniture and fixtures, 2) classroom equipment (projectors, tapes, record players), 3) instructional materials (books, puzzles, maps, games), 4) consumable supplies (paper, crayons, soap, clay), 5) temporarily durable materials (films, records, pets, plants), 6) playground equipment, and 7) other. Teachers in the schools rated each of the categories as to quality, quantity, and means of acquisition. Results showed that respondents rated materials, supplies, and equipment "excellent to

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<sup>11</sup>Elizabeth Prescott, Sybil Kritchevsky, and Elizabeth Jones, The Day Care Environmental Inventory. Assessment of Child-Rearing Environments: An Ecological Approach. Part I of Final Report (Pasadena, California: ERIC Document Reproduction Service, ED 103 473, 1971) pp. 42 - 43.

adequate in quality, adequate in quantity, and adequate to limited in means for acquisition".<sup>12</sup>

In trying to discover the role of manipulative materials in play situations, Phinney observed fifty-six preschoolers, ages two to five, play with simple blocks (able to be classified in only one way) and complex blocks (able to be classified in multiple ways). The older the child, the greater the tendency to create patterns and to arrange elements in an organized manner. There was no significant difference in terms of activities between age groups.<sup>13</sup> According to Phinney "Mendel showed that young children (three and one-half to five and one-half years old) in a free choice situation reliably preferred novel toys over toys with which they had previously had a chance to familiarize themselves".<sup>14</sup> Hutt noted the time spent in play by children with various objects that elicited various feedback. In Hutt's final analysis, the toy that sustained interest longest was not always the complex, highly structured one, but simpler toys, such as blocks which

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<sup>12</sup>Lynda W. Griffith et al., Evaluation of Early Childhood Education: A Model Cities-Supported Preschool Program (Kansas City, Missouri: ERIC Document Reproduction Service, ED 103 473, 1971), pp. v, 117 - 118.

<sup>13</sup>Jean Swift Phinney, The Influence of Age and Materials on Young Children's Play Activities and Classification Learning (Los Angeles, California: ERIC Document Reproduction Service, ED 082 822, 1973), pp. 92 - 93.

<sup>14</sup>G. Mendel, "Children's Preferences for Differing Degrees of Novelty," Child Development 36 (1965): 453 - 465 as quoted in Phinney, pp. 11, 94.

allow the child to do a variety of things with them.<sup>15</sup> These studies can aid day care centers in choosing equipment that is best suited for children's developmental needs.

Busse "began with the hypothesis long assumed, that the mere provision of a quantity of quality equipment would assure the development of self-reliance and initiative, and be supportive to sound physical and mental development".<sup>16</sup> He concluded that enrichment significantly altered the classroom, but that the teachers in the enriched classrooms interacted less with the children as the teachers expected the equipment to do the teaching.<sup>17</sup>

#### Equipment Lists

There are numerous lists of play equipment for day care and preschool programs. Sources classify equipment according to the skills it helps develop, the age for which it is appropriate, or according to the area in which it can be found. Such lists can be helpful in equipping a day care center and/or preschool program. In the case of this study,

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<sup>15</sup>Corrine Hutt, "Exploration and Play in Children," Symposium of the Zoological Society of London 18 (1966) as quoted in Phinney, pp. 12 - 13.

<sup>16</sup>Thomas Busse et al., Environmentally Enriched Classrooms and the Development of Disadvantaged Preschool Children (Washington, D.C.: ERIC Maloney Markun, ed., Play: Children's Business and a Guide to Play Materials (Washington, D.C.: ERIC Document Reproduction Service, ED 101 848, 1974), p. 46.

