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ABSTRACT

An appendix to a report entitled "Alternative Federal Day Care Strategies for the 1970's," this volume identifies and reviews possible measures of specific impacts of child care in such areas as the social, emotional, physical and intellectual development and the educational attainment of children; the child rearing attitudes and employment status of parents; the income of families; and the cost to the government. The sections of the volume are as follows: 1. Introduction; 2. Measuring the Impacts of Child Care Programs on Children; 3. Measuring Impacts of Parent Participation Programs; and 4. Measuring the Economic Impacts of Day Care on Family and Society. The eight appendixes to the volume are: Discussion of the Measurement of Social Impacts (Impact Assessment Techniques are presented in a table); Tests for Preschool and Kindergarten Children Being Evaluated by the Center for the Study of Evaluation, University of California at Los Angeles; Examples of Impact Measures Used with Children in Day Care Settings (presented in tabular format); Examples of Impact Measures Used with Children in National Studies (in tabular format); An Overview of Child Measures Proposed for Use in ETS-OEO Longitudinal Study (in tabular format); Examples of Impact Measures Used with Children in Small Research Studies (in tabular format); Measurement of the Impact of Parent Participation in Child Care Programs (in tabular format); and References. (For related documents, see PS 005 969, 970, 972-983.) (AL)

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FINAL REPORT: PART II

Measurements of Impacts of Child Care Programs

Volume 3

Approved for
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Director

FOREWORD

This final report is submitted to the Office of Economic Opportunity by the Day Care Policy Studies Group in fulfillment of Contract B00-5121. This report presents the research undertaken by the Day Care Policy Studies Group and does not necessarily represent the policies or positions of the Office of Economic Opportunity.

The final report is presented in two sections; Part I Alternative Federal Day Care Strategies for the 1970's: Summary Report, and Parts II through X, supporting appendices to the summary report. The following separately bound volumes are included:

Parts:	I	Alternative Federal Day Care Strategies of the 1970's: Summary Report
	II	Volume 1 Child Care Programs: Estimation of Impacts and Evaluation of Alternative Federal Strategies
		Volume 2 Appendixes to Child Care Programs: Estimation of Impacts and Evaluation of Alternative Federal Strategies
		Volume 3 Measurements of Impacts of Child Care Programs
	III	Existing Day Care Legislation
	IV	Volume 1 Costs of Day Care
		Volume 2 Appendix to Costs of Day Care: Proceedings of a Workshop
	V	Challenges in Day Care Expansion
	VI	Public Opinion Toward Day Care
	VII	Types of Day Care and Parents' Preferences

VIII Future Trends Affecting Day Care and Preschool Education

IX Volume 1 Training Programs for Child Care Personnel

Volume 2 Appendix to Training Programs for Child Care Personnel

X Volume 1 Day Care: An Annotated Bibliography

Volume 2 Bibliography Supplement for September, October, and November 1971

Volume 3 Bibliography Supplement for December 1971

In addition to this final report and supporting technical appendixes, the Day Care Policy Studies Group has provided the following supporting documents to the Office of Economic Opportunity in fulfillment of this contract.

An Explication of Some Alternative Federal Day Care Strategies for the 70's

Potential Impacts from Child Care

Considerations in the Evaluation of Alternative Funding Mechanisms for Day Care Services

The Effect of Present and Proposed Tax Deductions for Child Care

Emerging Findings and Implications for the Implementation of the Day Care Provisions of H.R.1 and OEO R & D in Day Care

Pending Federal Legislation Pertaining to Day Care

Review of Pending Day Care Legislation

Benefit/Cost Analysis of Day Care Programs Under a Family Assistance Plan

The Public's Opinion of Day Care

Paraprofessionals in Day Care

Some Implications of the Provision of Day Care Services

Day Care: An Annotated Bibliography Monthly Supplements

Questions Relating to the Federal Role in Day Care (Unpublished)

Evidence of Interest by States and Local Governments in Implementing Day Care and Preschool Educational Programs (Unpublished)

PREFACE

The Day Care Policy Studies Group of the Institute for Interdisciplinary Studies is preparing a series of papers to identify and explore the implications of alternative federal strategies for day care and child-development services in the 1970's. This paper, the third in that series, discusses measures that might be used to gauge the potential impacts of child care upon children and their families, and upon our society in general.

The first paper, An Explication of Some Alternative Federal Day Care Strategies for the 70's, described three strategies the federal government might pursue with regard to day care and child-development services. It identified specific program elements, target populations, and program goals. The second paper, Potential Impacts of Child Care, identified and discussed not only the potential desirable impacts of the child care program but its possible undesirable effects as well.

This paper identifies and reviews possible measures of specific impacts of child care in such areas as the social, emotional, physical and intellectual development and the educational attainment of children; the child-rearing attitudes and employment status of parents; the income of families; and the cost to the government. A later paper will evaluate research evidence of the actual magnitude of the impacts that are estimated by some of the measures identified here. The impacts and measures suggested in this and previous papers may be refined and revised in light of these subsequent findings.

MEASUREMENTS OF IMPACTS OF CHILD CARE PROGRAMS

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CONTENTS (cont'd)

1.0 INTRODUCTION

Proposed federal involvement in child care has two possible objectives: One is child-centered, "to assure that every child has a fair opportunity to reach his full potential."* The other is employment-centered, to make training and employment possible for parents who could not otherwise find care for their children during working hours.

The desired and expected impacts of child care programs upon children, their parents, and the larger society differ according to which of these two approaches is followed. No matter which approach is followed, however, empirical measurement of both immediate and long-range impacts will be needed to determine validly how well child care programs effect their expected impacts. This paper reviews currently and potentially available techniques and instruments for making these measurements.

This paper focuses its attention on whether or not appropriate measures and methods of assessment are available. It follows an earlier report, which listed potential impacts of child care. The intent of both papers is to facilitate the later estimation of the direction and magnitude of impacts from child care. The collection of measures considered here is not exhaustive, but it is indicative of the range of instruments available.

The Day care Policy Studies Group is concerned with the impact of child care on a national level, rather than in a particular

*Walter F. Mondale. Congressional Record, August 6, 1971, Vol. 117, No. 49, E2746.

setting or for an individual child. Measurement techniques--tests, interviews, etc.--that may be appropriate for the measurement of impacts on a particular child or in a particular classroom may not be appropriate as measures of impacts on a national level. (See Appendix A for further discussion of the measurement of social impacts.)

The first section of this report reviews measures that are available for use with children; the following section reviews measures of social impacts on parents; and the last section reviews measures of economic impacts on both families and society. These sections also assess the adequacy of the measures through the review of their previous use and the consideration of their underlying assumptions; and they discuss areas where further development of measures is necessary.

As discussed in the previous report (Potential Impacts of Child Care) impacts vary by type--social, economic, etc.--by who or what they affect--the child, the family, or society--by whether they have long or short range, and by whether their effects are direct or indirect. Measurement techniques may have to vary to measure these impacts reliably. Some of the various types are briefly discussed below:

Social - Economic

The measurements of social and of economic impacts are treated in separate sections of this report; however, certain social and economic impacts are not independent of each other. For these, as for all others, the availability of appropriate measures varies with the area of impact. For example, more adequate measures are available for assessing economic impacts than for assessing those impacts expected from parents' participation in policy decisions with regard to day care programs.

Child - Family - Society

Measurements are discussed separately for children; for the family or parents; and for the community, the society, or the government. (The term "community" refers to the immediate community in which the child care program is located; "society" refers to the social organization of the United States; "government" refers mainly to federal government.)

Immediate - Long-range

Impacts can occur immediately, after a year or so, or up to 20 years in the future. The distinction between immediate and long-range impacts is important in considering both the economic impacts and the social effects, which may occur years after a child received some particular child care services.

Direct - Indirect

Although the direct-indirect categorization is not used explicity in this report, the distinction is implicit in the report's approach. For example, some of the long-range economic impacts are expected to be the indirect result of some social impacts. The long-range impact of better economic return in terms of a child's increased lifetime earnings may be the indirect effect of increased intellectual development and improved learning skills, which may be the direct results of child care services. Similarly, changes in a child's attitudes toward school and learning may be the indirect result of a change in parental attitudes and knowledge that is the direct impact of a child care program. It can be seen, then, that impacts within each area are not mutually exclusive; for this reason specific measures may assess impacts from different causes. For instance, measures of changes in children's attitudes towards school or learning may reflect changes in parental attitudes, changes in children's self-confidence, changes in the knowledge children have gained, or all of these.

2.0 MEASURING THE IMPACTS OF CHILD CARE PROGRAMS ON CHILDREN

An important goal of most current and planned child care services is that they have some significant impact on children's development. It is therefore essential that such services have adequate measures to determine if their programs do indeed have an impact in the areas of development toward which they are directed. This section discusses the measurement of impacts on children in the areas listed in Figure 1. Since the relative importance of each area of impact -- intellectual, social/emotional and physical development -- is valued differently by different people, it is necessary to have measures available in all areas of possible impact. These areas of development are not necessarily independent, but they have been separated here to facilitate discussion of measurement techniques. Therefore, the areas listed in Figure 1 cover the range of potential impacts from various child care arrangements; no single arrangement would have impacts in all of these areas.

A summary of measures available for use with children is presented in Table 1. Measures for use with children are both content- and age-specific; few measures are appropriate for use over the entire span of childhood. Also, some of the measures may be used for assessing either immediate or long-term impacts, depending on the age of the child and when the measurement was taken. Measures for use with young school-aged children could, for example, assess immediate outcomes from before and after school care or could be used in determining the long-range impacts for children who had been in programs during infancy or preschool years.

Impacts upon children may be assessed in two ways: directly, with information obtained from the children; and indirectly, through reports from other persons. Indirect sources of information about

POSSIBLE AREAS OF THE IMPACT OF CHILD CARE PROGRAMS ON CHILDREN

1. Intellectual Development and Educational Achievement
   - General intellectual ability
   - Language and speech development
   - Achievement
     -- Reading
     -- Language arts
     -- Mathematics
     -- Science
     -- Social Studies
     -- General Information
   - Attitudes toward learning and achievement
     -- Achievement motivation
     -- Interest in school
     -- Interest in learning
     -- Work habits
     -- Attention span
   - Cognitive style and other qualities
     -- Creativity
     -- Flexibility
     -- Resourcefulness
     -- Autonomy-Independence
     -- Curiosity

2. Social and Emotional Development
   - Self-concept
   - Emotional attitudes and behaviors
   - Social interactions (with persons outside the immediate family)
   - Social skills

3. Physical Growth and Development
   - Safety and well-being
   - Perceptual-motor development
     -- Visual
     -- Hearing
   - Nutritional status and physical development
   - Medical condition
   - Dental condition

Figure 1

children are usually parents or teachers. Such indirect methods can provide useful information about others' perceptions of such impacts; but unless there is also a direct measure of the impacts on those involved, it is questionable how much these perceptions reveal actual impacts. For these reasons, this report has concentrated on direct measures.