<sup>17</sup>Ibid., p. 47.

these lists were used to help develop the equipment list for assessing the quality of day care programs. (Table 1)

Several of the lists included unique features. Pre-School Equipment for a Multi-Use Center listed only equipment that was "portable, inexpensive to make, provides its own storage, adds color to the room and is extremely durable".<sup>18</sup> Included were the blueprints for an easel, water table, puppet theatre, blocks, washer and dryer, and rocking boat.<sup>19</sup> Low budget suggestions for equipment were included in Day Care - How to Plan, Develop and Operate a Day Care Center and Project Head Start - Equipment and Supplies #9.<sup>20</sup> A method for determining whether or not a center should have a piece of equipment was part of Equipment and Supplies.<sup>21</sup> Its drawback was the thirty-six questions required to obtain information about each piece of equipment. Developmental Learning Materials had a unique "Cross Reference Skills Chart". Each product was listed and classified according to the skill(s) it helps develop. Some of the eighteen skills that a toy

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<sup>18</sup>Pre-School Equipment for a Multi-Use Center (Conway, Massachusetts: Stone Mountain Educational Project, Inc., 1972), p. 2.

<sup>19</sup>Ibid., pp. 2 - 32.

<sup>20</sup>Evans et al., p. 239 - 250; and Department of HEW, Project Head Start.

<sup>21</sup>Evelyn Weber and Lucy Prete Martin, eds., Equipment and Supplies, rev. ed. (Washington, D.C.: Association for Childhood Education International, 1964), p. 4 - 8.

TABLE 1  
EQUIPMENT LISTS AND MEANS OF CLASSIFICATION

Source	Classified as to Area Used in	Classified as to Appropriate Age Level	Classified as to Skill Developed by Use
THE NURSERY SCHOOL	X		
PRE-SCHOOL EQUIPMENT FOR A MULTI-USE CENTER	X		
A GUIDE TO PLAY MATERIALS		X	X
SELECTING EDUCATIONAL EQUIPMENT AND MATERIALS	X	X	
DAY CARE--HOW TO PLAN, DEVELOP AND OPERATE A DAY CARE CENTER	X		
PROJECT HEAD START--EQUIPMENT AND SUPPLIES #9	X		
AS THE TWIG IS BENT	X		
GUIDE FOR ESTABLISHING AND OPERATING DAY CARE CENTERS FOR YOUNG CHILDREN	X		
COMMUNITY COORDINATED CHILD CARE PAMPHLET--MONTANA	X		
EQUIPMENT AND SUPPLIES		X	
CHILDCRAFT	X		
COMMUNITY PLAYTHINGS	X		
DEVELOPMENTAL LEARNING MATERIALS			X
EDUCATIONAL TEACHING AIDS			X

NOTE: Refer to selected bibliography for complete references of sources.

could be classified under were gross motor, body concept, visual-auditory integration, memory, social awareness, and career awareness.<sup>22</sup>

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<sup>22</sup>Developmental Learning Materials (Niles, Illinois: n.p., [1967]), pp. 2 - 5.

## CHAPTER III

### METHODS AND PROCEDURES

#### Research Design

The purpose of this study was to develop an objective instrument which could be used as an indicator of the quality of a day care program, using the evaluations of play equipment by professional workers in child development as the evaluative criteria.

#### Sampling Procedure

This study was based on responses from professionals in the field of child development. Professional workers in child development were defined as directors of a child development center, nursery school, and/or day care center, and teachers of a class(es) in early childhood education in a college or university. Participants were required to meet these qualifications to insure that respondents would be a relatively homogeneous group with near-like knowledge and job responsibilities. This group was considered to have the expertise to rate equipment because of their educational background, teaching experience, and pre-school directing responsibilities.

Questionnaires were sent to all land-grant colleges and state universities. Thus, these institutions represent the total population. Those workers that responded represent the sample from which

conclusions were drawn concerning the reliability of the questionnaire.

One hundred and fourteen land-grant colleges and state universities were contacted. A list of the schools and their addresses was obtained from the membership list of the National Association of State Universities and Land-Grant Colleges.<sup>1</sup> It was assumed that the professionals could be contacted through the mail by sending the questionnaire equipment rating scale to the home economics department or school of each institution. Professionals in home economics departments in land-grant and state institutions were chosen as the target group because of their accessibility, their regional distribution throughout the United States, and their known reputation for being a high-response group.<sup>2</sup>

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<sup>1</sup>Christian K. Arnold, ed., Proceedings of the National Association of State Universities and Land-Grant Colleges (Washington, D.C.: National Association for State Universities and Land-Grant Colleges, 1972), pp. 138 - 150.

<sup>2</sup>This group was used once by Brown who took a survey of schools having laboratory nursery schools. Brown had a 90.1% response. Brown's response group was used by Sievert who surveyed the trends relating to the teaching of Child Development. Sievert obtained a 92% response. Mary Stewart Brown, "A Survey of Trends and Practices in Child Development Centers Among Land-Grant and State Universities", (Unpublished Master's Thesis) Montana State University, 1971, p. 35; and Naida Korslund Sievert, "A Survey of Trends and Practices in Teaching Child Development Among Land-Grant and State Institutions", (Unpublished Master's Thesis) Montana State University, 1976, p. 38.

### Method of Obtaining Information

A mail questionnaire was chosen as the means for obtaining the information needed to develop an equipment rating scale. Personal interviews and/or telephone calls were deemed to be inefficient because of the large sample size, distance of the schools, and the length of the rating scale.

### Equipment Rating Scale

A rating scale was developed by the researcher as there were no models available. The scale consisted of lists of pieces of equipment likely to be found in the housekeeping, science, creative arts, music, blockbuilding, library, manipulative toy and table tasks, and large muscle/outdoor areas of a day care center. These areas of the day care program were chosen because "almost all the educational objectives of a day care center can be met through them--they address the physical, social, emotional, and intellectual needs of adequate growth and development more thoroughly than any other combination."<sup>3</sup> Included in the rating scale was a rating of the importance of each separate play area. By rating play areas the minimum number of areas needed in a day care center could be estimated.

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<sup>3</sup>Evans et al., p. 157

Equipment items listed under each area of play were arrived at by consulting established equipment lists for preschools and/or day care centers. These lists were compiled and printed as guidelines for equipping day care and preschool centers. Many sources were used to have as complete an equipment list as possible. (Refer to Table 1)

Each piece of equipment was to be rated by the participant on a multidimensional scale having a five-point equal interval scaling system.<sup>4</sup> Descriptive terms for each point were defined so participants could rate equipment knowing what the points meant, thus making the results more valid by controlling the meanings for each point. Definitions for each point were: 1) a piece of equipment not needed at all in a day care program (N.N.); 2) a piece of equipment which has occasional use in a day care program (Occ.); 3) a piece of equipment which has neither negative nor positive value in a day care program (Neut.); 4) a piece of equipment recommended for a day care program (Rec.); and 5) a piece of equipment that is a necessity for a day care program (Ness.). The areas were to be rated on this same scale with the word "area" substituted for the word "equipment". A space was left under each area of equipment for respondents to write in items they felt were necessary or recommended. The complete rating scale was covered in seven double-spaced typewritten pages. (Appendix A)

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<sup>4</sup>Paul E. Green and Vithola R. Rao, Applied Multidimensional Scaling (New York: Holt, Rinehart and Winston, Inc., 1972), p. 188 - 192.

Attached to the equipment rating scale was a cover information page. This page aided the subject in determining if he/she met the criteria of a professional worker in child development and thus should fill out the rating form, identified the respondents' schools, requested information about the respondents' educational and professional status, collected information from the schools and respondents who did not qualify as professionals in child development, and offered the sample group a summary of the results of the study. Respondents were asked to return the information sheet along with the rating scale if they qualified as a professional worker and to return only the information page if they did not qualify. (Appendix A)

#### Questionnaire Design

The questionnaire rating scale was designed after the principles of Berdie and Anderson.<sup>5</sup> Pages were numbered to enable the respondent to reassemble it easily if necessary. The name and address of the researcher was included at the beginning and at the end of the questionnaire to insure that the participant knew who sent the questionnaire and where to return it. The study title was typed in boldface type on the first page of the rating scale to remind

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<sup>5</sup>Douglas R. Berdie and John F. Anderson, Questionnaires: Design and Use (Metuchen, New Jersey: The Scarecrow Press, Inc., 1974), pp. 48 - 68.

participants of the purpose. A note was included to inform participants of the availability of help and a copy of the results was offered for participation.