Since very young children are unable to read or write, measures for children under school age are administered individually or are based on observations of the children. Group pencil-and-paper tests are generally used with school children who are cooperative, able to follow directions, and have the necessary reading and writing skills to give adequate and accurate information. Only rarely are individual measures used with older children.

In evaluating the quality of available impact measures, both technical and practical factors must be considered. Validity, reliability, and standardization procedures are the technical considerations. Ease of administration and interpretation of results are practical issues. A discussion of other considerations in the measurements of social impacts is included in Appendix A.

2.1 Measuring Intellectual Development and Educational Attainment

General Intellectual Ability

Measures of intelligence provide information about the level of intellectual functioning at the time of the test. Intelligence tests attempt to sample the organization, recall, and utilization of information in both verbal and performance situations. Such tasks as copying block designs, completing mazes, labeling pictures, identifying objects, comprehending and using language, recalling general information, and responding to problem situations are included on most intelligence tests. Infants tests involve more motor activities and include the reactions of the child to the tester. For some measures scores may be obtained for content area subtests and for a total "IQ".

A skilled tester is necessary to administer, score, and interpret individual measures of intelligence, which are given in private with only tester and child present. For older children, group measures may be obtained in a classroom setting and require no special skills to administer. Both individual and group measures take approximately 45 minutes to one hour for the testing session.

The measures most often used with infants and toddlers are the Bayley Infant Scales of Development and the Cattell Infant Scale. For preschool and early elementary children, the Stanford-Binet Intelligence Scale, Wechsler Preschool and Primary Scale of Intelligence, Illinois Test of Psycholinguistic Abilities, and Peabody Picture Vocabulary Test are frequently used. With the exception of the Stanford-Binet, all of the measures for the preschool children have been developed within the last 10 years. The Illinois Test of Psycholinguistic Abilities and the Peabody Picture Vocabulary Test rely heavily on language and may be better suited as for language assessment than for an overall intelligence measure.

In a 1965 survey of treatment agencies, research centers, individual clinicians and researchers, 51 different measures of intelligence were being used with infants and preschool children (Stott & Ball, 1965). Ninety percent of those surveyed, however, used the Stanford-Binet Intelligence Scale. Other measures most frequently used were Goodenough Draw-A-Man, Wechsler Intelligence Scale, Gesell Schedule, Bayley Infant Scales, Cattell Infant Scale, Ammons Picture Vocabulary, and the Merrill-Palmer Scale of Mental Tests.

Group intelligence tests such as the California Test of Mental Maturity and Kuhlmann-Anderson Measure of Academic Potential

are used with older children. The Stanford-Binet and Wechsler are also the preferred individual measures for school-aged children.

There is some agreement among researchers about their preferences among the available instruments, but they also agree that there is a need for more adequate measures. For example, serious questions have been raised about the appropriateness of the content of intelligence measures and the advisability of their use with different child population. With the exception of the Illinois Test of Psycholinguistic Abilities, most measures of intelligence have been standardized primarily with children from middle-class backgrounds. Generally, at least for older children, competence in standard English is necessary both for understanding and responding to the test items. Also, the items on these tests refer to information or objects that may be more familiar to middle-class children than to children from other social strata. Poor validity, inadequate or difficult to use manuals, insufficient diagnostic precision, cultural obsolescence, over-subjectivity, and lack of theoretical rationale are other criticisms of existing measures of mental ability.

Language and Speech Development

A variety of aspects of language can be measured, although not as adequately as is desirable. For preschool children, Cazdon (1971) has grouped available measures into six categories:

1. Intelligence tests:
   - Wechsler Preschool and Primary Scale of Intelligence, verbal subtest
2. General language tests:
   - Illinois Test of Psycholinguistic Abilities

- Cooperative Preschool
- The Basic Concept Inventory

3. Vocabulary Tests:
   - Peabody Picture Vocabulary Test (alternate form available)
   - Primary Mental Abilities, verbal meaning subtest
4. Language use tests:
   - Torrance Test of Creative Thinking, thinking creatively with words (alternate form available)
5. Speech Sound tests:
   - Goldman-Fristoe Test of Articulation
   - Wepman Auditory Discrimination Test (alternate form available)
6. Reading readiness tests (additional tests can be found in Bond and Tinker [1967]):
   - Clymer-Barrett Prereading Battery (alternate form available)
   - Gates-MacGinite Readiness Skills Test

With the exception of the Illinois Test of Psycholinguistic Abilities and the Torrance Tests of Creative Thinking, the measures above require between 15 and 30 minutes for administration. A trained tester is also necessary for the administration of most of these measures.

The Illinois Test of Psycholinguistic Abilities (ITPA) and the Peabody Picture Vocabulary Test (PPVT) are two of the most frequently used measures of language skills with young children. The ITPA has been used as a diagnostic instrument with disadvantaged preschool children. It is composed of 12 subtests

designed to assess children's understanding and expression of meaningful symbols, ability to relate visual and auditory symbols in a meaningful way, self-expression in words or gestures, and long-term retention of sequences of symbols. Scores are given in language ages for each subtest, and are also combined into a total score.

The language skills of older children can be more readily analyzed according to components. Moore and Kennedy (1971) listed 20 aspects of language content or skill under the broad headings, nature, structure, vocabulary, listening, speaking, reading, writing, and literature. Each of these categories can be further studied according to the knowledge, comprehension, analysis, application, evaluation, attitudes, reception, and participation of the subject.

Language subtests of the following general achievement measures have been used with school-aged children: the SRA Achievement Series, Metropolitan Achievement Tests, Stanford Achievement Test, and the Iowa Every-Pupil Tests of Basic Skills. Three other measures developed primarily for assessing language are also available: California Language Test, Sequential Tests of Educational Progress, and a writing measure by the Educational Testing Service. These measures focus on language skills, but they tend to test specific skills in isolation; measures are needed that adequately reveal contemporary, integrated language.

Achievement

Achievement tests assess a student's retention and understanding of content and skills. The form, content, and interpretation of such tests depend on the area being evaluated. For older children there are subject matter tests and standardized measures. Among the most frequently used are the Stanford

Achievement Test, the California Achievement Tests, Iowa Tests of Educational Development, Iowa Test of Basic Skills, and the Metropolitan Achievement Tests. These cover general skills--paragraph meaning, arithmetic computation, language--as well as information, such as social studies and science. The results of these achievement measures for school-age children are often reported in terms of grade level and month for an average child (i.e., fourth grade, third month, reading level).

Achievement tests for preschool children measure specific skills, such as recognition and identification of shapes, colors, numbers, or letters--as, for example, does the Metropolitan Reading Readiness Test, which involves minimal letter and number recognition. Two measures have been developed recently to assess preschool children's accomplishments, the Preschool Inventory and the Basic Concept Inventory. The Preschool Inventory covers personal-social responsiveness, associative vocabulary, numerical concept activation, and sensory concept activation. The Basic Concept Inventory is a brief checklist of basic concepts involved in new learning situations in the first grade. To be most effective, the checklist should be used in conjunction with other measures. Two other tests for young children are under development, the Test of Basic Information and the Preschool Academic Skills Test (Kamii, 1971).

There are, however, no adequate measures of preschool achievement comparable to achievement measures for school-aged children. Because of this, some researchers have used measures of intelligence as a substitute for achievement information. In 1971, Kamii advocated the use of an exploratory or clinical method, which may well yield more useful information; but a great deal of development and training of personnel is necessary before such an approach is feasible.

Achievement measures have been subjected to some of the same criticism as intelligence tests: They rely on standard English; test items are not always relevant for all cultural groups; and their content is limited to standard school subjects. Other criticisms involve the general approach of such tests. Assessment is directed toward separate, specific subject areas. Test items are usually composed of a series of unrelated factual questions. Yet many people consider the essence of a discipline to be the ability to integrate and to use information creatively, as well as accurately.

A number of programs throughout the country have been reviewing and developing new measures for assessing educational knowledge. The Institute for Developmental Studies, New York University, has published a manual of tests used in its research. Most of these tests are concerned with language, communication skills and patterns, and relationships among sensory modalities of preschool through elementary school children. The Center for the Study of Evaluation, UCLA Graduate School of Education (Hoepfner et al., 1970), has published a compendium of tests keyed to the educational objectives of elementary schools. In it over 1,000 output measures were evaluated on the basis of measurement validity, appropriateness, administrative usability, and normed technical excellence.

The Center for the Study of Evaluation is in the process of evaluating approximately 150 measures for use with preschool and elementary children along the same dimensions. The specific measures under review are listed in Appendix B.

Attitudes toward Learning and Achievement

Children's attitudes toward learning and their intellectual and occupational aspirations contribute to their motivation for

achievement. Achievement motivation, and attitudes and behaviors related to success in school, are frequently assessed by teacher or tester by rating each child's behavior in achievement settings or having the child indicate what he enjoys or dislikes about school or specific subjects. Other tasks for assessing achievement behavior have been developed for specific research projects; for example, children may be asked to estimate the number or level of tasks at which they can succeed. However, no adequately standardized measures of these attributes are available for immediate use.

More general indicators of the impact of child care on educational attainment and achievement behavior are changes in school enrollment and attendance, changes in reading and other achievement levels in comparison with national norms, changes in the need for remedial educational programs, and the number of students repeating grades. Over the years, changes in the number of school drop-outs, in the portion of students entering and completing educational programs beyond high school, and in the educational level of the population could also be used as indicators of long-term impact.

Cognitive Style and Other Qualities

Adequate measures of cognitive style, creativity, flexibility, and other such qualities are not generally available. A variety of measures have been attempted, but none have been perfected to a degree that would make them useful on a large scale.

2.2 Measuring Social and Emotional Development

The area of emotional and social development comprises attitudes toward self and others, personality characteristics, and the quality of interactions with others. These variables have been

assessed with a wider range of instruments and techniques than have been used for intellectual development and educational attainment. Unfortunately, few standardized measures are available--although there are some promising instruments under development.

Self-Concept

A person's self-concept involves his expectations for his own behavior and his self-judgments of how well he is meeting these goals. Self-concepts have been measured in a variety of ways, but there are few standardized measures; researchers frequently develop new measures to fit their specific interests. Nearly all researchers express dissatisfaction with their measures and indicate the need for better ones.

The assessment of a child's self-concept is based on evaluative statements about the abilities, skills, and perceptions the child attributes to himself. The measures may be direct statements or indirect inferences, which the tester attributes to the child's projection of himself. For a direct measure, the child may be asked, "What kinds of things are you good at?" or "Which sentence do you think best describes you?" The Brown It Test, a measure of sex-role identification, is an example of an indirect measure. The child is shown pictures of two different items such as a hammer and nails, and a doll. The child is then asked to choose which "It" he would like to play with. The assumption is made that the child will select the items he himself would most like to play with, thus indirectly revealing his attitudes about himself. Most measures of self-concept available are for children of school age.

Emotional Attitudes and Behavior, Social Interactions, and Social Skills

Observations, ratings, and interviews are the techniques more frequently employed for measuring attitudes, feelings, and social skills. Information about children's use of materials, communication patterns, social interactions, and emotions such as anger, sympathy, aggression, dependency, and cooperation, have been obtained through observation and through the use of some projective techniques.

Numerous observation instruments are available. Mirrors for Behavior: An Anthology of Observation Instruments II, published by Research for Better Schools, Inc., Philadelphia, reviews 79 instruments used for describing communication in a variety of settings, both in and out of classrooms. The instruments have been used in observations of teachers, pupils, teacher-pupil interactions, small groups, family dyads, counselors or therapists with patients, and administrators or supervisors with employees.

The instruments have been grouped into seven major classes dealing with affect, cognition, psychomotor development, activity, content, sociological structure, and physical environment. (The following information is given for each instrument: purpose, subject of observations, settings in which system was used, number of subjects observed, uses reported by author, date of collection, coding methods and personnel, category dimensions of the system, and coding units.)

The anthology primarily contains systems suitable for use with school-aged children and adults; only two of the 79 instruments reviewed had been used with preschool children. Twelve additional systems that had been used with infants and young children were listed but not reviewed. However, none of the

systems reported for young children have been used in day care settings. The systems tend to focus on the individual child, his social contacts, and his use of materials. Observational systems more recently developed are concerned with verbal behaviors and the transmission of information and tend to focus more on the teacher or teacher-pupil interaction.

One additional observation scale, A Procedure for Patterning Responses of Adults and Children (APPROACH) developed by Caldwell and Honig (no date) is a comprehensive scale that utilizes a numerical language coding system. It focuses on the behavior of a single individual and can be used easily in a variety of social situations, home, or group settings. "Every discriminable act of molar behavior emitted by the subject and every discernable stimulus directed toward him or emitted in his immediate vicinity" is recorded on a portable tape recorder by the observer in the immediate area (Caldwell and Honig, page 2).

One other indicator of social impacts on children is immediate improvement in the quality of life for the children. They may be happier, enjoy the program, and have some pleasant experiences they otherwise might not have encountered.

Other general indicators of social impacts are measures of anti-social behavior--juvenile delinquency, running away from home--available from law enforcement agencies, and changes in the use of mental health services. Again, these may reflect long range as well as immediate impacts.

2.3 Measuring Physical Growth and Development

A variety of measures of physical growth and development are available. Several of these measures have been used in evaluating the health status of the nation.

Safety and Well-Being

Information about children's safety and general well-being can be obtained from accident and death rates. The National Center for Health Statistics collects data from nationwide samples on the number of restricted activity days, number of disability days, and the degree of disability for children from birth to 16 years. Information is also collected for medical care (hospital episodes and visits to physicians), accidents, and injuries. Infant mortality, disease rates, and life expectancies for different populations are available and could be used in determining both immediate and long term impacts.

Perceptual-Motor Development

Many of the tasks included on the infant measures of development involve perceptual-motor skills. These measures are discussed in section 2.2, "Intellectual Development and Educational Achievement". Two instruments sometimes used with older children are the Frostig Test of Visual Perception and the Purdue Perceptual-Motor Survey. Portions of the Frostig may be used with younger children but children must be able to write in order to respond to the Purdue Survey. Both tests must be administered by a trained tester. A measure of perceptual-motor ability for use with preschool children is under development (Meyer, et al., no date). It involves selected measures from the Purdue Survey and can be given by persons after a few hours of training.

The presence of gross visual or auditory disabilities can be determined through screening procedures. More comprehensive examinations may be given by audiometrists and optometrists. Several of other measures of sensory perception have been developed and are being tested (Johnson and Bommarito, 1971).

Nutritional Status and Physical Development, Medical and Dental Condition

Nutritional status and physical development are determined through the use of three different techniques: physical measures, biochemical analyses, and psychological signs.

Some indicators of the general health of a group are height and weight, disease and mortality rates, and attendance records. Nutritional status may be assessed through the analyses of blood samples and urine specimens, condition of skin and hair, gait, and general responsiveness of child. Other measures of general physical health and condition of teeth can be obtained through screening examination. Detailed physical and dental examinations are given by physicians and dentists. Since this requires special equipment, either children must be transported to an office or fully equipped mobile units, which are expensive, must be provided.

Impacts from physical, dental, and nutritional services may be assessed through measures of children's behavior, such as their attention spans, activity levels, and responsiveness. However, much more information still is needed about the appropriate behavior indices of physical status. There has been a tendency in the areas of physical growth and development to list services rendered (the number of examinations given, the number of meals served and their nutritional content, the number of referrals, the number of cavities found), but to supply little information on the behavioral measures of these services.

2.4 Measuring Impacts on Children in Day Care Settings

There have been only limited studies that measure the impact on children in day care settings. Most are recent efforts,

several are still in progress. Information has been obtained for infants through school-aged children in group care in 14 separate studies (see Appendix C). No systematic information is available for family day care settings, although one investigator proposed an extension to include a comparison with family day care (Keister, 1970). There are no assessments of before and after school care nor for summer day care programs for school-aged children. However, two investigations currently underway (Frank Porter Graham Child Development Center and Syracuse Children's Center) are longitudinal and will eventually include information about older children.

Many impacts from day care programs can be evaluated with current measures; but assessment of other potential impacts resulting from child care arrangements--changes in relationships with parents, siblings and peers, expression of strong emotions, effects of limited privacy, and a child's sense of individual identity--are not available. Such measures are needed before the impacts of day care arrangements on children can be adequately evaluated.

2.5 Evaluations of Other Programs

Since relatively few completed studies of day care are available, and since those that are have dealt with a limited range of outputs as well as a limited number of children, this paper reviews measures that have been used for other programs. Because the assessment of impacts from federally funded child care provisions would probably involve programs throughout the country, studies that measured impacts on a national scale were chosen for review (see Appendix D). Many of the measures used in these studies, even for the assessment of intellectual

development, were developed specifically for the evaluations that used them. Instruments were developed to assess specific information learned by preschoolers, as well as achievement motivation, self-concepts, and social behaviors.

The three most extensive studies using national samples are still in progress. Evaluations of the Head Start, Planned Variation, and Follow Through programs are being carried out by Stanford Research Institute. The Educational Testing Service is conducting a longitudinal study of disadvantaged children and their first school experiences using over 90 measures covering 13 general areas: reasoning and analytic styles, attention, learning, memory, attitudes, interests, control mechanisms, creativity, general knowledge, general personality, perception, physical development, Piagetian tasks, quantitative skills, social motives, and verbal skills (Appendix E).

For each measure, the ETS-OEO publication includes the following information: the age of children to be measured, variables to be measured, the data collection method, the estimated administration time, a brief statement of procedure, minimum requirements for administrators-observers supporting statements, and references. The results from these extensive evaluations should provide helpful information about the usefulness of the measures. Initial reports for all three studies are expected in September, 1971.

Measures have also been used in a number of smaller studies (Appendix F). These illustrate the range and variety of measures in use; they by no means represent the supply of measures available. Many measures currently in use by researchers in small projects could be used to further improve measurement instruments and techniques.

Information about other measures is also available. A series of books edited by Oscar Buros, Tests in Print and the Mental Measurements Yearbooks, contain comprehensive information and reviews of available measures. The latest edition of these is 1965, however, and many measures have been developed since then. Tests and Measurements in Child Development: A Handbook, 1971, lists over 300 unpublished tests and measures, giving information about authors, titles, descriptions, variable measures, data on norms, validity, reliability, and how to obtain the measures. Additional information about specific measures is usually available from the authors and/or publishers. New measures are frequently published in educational and psychological journals.

2.6 Summary

This review reveals two serious limitations in the measures currently available: (a) the limited range of standardized instruments and (b) the orientation of these measures toward comparison of individuals rather than toward measuring changes in the same individual over time.

Measures of intelligence and educational attainments in school subjects are probably the most technically sound instruments. However, these measures rely heavily on middle class orientations, English language facility, and traditional educational content. There are needs for existing measures, where appropriate, to be standardized with different populations and for the development of additional measures. Adequate measures are also badly needed for other areas, especially for attitudes, social skills, self-concepts, and perceptions of control. The assessment of curiosity

is a clear example of the need for additional instruments. The Cincinnati Autonomy Test Battery includes a task for assessing a child's level of curiosity; the task involves a three-dimensional, wooden box with intriguing characteristics for the child to explore. However, there is only one of these items, and once it has been used with a particular child, it is no longer novel, and there is no comparable instrument for measuring a change in the child's curiosity from one time to another.

Current measures focus on the product rather than the process. They measure whether or not a child does or knows some particular thing, not how or what resources he used to arrive at his conclusion. If changes in process are among expected outcomes from child care, then appropriate measures must be developed. One researcher, Kamii (1971), has suggested a number of process-oriented measures based on Piagetian principles of intellectual development.

With the possible exception of achievement measures, in the past measures were developed and used primarily for single assessments, such as the diagnosis of abnormal behavior or for prediction of future attainment. They were not used for measuring changes in an individual's behavior. Measures need to be developed or adapted for accurate assessment of changes in individuals.

In addition, few of the available measures have been used for assessing impacts from day care. Although many of the existing measures may be applicable in some way to child care, there is a great need for the development of measures of impacts that are, perhaps, unique to day care, such as family interaction, consequences of restricted privacy (aggression, passivity), and strong emotions.