Other steps taken to aid in a high return of questionnaires were:  
To encourage completion - 1) Every effort was made to have brief and clear directions and to group items into logically coherent sections. 2) An addressed, stamped envelope was included. 3) Items were double-spaced. 4) Abbreviations for descriptive terms of rating points were repeated at the top of each page.

To give questionnaire a professional appearance - 1) Photo off-set printing and high quality paper were used. 2) The terms scale and instrument were emphasized. 3) The name of the sponsoring school was used on all correspondence. 4) An approximate time for completion was stated.

To give the questionnaire a personal touch - 1) All envelopes were addressed by hand. 2) The title of the person and their address were typed in at the beginning of each letter.

#### Validation of Techniques

Before the rating scale was sent to the sample group it was tested and reviewed by selected juniors and seniors majoring in child development, teaching faculty of the child development center at Montana State University, and members of the researcher's graduate committee at Montana State University. Eighteen juniors and seniors completed

the questionnaire as if they were professional workers in child development. When they had completed the task, they were asked to answer the following questions: 1) Did you understand the directions? 2) How did you feel about the number of pages? 3) Was the rating form easy to fill out? 4) Which type of spacing was preferred, single-spaced or double-spaced? 5) If you were an administrator would you be interested in the results of this study? 6) Was there anything about the complete package that was confusing?

The following changes were made:

On the cover letter - 1) Wording was clarified to improve directions and understanding of the purpose of the study.

On the questionnaire - 1) A section related to quality was deleted. It became evident that various qualities could affect each piece of equipment. To differentiate quality was beyond the limit of this study. 2) An average completion time was determined. This could be included in the information given to participants so that completing the survey would not seem too time-consuming. 3) Equipment items were double-spaced. This made it easier to read and complete, and completion had priority over number of pages.

### Cover Letter

A short cover letter accompanied the rating scale. The letter, like the rating scale, was designed to attract interest and to encourage participation. It was not attached to the rating scale. It was assumed that the letter would be read by the director of the home economics department while the rating form might be passed to a professional child development worker.

### Data Collection

The cover letter, cover sheet, and rating form were sent to the home economics departments of the 114 members of the National Association of State Universities and Land-Grant Colleges on January 21, 1976. A follow-up was sent February 21, 1976, four and one-half weeks after the initial mailing. (Appendix B)

Each return was dated and classified according to: 1) whether it had a completed rating form enclosed, and 2) if it contained only the information sheet. Completed rating forms were further classified by region and state. (Appendix C)

### Data Interpretation

The data were analyzed internally, only, following Green and Rao.<sup>6</sup> It was assumed that all of the participants had the same basic

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<sup>6</sup>Green and Rao, pp. 188 - 192.

knowledge, of child growth and development and of equipment to promote development, forming an homogeneous group and thus, deleting any need for external analysis. Statistical analysis was confined to estimating means, variances, and coefficients of variation in various nested patterns of:

- |                           |                              |
|---------------------------|------------------------------|
| 1) schools overall        | 4) play areas overall        |
| 2) schools within regions | 5) play areas within regions |
| 3) each region            | 6) play equipment overall    |

#### Definition of Statistical Terms

Statistical terms used were defined as:<sup>7</sup>

$y$  = single score value

$n$  = number of scores totaled

mean =  $\sum y/n$ ; represents the center of observations

variation =  $[\sum (y - \bar{y})^2]/n - 1$ ; a measure of dispersion around the mean

coefficient of variation(CV) =  $S \times 100/\bar{y}$ ; the standard deviation expressed as a percentage of the mean, compares the amount of variation in populations with different means

$S$  = standard deviation

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<sup>7</sup>Definitions taken from Robert R. Sokal and F. James Rohlf, Introduction to Biostatistics (San Francisco: W.H. Freeman and Co., 1969), pp. 30 - 47.







































































































