TABLE 1: SUMMARY OF MEASURES AVAILABLE FOR USE WITH CHILDREN

Area of Development	Availability of Measures	Comment
INTELLECTUAL DEVELOPMENT EDUCATIONAL ACHIEVEMENT		
• General intellectual ability	Standardized measures available	Middle class oriented; Need for wider variety
• Language and speech development	Measures available	
• Knowledge of specific information -- Reading -- Language arts -- Mathematics -- Science -- Social studies -- General information	Measures available in all areas for school aged children; Limited measures available for preschool children	Need for more topic-integrated measures Need for measures for preschoolers
• Attitudes toward learning and achievement -- Achievement motivation -- Interest in school -- Interest in learning -- Work habits -- Attention span	Experimental measures available	Need for further development and standardization
• Cognitive style, other qualities -- Creativity -- Flexibility -- Resourcefulness -- Autonomy - Independence -- Curiosity	Limited number of experimental measures	Need for further development of measures in all areas

Table 1

SOCIAL AND EMOTIONAL DEVELOPMENT		
• Self-concept • Emotional attitudes and behaviors • Social interactions • Other social skills	Variety of experimental measures available for all these areas; not standardized	Need for further development of measures, standardization
PHYSICAL GROWTH AND DEVELOPMENT		
• Safety and well-being • Perceptual-motor development: -- Vision -- Hearing • Nutrition • Medical condition • Dental condition	Measure available for all these	Expensive to collect information Need for less costly but accurate assessments

3.0 MEASURING IMPACTS OF PARENT PARTICIPATION PROGRAMS

Parents become involved in child care programs to enhance the benefits of such programs to their children and to improve the quality of their own lives. The impacts of their involvement may be assessed directly, through measures on the children and/or the parents (or impacts on the child care program itself--which, presumably, would lead to benefits to children or parents), or indirectly, through changes in the social institutions that presumably reflect changes in the quality of the lives of the families involved. The measures for children were reviewed in the preceding section. This section reviews measures for assessing parental beliefs and behaviors, parent participation itself and its effects on child care programs, and changes in the community or larger society.

Most of the measures discussed here can be used to assess the impacts of a variety of programs. (For example, a measure of maternal teaching styles or maternal self-concepts might be used to assess changes due to employment in a day care program, a parent education program, or policy participation.) Of course, all programs will not have impacts in all areas. However, all the parent, program, and community characteristics that might be affected by parent participation in child care programs are discussed in this section (outlined in Figure 2).

Measures of the impacts of parent participation programs are frequently constructed for particular studies. Often the measures of the impacts of such programs on parents are less thoroughly

PARENT, PROGRAM, AND COMMUNITY CHARACTERISTICS

1. Parents

   - Cognitive characteristics
     -- Concept utilization
     -- Language usage
     -- Teaching style
     -- Decision-making and management skills
     -- Knowledge of community policy-making structure
     -- Awareness of community resources

   - Affective characteristics
     -- Attitudes toward child rearing
     -- Child-rearing practices
     -- Self esteem
     -- Autonomy
     -- Sense of personal effectiveness
     -- Aspirations for self and children
     -- Attitudes toward societal institutions

2. Parent participation

   - Extent of parent involvement

3. Parent participation and its effects on child care programs

   - Quality of services
   - Flexibility of services, responsiveness to clients' needs
   - Extent of cultural continuity between home and program

4. The community and the program

   - Antisocial behavior: adult crime, juvenile delinquency, family disintegration
   - Extent of minority, poor involvement in community
   - Extent to which community institutions meet the needs of all community members

Figure 2

tested than the instruments used to assess the impacts on children. Although few of the measures included in this section have been used in day care settings, all of them have been used with parents of preschool or elementary children.

Table 2, "Summary of Measures Available For Use With Parents," gives a summary of the information in this section including available measures, measures needed but not available, and advantages and disadvantages of existing measures. To provide an overview of measures frequently used, each measure is listed individually in Appendix G, "Measurement of the Impacts of Parent Participation in Child Care Programs." This appendix also contains information about the studies in which the measures were developed or used.

3.1 The Parents

Parental characteristics are grouped here into cognitive and affective categories. Each category includes the characteristics of the parent both as an individual adult and in his relationship with his child.

Measuring Parents' Cognitive Characteristics

Those cognitive characteristics of parents that are usually considered important to their children's cognitive development are concept utilization, language, and teaching style. (Specific measures are listed in Appendix G.) Concept utilization has been measured by asking mothers to sort pictures into categories, then to explain the basis for the groupings. The principal for categorization is then rated according to the degree to which it employs abstract principles or concrete cues. The use of abstract principals is assumed to reflect a parent's ability to consider alternative solutions and to analyze a visual stimulus into

component parts. This, in turn, is assumed to affect the development of reflective attitudes by children (Hess and Shipman, 1965; Boger, 1969).

Mothers' language has been measured in the laboratory both in teaching and storytelling situations. Parents' language in these situations is considered indicative of the language used in mother-child interactions. The mother is asked to improvise a story based on stimuli in the form of picture cards or verbal cues. Language is analyzed according to such criteria as content, abstractions, mean sentence length, adjective range, adverb range, verb elaboration, complex verb preferences, and syntactic structure elaboration (Hess and Shipman; Swift, 1968; Boger, 1969). The major assumption underlying the use of this measure is that children's language development is strongly influenced by their mothers' use of language. Two additional assumptions are basic to the use of this measure: First, that the language used in the test situation is a good example of the language used normally by the parent; and second, that the criteria for rating stories are relevant to the "quality" of language. The first assumption is open to question. A laboratory testing situation may make mothers feel ill-at-ease and thus affect both the amount of language they use and its expressive range. Parents who are not accustomed to telling children's stories may have difficulty in constructing them in test-like settings. In addition to the situational constraints, the choice of the activity of storytelling as a measure may have disadvantages. A parent might communicate fully and provide adequate language stimulation to the child without using fictional stories.

The choice of criteria for rating language used in the stories is based on the assumption that the use of long, complex, and

grammatically complete sentences is effective language use. However, recent research suggests that the use of such dimensions may not be adequate for the description and measurement of the language of the lower socioeconomic class of culturally different minorities. The work of Labov (1968) suggests that low income black and bilingual families may be highly verbal and use complex speech patterns, although these patterns may be different than those used by the middle class.

In studies to date, maternal teaching styles have been measured by asking mothers to teach their children a simple task, such as sorting a small number of toys. Teaching styles are rated for the clarity and amount of explicit instructions, the amount of non-verbal instruction, and the mother's ability to plan ahead and direct her child's attention to the consequences of his choices (Hess and Shipman, 1965; Boger, 1969). It is assumed that concrete rather than abstract thinking, frequent use of non-verbal communications, and inability to plan for the future correlate with poor academic achievement in disadvantaged children.

Little or no attempt has been made to measure the potential cognitive effects of parent programs except for those directly involved with child-rearing. Conventional adult intelligence tests are sometimes used in research on parent programs, but not as outcome measures.

Skills in management and problem solving, and information about community resources or the community policy-making structures are all potential cognitive impacts on parents from their participation in child care programs. Measures could be devised for specific cognitive changes, including growth in practical knowledge. For example, observer ratings of parent groups might be a way of measuring the change in parents' managing, decision-

making, and problem-solving skills. Questionnaires could be used to assess changes in substantive knowledge.

One attempt to measure parents' knowledge of community resources has been found. The Parent Involvement Interview Schedule, devised by the Early Childhood Education Learning System (1969) for their study of a preschool program for migrant children, asks a single question: "How are people helped who are in need of food, clothing, or other things?"

Measuring Parents' Affective Characteristics (Parental Attitudes and Child-Rearing Behavior)

There are numerous measures of parents' attitudes and practices in child-rearing. Such measures take a variety of forms and assess a wide spectrum of behaviors and attitudes (Table 2). Specific measures are listed in Appendix G. Although the first measures of parent attitudes were developed using mainly middle-class, white subjects, they were influential in the development of later measures for use with the disadvantaged. Two important early measures were questionnaire type instruments, Shoben's Parent Attitude Survey (1949) and the Parent Attitude Research Instrument (PARI) (Schaeffer et al., 1958). Both questionnaires consist of a set of items in the form of statements of opinion, with which the respondent is asked to indicate the strength of his agreement or disagreement. The validity of each scale is based on its ability to discriminate between mothers of normal and "problem" children--children who had been in trouble with the law or had needed clinical help. There are scales for Punishment, Tenderness, Autonomy, Infantilization, Comradeship, Martyrdom, Expression of Affection, and Rejection of the Homemaker Role.

Another important early measure was a set of scales for use in observing families in their homes, the Fels Parent Behavior Rating Scale (Baldwin et al., 1949). The Fels scale measures approximately the same range of parent characteristics as the Shoben scale and the PARI, but uses a different method. Raters observe the same families at regular intervals for several hours at a time. The rater assesses the family's interaction on thirty scales along three dimensions: warmth (acceptance, approval, and affection), intellectual objectivity (readiness of explanation, justification of policy, and understanding), and control (restrictiveness of regulations, coerciveness, and interference).

The choice of variables to be included in the above three measures is based on the concept of "good parenthood." The validity claimed for the Shoben scale is the extent to which trained clinicians agreed on the responses of an "ideal" parent. The outcome of ideal parenthood in terms of child behavior had not been defined, except that the Shoben scale and the PARI could discriminate between parents of normal and those of deviant children. Thus the operational definition of "good parenthood" was that it produced children who did not come into conflict with the law or into contact with mental health clinics.

Later studies attempted to relate specific parent variables with specific kinds of child behavior in the preschool or elementary school years. Brody (1968) found no relationship between parents' attitudes measured by the PARI and observers' ratings of children's behavior in a play session with their mothers. Chance (1968), however, found a relationship between parents' concern with control when measured on the PARI and children's need achievement. Children's

belief in personal control (Katkovsky et al., 1965) was related to warm and praising parental behavior measured on the Fels scales. Chance also used another instrument, the Maternal Attitudes Toward Independence Training Questionnaire (MAIT), to predict children's need achievement and achievement behavior. This instrument, developed by Winterbottom (1958), requires parents to respond to descriptions of concrete behaviors instead of abstract generalizations.

The preceding measures apply to middle-class parents. More recently, measures that attempt to measure change brought about by social programs have been developed for use with families from disadvantaged backgrounds. Several of these measures focus on the assessment of a person's belief in his ability to influence his environment and to affect those things that happen to him. This interest is based on a set of assumptions about the relationship of attitudes, particularly "hopelessness" and "powerlessness," to poverty and cultural disadvantage. The assumptions might be stated as follows: The consequences of a sense of personal powerlessness are (a) lack of belief in the effectiveness of one's own actions, resulting in (b) lowered self-esteem and (c) lowered expectations and hopes for one's own future. Beliefs about oneself are projected into generalizations such as (a) a belief that there is no correspondence between personal effort and rewards and (b) a belief that social and natural forces are capricious--that "luck" or "destiny" determine what happens to people. Hopelessness about oneself, projected into pessimistic generalization about the world, affects one's relations with societal institutions.

The primary reason for interest in this complex of attitudes toward oneself and the world is the presumed effect, direct or indirect, that it has upon children. Parents' explicit attitudes

about themselves--low self-esteem, low sense of autonomy--can directly affect their child through that child's natural imitation of and identification with them. A child may also adopt beliefs indirectly, through interaction with his parents. In addition, the parents' generalized beliefs about the capriciousness of fate, the importance of luck, and the futility of human effort may become translated into specific expectations for their children. One theory is that parents' expectations for their child's achievement will become a self-fulfilling prophecy. The parents will restrict the child's independence and achievement or will fail to reward him for it because such behavior conflicts with their own, low expectations. Another theory suggests that parents' attitudes affect their cognitive processes and, hence, their ability to communicate with and teach their children.

It follows from the cause and effect relationship that is assumed to underly the variables described above that the variables are assumed to correlate highly with one another. Thus, the assumption is, measurement of one link in the chain should give information about the chain as a whole. For this reason, attitudinal changes resulting from a program for parents are sometimes measured alone, with the assumption that corresponding outcomes for children can be expected. On the other hand, sometimes a program that focuses mainly on mothers will use only measures of children as outcome measures, assuming that the changes in children are indicative of the success of the program for mothers. Frequently, the more abstract kinds of attitudes are measured with the underlying assumption that parent-child interaction--and consequent effects on children's attitudes and behavior--will follow. Some measures attempt to touch on most or all of the links in the cause-effect chain.

One example of the measures of belief in control of one's environment is the Attitude Differences Related to Economic Status Scale (ADRES) (Hanson, 1968). It combines items from a number of instruments previously developed to measure variables related to powerlessness, meaninglessness, hopelessness, aloneness, and self-estrangement, along with some information about child-rearing and community institutions.

Another instrument is the Rotter Social Reaction Inventory, which has been adapted to a fourth grade vocabulary level to measure disadvantaged parents' feelings of personal effectiveness (Gordon, 1967). This inventory presents sets of two opposed alternatives, one of which represents an internal locus of control, the other an external. For example, item four in the inventory reads: "(a) In the long run, people get the respect they deserve in the world; (b) It is the sad truth that an individual's worth often passes without being recognized no matter how hard he tries." In addition to beliefs about individual destiny, the Rotter tests the subjects' sense of effectiveness in influencing his school system and government.

Another type of measure is the self-concept scale. The "How I See Myself Scale" (Gordon, 1967) gives mothers a set of concrete statements about their skills, physical health, good looks, intelligence, etc., with which they may agree or disagree. It was used by Gordon to measure the impact of a parent education program, based on the assumption that increased parental effectiveness may influence concrete details of the self-concept.

A number of questionnaires have been developed to measure the impacts of Head Start on parents. In measuring child-rearing attitudes and parent-child interaction, the Head Start questionnaires incorporate items and scales from earlier measures, such

as the PARI, MAIT, and the Fels Rating Scale. All have a similar format, and the choice of variables to be measured in all seem based explicitly on the chain of assumptions about "powerlessness" discussed earlier. Typically, these questionnaires measure parents' self-concepts, general pessimism or optimism, aspirations for their children, attitudes toward school and other institutions, and attitudes toward child-rearing and parent-child interaction (Hess, 1965; Sigel, 1967; Hervey, 1968; Jacobs, 1969).

The crucial question behind most of the items chosen for measurement of parent-child interaction in the Head Start questionnaires seems to be: "What techniques do parents use to influence and reinforce desired behavior?" This question appears to be based on the assumption that this is the means through which the parent communicates his expectations and aspirations for the child's achievement on a day-to-day basis. The kinds of reasons parents give for positively or negatively reinforcing their children's behavior are assumed to dictate the development of the child's locus of control.

All of the above measures are based on the assumption that parents' feelings of powerlessness, with all their assumed consequences, are the most pertinent of the attitudinal variables to the school performance of culturally deprived children. However, other variables may be equally or more important. A person may be culturally deprived not in his attitudes but, rather, in his cognition--in his actual knowledge of the structure and operation of institutions. This would imply a different measure of the effectiveness of parent participation than the measures of attitude usually employed. Some ways of measuring substantive changes in parents' knowledge of community institutions and resources were suggested earlier in "Measuring Parents' Cognitive Characteristics" (beginning page 27).

Slaughter (1969) deals specifically with the question of "the relevance of a particular attitudinal variable for black children's achievements: futility or a sense of powerlessness." Slaughter found that parents' feelings of futility were not related to their children's school achievement; according to her findings, measures of parents' affective characteristics might be more relevant to children's behavior if they focused on concrete parent behavior rather than such abstract attitudes as futility.

The factors in the school achievement of disadvantaged children need further study before an informed choice of the most relevant parent variables can be made.

3.2 Measuring the Extent of Parent Participation

Many studies include a measure of parent participation, but these generally are crude. The most common measure is the number of parent contacts with the program, measured either through attendance records or by asking the parent to estimate the number of times he has come into contact with the program. (Heisler and Crowley, 1969). "High" and "low" participation are then defined in terms of attendance and are often correlated with other variables, such as parent attitude or pupil achievement.

Willmon recorded parent participation on a daily basis and categorized it as follows: (a) directing or participating in the classroom experience with children, (b) meeting with teachers, (c) observations, (d) attendance at one or more PTA meeting.

A more subjective measure was used by Abt (Thompson, 1971). Parents, staff and the center director were asked about the importance of the parents' roles. Parent involvement was then

rated as high, medium, or low. A study of the impact of Head Start on community institutions includes a measure of parent participation (A National Survey of Impacts of Head Start). In this measure, parent participation was rated "high" if it included a high ratio of nonprofessional to professional staff and parental control over the selection of staff members. Both of these measures recognize the roles parents play in the programs, rather than simply the number of contacts a parent makes with a program. However, it is clear that a measure that only discriminates between "high" and "low" is still relatively crude.

A more sensitive measure of parent participation is needed before the impacts of parent participation can truly be understood. Such a measure should include: (a) the stage in program planning at which parents are first included, (b) the kinds of activities parents participate in, (c) the kinds of policy decisions parents participate in, (d) the degree of control they have over each decision, and (e) the way in which parent representatives are chosen.

3.3 Measuring the Effects of Parent Participation on Child Care Programs

Closely related to the need for measures of parent participation is the need for measures of the impacts parent programs may have on the programs for children. Two of the most frequently mentioned benefits of parent participation in the formation of policy are in the control of the quality of child care services and in the increased responsiveness of the program to the needs of individual children and families. An important aspect of increased program responsiveness is its effect on the amount of cultural continuity between children's homes and the child care program. However, there has been little attempt to measure the relation

between parent participation and program flexibility or the quality of the services.

An indirect way to assess the effect of parent participation on quality of services is to measure the relationship of parent participation to outcomes for children, particularly childrens' readiness for school or school achievement. This relationship is usually studied on an individual basis to determine whether children of actively participating parents perform better than children of inactive parents.

In addition to achievement measures for children, there are a number of measures for children that could show the impact of parent participation on children's affective development. Measures of self-esteem, locus of control, race awareness, and tolerance are available and might be of interest if used in conjunction with a sensitive measure of parent participation.

Other measures of parent impacts on children's programs might focus on process rather than outcome variables--for example, teacher-child relations or children's perceptions of teachers' attitudes, curriculum content, and the auxiliary services included in the programs. While measures of teacher-child relations and children's perceptions of teachers are available (Johnson and Bommarito, 1970), measures of curriculum content would have to be developed. Such measures might attempt to determine the ethnic relevance of curriculum content for the particular community in question, as well as their variety, interest value for children, etc. Auxiliary services, such as health and social services for children, could be measured by the number and kinds of available services and the staff time involved in providing them.

3.4 Measuring Impacts on the Community

To assess the impacts of child care upon communities or the larger society, two areas need to be considered. The first is the patterns of social behaviors of individuals or families--crime, delinquency, family structure and stability. The second includes a variety of indicators of citizen participation and the responsiveness of social institutions to citizen needs.

Some indicators of changes in family structures and interaction are incidences of child abuse, neglect, abandonment, and numbers of children cared for outside the home. Rates and kinds of crime and delinquency behavior might also be measures of impacts on the patterns of social behavior.

In addition to considering the impacts upon those directly involved in the program, some measures should be obtained of children and families within a community not directly involved in the program. Patterns of child-rearing, attitudes toward education, school attendance, delinquency rates, and citizen participation are some of the areas that might be assessed to determine the possible breadth of the influence of child care programs. Some of the measures already discussed, if appropriate for the area of interest and the population, could be used in these assessments.

Two quantitative instruments have been developed to measure the impacts of social action programs on communities. One, a survey questionnaire developed by Kirschner Associates, was developed to assess the impacts of Head Start on community institutions (A National Survey of the Impacts of Head Start, 1970). It was used with selected individuals in health and welfare, Community Action Agencies, and Head Start Programs to determine changes in

the involvement, employment, and consideration of the needs of the poor and efficiency of services for them.

The other instrument used interviews to assess changes in a community that were brought about by community action programs (National Opinion Research Center, 1970). Changes in four sectors (social services, public school, employment, and neighborhood political organization) were determined through interviews with persons occupying high level positions in institutions involved in the target neighborhood. PTA officers were asked about changes in curriculum, staff organization, supportive services, parent participation, and community relations. Social service agency directors were asked about changes in their clientele, internal organization and use of paraprofessionals. Personnel officers were asked to assess changes in applications and contacts from the poor, employers' receptiveness toward them, and special hiring and training programs for them. Officials in neighborhood political organizations were asked to assess changes in the kinds and numbers of neighborhood political organizations, in the kinds of people involved in the issues raised by such organizations, and in the number of voters each election.

These two instruments have several common features and appear to be based on common assumptions. It was assumed in both measures that the individuals questioned possessed accurate information and were willing and able to convey such information. But when the only sources of information on institutions are persons occupying high positions within the institution, the question of objectivity is raised; respondents' answers could have been biased. The same or similar measures, used with a more representative sample of the populations involved, might yield different information.

There is also an assumption in these measures that the areas explored are accurate indicators of changes in the community. Does, for instance, a change in the number of parent volunteers helping with school activities (Kirschner Associates, 1970, 177) indicate " increased involvement of the poor with institutions, particularly at decision-making levels"? Consideration must also be given to the method of scoring responses. In the Kirschner report, no weights are assigned to responses. The formation of a parent advisory body on school issues, for example, carried equal weight with changes in the numbers of parent volunteers helping with school activities--both were considered indications that poor people were increasing their involvement with institutions, particularly at decision-making levels and in decision-making capacities.

TABLE 2: SUMMARY OF MEASURES AVAILABLE FOR USE WITH PARENTS

Characteristics	Availability of Measures	Comment
PARENT		
COGNITIVE		
• Concept utilization • Language use • Teaching style	Standardized measures available for all three	Advantages: Measures for all three focus on concrete behavior Disadvantages: Scales may be based on middle class language and cognitive styles; testing situation may be artificial
• Decision-making and management skills • Knowledge of community policy-making structure	No measures available for either	Measures need to be developed
• Awareness of community resources	Crude measures available	Measures need to be developed
AFFECTIVE		
• Child-rearing practices	Standardized measures available	Advantages: Measures focus on concrete behavior Disadvantages: Mainly standardized on middle class subjects

• Attitudes toward child-rearing	Standardized measures available	Disadvantages: Choice of variables based on unproved assumptions about the genesis of cultural disadvantage; respondent or experimenter bias may color response; relevance to children's behavior uncertain
• Self-esteem • Autonomy • Sense of personal effectiveness • Aspirations for self and children • Attitudes toward societal institutions	Experimental measures available	Disadvantages: Same as above
PARENT PARTICIPATION		
• Extent of parent involvement	Crude measures available	Measures need to be developed
• Role of parents in program	No measures available	
CHILD CARE PROGRAM		
• Quality of services	Standardized impact measures for children are available	New measures need to be developed, and available measures need to be used, to measure parent participation impacts on child care programs
• Flexibility of services responsiveness to client needs • Extent of cultural continuity between home and program	No measures available	

Table 2

Table 2: Summary of measures available for use with parents (continued):

Characteristics	Availability of Measures	Comment
CHILD CARE PROGRAM (cont'd)		
• Ethnic relevance of curriculum • Teacher-child relation • Availability of auxiliary services	No measures available Experimental measures available Unstandardized measures available	New measures need to be developed and available measures need to be used, to measure parent participation impacts on child care programs

TABLE 3: SUMMARY OF MEASURES OF COMMUNITY CHARACTERISTICS

Characteristics	Availability of Measures	Comment
• Extent of minority, poor involvement in community situations	A few experimental measures available	More sensitive measures of community change need to be developed for all these characteristics.
• Extent to which community institutions meet needs of all community members		
• Anti-social behavior: adult crime, juvenile delinquency, family disintegration	Conventional police statistics available	

4.0 MEASURING THE ECONOMIC IMPACTS OF DAY CARE ON FAMILY AND SOCIETY

Day care is expected to have an indirect economic impact on families largely because it will allow the parents to work and, thus, increase their income from earnings. It is expected that such earnings would permit an absolute increase in each participating family's income, and would not just be a substitute for income from other sources (e.g., welfare). Thus, day care is expected to have an indirect impact on the family's poverty status and consumption patterns.

Day care may also influence the economic or poverty status of the family directly, through the services it provides to a child. For example, if day care provides certain services to children--such as breakfast, lunch, snacks, health care, or other services--these services are a direct substitute for services or goods normally provided by the family; hence, they can be considered part of the family's total consumption.

The first part of this section concentrates on ways to measure the economic impact of day care on families. The second part explores possible measures of the economic impact of day care on society.

4.1 Measuring Employment-Related Impacts on Families

Because the primary economic impacts of day care on the family are expected to come about through the employment of the parents who use the service, a resulting increase in their earnings, and

DETERMINANTS OF FAMILY ECONOMIC STATUS

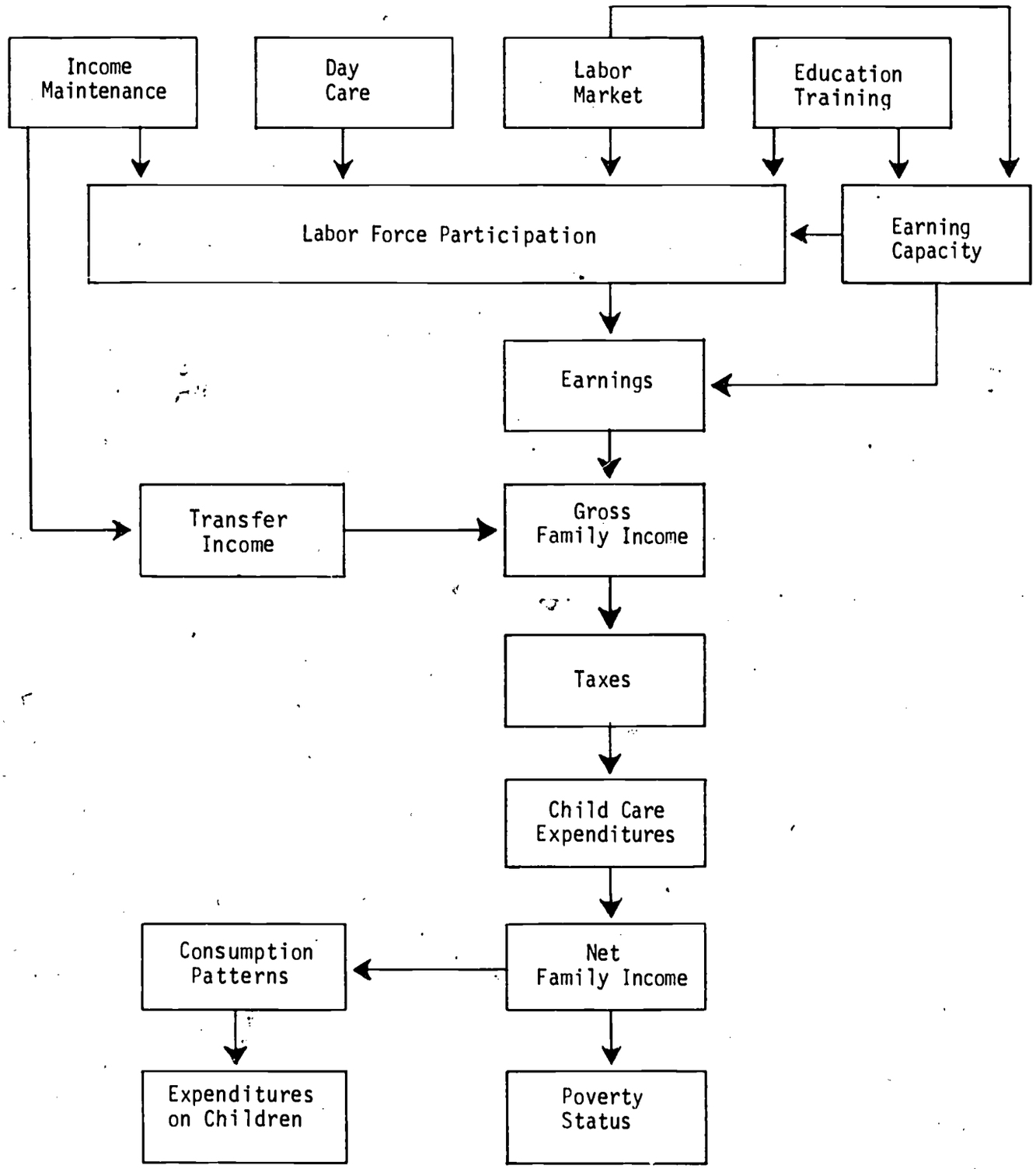

Figure 3

a change in their poverty status, these areas will be explored first. Measures of the employment of parents, measures of the earnings of parents, and measures of the poverty status of the family are discussed separately in each of the following sections.

Labor Force Participation

The simplest measure of the employment-related behavior of an adult (or family member) is whether or not that person is part of the labor force. By definition, she is part of the labor force if she is (a) employed, (b) looking for work, or (c) laid off from work. Labor force status is essentially a simple, yes-no measurement, but it is possible to measure the percent of adults in the force further for specific subpopulations--for example, for families who have female heads or for families with children of specific ages.

However, the measure of participation in the labor force, although it is useful, fails to measure the intensity of the person's employment-related behavior. For example, an individual who works 10 hours a week is measured equally with one who works 40 hours a week. A more sensitive and complete measure of an individual's employment-related behavior is the number of hours she supplies to the labor market. (The number of hours an individual supplies to the labor market is defined as the sum of the number of hours worked plus the hours spent looking for work, plus the hours spent laid off.) This measure is taken annually and provides a continuous measure of an individual's employment-related behavior.

As with the simple yes-no measure of labor force participation, the measure of number of hours supplied to the labor market can be measured for specific subpopulations, such as all women with children under three, all women with the youngest child three to

five years of age, and so forth. This measure is a most useful measure of an individual's desire to work; it does not, however, measure whether an individual is actually working.

Work Participation

Measures of actual work participation, analogous to measures of participation in the labor force, can be developed. Most there is the simple yes-no measure of whether an adult is working or not working; this would exclude those who are looking for work or laid off. As for with labor force participation, the work participation measure is the simplest measure available.

The number of hours actually worked by an individual is, however, a more sensitive measure of the intensity of the work participation. The sum of the hours worked would provide a more complete measure of work participation. As with hours supplied, hours worked can be measured of various subpopulations.

4.2 Income of Families

Measures both of participation in the labor force and of work participation indicate the individual's output or work-related behavior. They do not, however, measure her economic return for that behavior in terms of earnings, income, and the effect of work participation on the family economic status.

A person may be providing many hours in work participation, but because of low wages the fact that she is employed may actually have little effect on the economic status of the family--even though her employment may have effects on such non-economic factors as her self-esteem or her relationship with her children.

Various measures can be used to gauge the economic return of participation in the labor or work forces. Earning capacity is a simple measure of the hourly wage of persons who are actually working. For those in the labor force who are not working, expected wage can be used as a measure of earning capacity. Expected wage is based on personal characteristics, such as education, sex, occupation, and, where available, earning capacity on last job. While earning capacity is a useful measure of a person's return for his participation in the labor or work force, it does not provide an accurate measure of the actual impact of that participation on the family's economic status. For example, one family may use the additional, earned income to supplement income from other sources, such as Social Security; thus, a relatively small amount of income from earnings may be combined with other income so that the family has a larger total income than would be known by measuring the income from earnings alone.

To provide a total measure of the family's total income, it is necessary to take into account not only earnings, but also incomes that the family may receive from other sources. For this, one would want to look at the gross family income. Gross family income is the sum of both family earnings and transfers.

Family earnings are, of course, the sum of the earnings of the individual family members. Transfers are defined as unearned income and income in kind to the family. Transfers are an important consideration in measurements for families that receive substantial amounts of public assistance payments or child care subsidies. For such a family, the dollar amount of the public assistance payment is the measure of the transfer income from that source. The transfer income for families receiving child care subsidies is more complex. Suppose, for example, that a

family is paying $15 a week for child care and the government offers child care to the family for $5 a week, even though the total cost of the care was $20 a week. The family receives an effective transfer of $10 (the difference between what they were paying and what they now are paying), whereas the government is spending $15. The child care subsidy or transfer to the family is the difference between what the family perceives as the value of day care (what they would be willing to pay) and their actual expenditure for that care.

Thus, gross family income is the sum of earned income from all family members plus the family's transfer income. However, gross family income is not a sensitive measure of the actual economic status of the family, since there are expenditures over which the family has no control, such as taxes. A family's net income is the gross income less taxes and, in this case, less child care expenditures. Although a complete accounting of all taxes (income, sales, excise, property, and so forth) paid by the family is difficult to estimate, income taxes can be used as an indicator of the family's tax burden. An estimate of total taxes paid by the family can be obtained by doubling the income tax payment.

Since this study is interested in the net family income that results from increased employment due to child care, it is necessary to subtract child care expenditures from gross family income. Thus, net family income is gross income less taxes and child care expenditures.

4.3 Poverty Status and Consumption Patterns

Just as measures of an individual's participation in either the

labor or the work force were not adequate measures of the total economic impact of day care, neither is net family income an adequate measure, since net income is, itself, not related to the needs of the family. Thus, it is necessary to turn to a measure of family economic status that involves a comparison of net income with family needs.

A number of need standards exist--for example, Social Security poverty levels for different family sizes and Bureau of Labor Statistics standards for three different levels of living. Regardless of what standards of poverty levels are used, however, there are two measures of poverty status.

The first of these measures is income deficit, which is defined to be the difference between net family income and the family-need standard. This measure indicates the dollar deficiency of a family's income in relation with a specific need standard.

A second measure of poverty status is welfare ratio. This is defined to be the ratio of the family income to the family-need standard. This measure indicates the proportion of the family's needs (defined by some need standard) that its income will meet. Ratios at or above one will indicate that the family is not in a particular poverty class.

There are additional measures that can be used to measure poverty status. Families of different incomes exhibit various patterns of consumption of goods and services. These patterns of consumption can be used as indices of poverty status. For example, the Department of Agriculture has developed a ratio of food expenditures to food-need standards. A housing index has been developed based on the consumption of specific housing items, such as the value per room, number of rooms in the home, adequacy of plumbing, and so forth.

4.4 Service-Related Economic Impacts on Families

All of the above measures are responsive to the employment-related behavior of the family member. However, the provision of direct goods and services to the children of the family should also be included in the measurement of the economic impact of a day care program on the family.

There are two possible impacts of the direct provision of goods or services to children by a day care program, in lieu of goods or services that would otherwise be provided by the family. First, a day care program may provide proportions of all of a certain type of goods or services, or second, it may eliminate or lessen the need for specific kinds of goods and services.

For example, a day care program may provide breakfast, lunch, or snacks to a child. This is a direct substitution for food that the family normally provides. If a family is not charged for the full cost of day care, this substitution is a direct supplement to the family's economic status. Consumable goods and services, such as food or health services, are included in this category of impacts.

The second kind of impact is more difficult to measure and results from the preventative nature of some of the services that the day care center may provide. For example, health maintenance services may result in a reduction in the needed expenditures of the family for health care services.

4.5 Economic Impacts on Society

A large-scale day care program on society will have two economic effects. First, there is the cumulative effect on individual,

participating families. Second, there is the effect on government expenditures if the federal government subsidizes a substantial portion of the program.

Cumulative Effects on Society

Society will be affected by child care programs to the extent of the cumulative effects of the programs on the labor force participation, work participation, income, and poverty status of the families accepting child care services. There are, however, some particular measures that should be noted:

A day care program may not necessarily cause an increase in employment, but may only bring about an increase in the number of hours participating family members supply to the labor force--in other words, it may increase official unemployment rates. The difference between the number of hours supplied to the labor force and the number of hours worked, then, would be a measure of the potential unemployment created by the provision of day care services.

Similarly, an increase in employment may not necessarily bring an increase in actual family income. An increase in earnings may cause a reduction of transfer income, especially from public assistance, and there may be no significant increase in family income. If there is no significant increase in family income, there will, of course, be no significant change in the poverty status of the family--except what may occur through the provision of direct goods and services in day care settings.

If, however, a significant change in family income did take place, there would, of course, be an impact on society as measured by the poverty status of families.

Impact on Government Expenditures

A large-scale day care program will have an effect on the net expenditures of the government in two ways. First, there will be the direct costs to the government if the program is substantially subsidized. The extent to which these costs are offset by decreases in other expenditures, such as public assistance, will be determined by the extent of increases in the actual earned income of families. Second, day care program might affect future government expenditures for such remedial services as education or health.

TABLE 4 MEASURES OF COMPONENTS OF ECONOMIC IMPACTS

Impact on:	Component	Measures
FAMILIES		
•	EMPLOYMENT-RELATED BEHAVIOR	(Measured on individuals in family)
	-- Labor force participation	Labor force status Hours supplied to labor market
	-- Work participation	Working status Hours worked
•	INCOME RELATED FACTORS	
	-- Earning capacity	Actual or potential wage
	-- Income from earnings	Hours worked times wage
	-- Gross family income	Earnings and transfers
	-- Net family income	Gross income minus taxes and expenses for child care
•	POVERTY-RELATED MEASURES	
	-- Poverty status	Income deficit: income less need standard Welfare ratio: income divided by need standard.
	-- Consumption	Food expenditures divided by food-need standard Housing quality index

Measures of Components of Economic Impacts, continued

Impact on:	Component	Measures
FAMILIES (cont'd)		
	-- Family expenditures per child	Amount expended for food per child per year
		Amount expended for health services
		Amount expended for recreation per child per year
		Amount expended for accident-induced medical expenditures per child per year
COMMUNITY/SOCIETY		
	• EMPLOYMENT-RELATED FACTORS	
	-- Labor force participation	Percent in labor force (by subpopulations)
		Aggregate hours supplied (by subpopulations)
	-- Work participation	Percent working
		Aggregate hours worked (by subpopulations)
		Distributions: labor force and work participation, hours supplied and hours worked (by subpopulations)
	• INCOME-RELATED FACTORS	
	-- Earnings	Distribution of earnings (by subpopulations)
	-- Gross family income	Distribution of income (by subpopulations)
	-- Net family income	Distribution of income (by subpopulations)

Table 4

• POVERTY-RELATED MEASURES	
-- Poverty status	Distribution of income deficit (by subpopulations)
	Distribution of welfare ratio (by subpopulations)
-- Consumption	Distribution of indicators (by subpopulations)
• GOVERNMENT EXPENDITURES	
-- Transfer income	Federal public assistance payments to eligible population (aggregate amount by subpopulation)
-- Day care expenditures	Aggregate cost of day care subsidy (by subpopulation)
-- Income from taxes	Taxes paid (by subpopulation)
-- Service expenditures	Cost per child per year:
	-- nutritional services -- health services -- educational services -- social services -- transportation services
-- Remedial expenditures	Cost per year for providing remedial services related to health care and education

Table 4

APPENDIX A

DISCUSSION OF THE MEASUREMENT OF SOCIAL IMPACTS

Accurate measurement of social impacts is hampered by several factors related to the nature of the impacts, the methods, and instruments currently available. Because these factors are critical in the evaluation of the impacts, they are discussed in some detail in this section.

Nature of Social Impacts

Social impacts are not clearly defined. Frequently there is no common agreement about either the nature of the impact or the appropriate measure of it. In addition, consensus as to which impacts are desirable and which are not changes with time. Some years ago, for instance, the goals of the teaching of language arts were considered to be primarily such easily tested mechanical skills as spelling, punctuation, vocabulary, and penmanship. Today, however, skill in communication and the enjoyment of literature are more highly valued; and it is difficult, of course, to measure such nebulous goals.

Measures

The impacts of child care programs upon children, their families, and society have been assessed by a variety of methods--tests, observations, ratings, and interviews (primary impacts measured and the advantages and disadvantages of each technique are shown in Table 5). The specific techniques and instruments employed vary to fit the

impacts being measured; as, to some extent, they also vary to fit the characteristics of the program participants.

The quality of available measures varies; even when two different instruments are intended to measure the same dimension, each may measure the topic from a different perspective. For instance, aggression may be measured through a structured doll play situation or through observation in the classroom. These two measures may yield very different results for the same child.

There are no adequate measures available at all for some social impacts upon children. Flexibility, curiosity, intellectual processes, the consequences of restricted privacy in group settings, changes in family relationships, and the effects of parent participation in program content are only a few of the potential impacts that have yet to be adequately assessed.

Other factors, besides the instruments, influence the measures obtained: assessment, environment, determination of measures to be used, timing of assessments, interpretation of evaluative information. The rapport of the examiner with the child is especially important in individual tests and interviews. The child's motivation and physical state at the time of the assessment, the physical setting, and the specific instructions to the child are other factors. Many judgments in recording and scoring responses also are left to the administrator.

The feasibility of using many of these measures on a large scale is also questionable. Children under school age must be treated individually. This is time-consuming and costly.

Careful consideration must be given to the selection of impacts to be assessed. There is a tendency to use measures just because

they are available when different techniques or instruments might be more appropriate. In the past, for instance, some programs for children have focused so intensely on intellectual achievement that social and creative activities have been eliminated--perhaps as a consequence of the availability of intelligence tests.

Measures of social impacts are impact specific -- that is, different measures must be used to assess different impacts. For example, general intellectual ability is measured with one instrument, creativity with another, and self-concept with still another; results from each of these measures cannot be reported in comparable units. Therefore, the comparison of impacts in different areas is virtually impossible.

Finally, there are no systematic, long-term, ongoing collections of social information. Although some census data -- for example, the information concerning housing and educational levels -- are social in nature and could provide some long-term impact information, the information available is limited. Much of the data that have been used as measurements of social impacts actually only describe the services delivered. This is especially true for reports of service to the physical -- medical, dental, nutritional -- needs of children and for reports of parental activities. The number and extent of physical or dental examinations, the number and nutritional content of meals served, and the number and content of meetings attended by parents have all been reported as indications of the effects of the programs on children and parents; but measures of actual impacts upon participants are rarely obtained.

TABLE 5 IMPACT ASSESSMENT TECHNIQUES

Assessment Techniques	Impacts Measured	Advantages	Disadvantages
TESTS			
	Intelligence Language Specific Information -- Reading -- Language Arts -- Mathematics -- Science -- Social Studies -- General Information Personality traits	Standardized content Standardized procedures for collecting and evaluating responses Ease and speed of administration	Requires skilled administrator for individual measures Limited range of content available Reliance on standard English comprehension and facility Stereotyped approach to subject matter Personality measures are difficult to administer and interpret
OBSERVATIONS			
	Attitudes, feelings anger, aggression, dependency cooperation, sympathy Use of materials	Easily used in variety of settings Permits flexibility in analysis of data Gather information in natural settings	Presence of observer may influence child or behavior under observation Observers must be trained

		Few materials, little equipment necessary	Time-consuming to gather and code information Observer bias possible Subject's behavior may not be spontaneous
RATINGS			
	Leadership Assertion Persistence Warmth Achievement motivation Interest - Involvement	Provides estimation of magnitude Permits study of phenomena which cannot be observed directly	Judges tend to make positive ratings Different judges may interpret a trait or its magnitude differently
INTERVIEW			
	Aspirations Dreams Perceptions of others	Enables clarification of questions or responses Facilitates communication	Subject to interviewer bias Gathering, coding and organization of interview data is time-consuming Children have limited language facility Interviewees may be reluctant to discuss some information or express true feelings to another person

Table 5

APPENDIX B

TESTS FOR PRESCHOOL AND KINDERGARTEN CHILDREN BEING EVALUATED BY THE CENTER FOR THE STUDY OF EVALUATION, UNIVERSITY OF CALIFORNIA AT LOS ANGELES

American School Intelligence Tests
American School Reading Readiness Test
Anton Brenner Developmental Gestalt Test of School Readiness
Arizona Articulation Proficiency Scale
Arizona Articulation Proficiency Scale Revised
Arthur Point Scale of Performance
Assessment of Children's Language Comprehension
Auditory Discrimination Test
Ayres Space Test
Basic Concept Inventory (Engelmann)
Bender Visual Motor Gestalt Test for Children
Binion-Beck Reading Readiness Test
Boehm Test of Basic Concepts
Bristol Social Adjustment Studies
Burt Scholastic Test
Cain-Levine Social Competency Scales
California Abbreviated WISC
California Preschool Social Competency Scale
California Test of Mental Maturity (Long Form)
California Test of Mental Maturity (Short Form)
California Test of Personality
Canadian Intelligence Examination
Cassel Developmental Record

Chicago Non-Verbal Examination
Child Behavior Rating Scale
Child Personality Scale
Classification Test for Beginners in Reading
Clymer-Barrett Pre-Reading Battery
Cognitive Abilities Test
Columbia Mental Maturity Scale
Concept Assessment Kit: Conservation
Constant Choice Perceptual Maze Attitude of Responsibility Test
Crichton Vocabulary Scale
Detroit Adjustment Inventory
Detroit Beginning First-Grade Intelligence Test
Detroit Tests of Learning Aptitude
Developmental Test of Visual-Motor Integration
Diagnostic Reading Tests
Early Detection Inventory
Early School Personality Questionnaire
Easel Age Scale
English Picture Vocabulary Test
Evanston Early Identification Scale
First Grade Screening Test
Marianne Frostig Developmental Test of Visual Perception
Full-Range Picture Vocabulary Test
Gates Reading Readiness Test
Gates-Mac Ginihe Readiness Skills Test
Gesell Development Schedules
Goldman-Fristoe Test of Articulation
Goldman-Fristoe-Woodman Test of Auditory Discrimination
Goodenough-Harris Drawing Test
Group Test of Reading Readiness: Dominion Tests
Group Test of Learning Capacity: Dominion Tests
Harrison-Stroud Reading Readiness Profiles
Holborn Reading Scale

Holborn Vocabulary Test for Young Children
Individual Reading Test
Intelligence Tests for Children Age 1.5 - 15
Inter-American Series
IPAT Culture Fair Intelligence Test
IPAT Music Preference Test of Personality
It Scale for Children
Kahn Intelligence Test
Kelvin Measurement of Ability in Infant Classes
Kuhlman-Anderson Intelligence Tests
Lee-Clark Reading Readiness Test
Leiter International Performance Scale: Arthur Adaptation
Lorge-Thorndike Intelligence Test
Louisville Fear Survey for Children
Maturity Level for School Entrance and Reading Readiness
Meeker-Cromwell Evaluation of Personality
Mental Ability Test
Merrill-Palmer Pre-school Performance Test
Metropolitan Readiness Tests
Mill Hill Vocabulary Scale
Minnesota Percepto-Diagnostic Test
Minnesota Preschool Scale
Monroe Reading Aptitude Tests
Moore Eye-Hand Coordination Test: Pre-school Form
Murphy-Durrell Reading Readiness Analysis
Oseretsky Motor Proficiency Test
Otis-Lennon Mental Ability Test
Parent Readiness Evaluation of Preschool
Pattern Perception Test
Peabody Individual Achievement Test
Peabody Picture Vocabulary Test
Pictorial Test of Intelligence
Pintner-Cunningham Primary Test

Porteus Mazes, Vineland Revision

Pre-reading Screening Procedures to Identify First Grade Academy Needs

Preschool Academic Skills Test

Preschool Attainment Record

Preschool Inventory (Caldwell)

Primary Academic Abilities

Primary Academic Sentiment Scales

Primary Mental Abilities

Process for In-school Screening of Children with Emotional Handicaps

Quick Screening Scale of Mental Development

Quick Test

Raven Children's Colored Progressive Matrices

Reading Readiness Test

Riley Articulation and Language Test

Riley Preschool Developmental Screening Inventory

Ring and Peg Test of Behavior Development

Rutgers Drawing Test

Scholastic Reading Readiness Test

Scholastic Tests of Mental Ability

Schonell Reading Tests

School Readiness Survey

Screening Test of Academic Readiness

Screening Test for the Assignment of Remedial Reading

Series of Emergency Scales

Short-Form Test of Academic Aptitude

Short-Test of Educational Ability

Sleight Non-verbal Intelligence Test

Southern California Figure-Ground Visual Perception Test

Southern California Kinesthesia and Tactile Perception Tests

Southern California Motor Accuracy Test

Southern California Perceptual-Motor Tests

Speech Articulation Test for Young Children

Stamp Behavior Study Technique

Stanford Reading Tests
Stanford Early School Achievement Test
Stanford-Binet Intelligence Scale
Steinbach Reading Readiness
Templin-Darley Tests of Articulation: Revised
Test for Listening Accuracy in Children
Tests of Basic Experiences, Level K
Tests of Basic Experiences, Level L
Tests of General Ability
Torrance Tests of Creative Thinking
Valett Developmental Survey of Basic Learning Abilities
Van Alstyne Picture Vocabulary Test
Verbal Language Development Scale
Vineland Social Maturity Scale
Vision, Hearing and Motor Coordination Pretests
Watson Number-Readiness Test
Watson Reading Readiness
Webster Reading-Readiness Test
Wechsler Intelligence Scale for Children
Wechsler Preschool and Primary Scale of Intelligence
Wide Range Achievement Test
Winter Haven Lion's Perceptual Training Forms

APPENDIX C

EXAMPLES OF IMPACT MEASURES USED WITH CHILDREN IN DAY CARE SETTINGS

The following tables give the variables measured and the subjects studied for some of the measures discussed in section 2.4, "Measurement of Impacts on Children in Day Care Settings", The tables have been organized according to category (General Intelligence, Language, etc.) and, within each category, by date of study.

Note: * indicates data received as personal communication, rather than from published report.

** indicates measures that were developed for the study noted.

EXAMPLES OF IMPACT MEASURES USED WITH CHILDREN IN DAY CARE SETTINGS

Characteristics	Author and Date	Subjects	Tests and Measures
GENERAL INTELLIGENCE			
•	Kraft, et al. (1968)	3-5 yrs., Black, Disadvantaged (Washington, D.C.)	Stanford-Binet Intelligence Scale
•	Prentice & Bieri (1968 & 1970)	4-5 yrs., Disadvantaged, Black & Latin American (Austin, Texas)	Stanford-Binet Intelligence Scale Draw-A-Man
•	Larson & Olson (1968)	4 to 5 yrs., Disadvantaged, Black, 5 yrs. (Racine Wisconsin)	Stanford-Binet Intelligence Scale (Two different half-day programs)
•	Peters, et al. (1969)	Birth to 18 mos.	Bayley Infant Scales of Development
		2 yrs. to 6 yrs.	Stanford-Binet Intelligence Scale
		5 yrs. to 6 yrs.	Leiter International Performance Scale (Arthur Adaptation)
		3 yrs to 5 yrs.	Wechsler Preschool and Primary Scale of Intelligence
		4 yrs. to 5 yrs., mixed socioeconomic levels (Chapel Hill, N.C.)	Primary Mental Abilities Draw-A-Man (Harris Revision)

•	Keister (1970)	3 to 48 mos., middle class, Caucasian (Greensboro, N.C.)	Bayley Infant Scales of Development
•	Travers, et al. (1970)	Preschool	Slosson Intelligence Test for Children Draw-A-Man
•	Wolins (1970)	Average ages: 12.5 to 16.5 yrs. (Austria, Israel, Poland, Yugoslavia)	Ravens Progressive Matrices
•	Caldwell & Richmond (1968) Syracuse University Children's Center (No date)	6 mos. to 8 yrs., Disadvantaged, (Syracuse)	Cattell Infant Intelligence Scale Bayley Infant Scales of Development Stanford-Binet Intelligence Scale
		6 to 18 mos.	Piaget Sensori Motor Test**
•	Huntington* (1971)	Birth to 3 yrs. (Washington, D.C.)	Bayley Infant Scales of Development Merrill-Palmer Scale of Mental Tests
• General development	Provence* (1971)	Birth to 3 yrs., Disadvantaged (New Haven)	Yale Developmental Scale*
LANGUAGE			
•	Kraft, et al. (1968)	3 to 5 yrs., Black (Washington, D.C.)	Peabody Picture Vocabulary Test Illinois Test of Psycholinguistic Abilities

Examples of Impact Measures used with Children in Day Care Settings, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
LANGUAGE			
•	Lesser & Olsen (1965)	4 to 5 yrs., Disadvantaged, Black (Racine, Wisconsin)	Tape-recorded responses to Set of Pictures* Vocabulary Tests Illinois Test of Psycholinguistic Abilities
•	Travers, et al.	3 to 4.6 yrs. (Chapel Hill, N.C.)	Peabody Picture Vocabulary Test Illinois Test of Psycholinguistic Abilities
•	Travers, et al. (1970)	Preschool	Peabody Picture Vocabulary Test Parallel Sentence Production
•	Drever, et al. (1970)	4 to 8 yrs., migrant, Mexican American	Illinois Test of Psycholinguistic Abilities
•	Syracuse University Children's Center (No date)	6 to 18 mos., Disadvantaged (Syracuse, N.Y.)	Early Language Assessment Scale* Illinois Test of Psycholinguistic Abilities Peabody Picture Vocabulary Test

READINESS AND ACHIEVEMENT

• Readiness	Larson & Olson (1968)	4 to 5 yrs., Disadvantaged, Black (Racine, Wisconsin)	Metropolitan Readiness Test
•	Peters, et al. (1969)	4 yrs., mixed socioeconomic levels, (Chapel Hill, N.C.)	Caldwell Preschool Inventory
• Ability to meet normative expectations	Handler (1970)	6 to 8 yrs., Disadvantaged & Middle Class, day care and half-day (Illinois)	Promotion by Teacher Unacceptable Classroom Behavior Preschool Inventory Cooperative Primary Listening Test
•	Travers, et al. (1970)	Preschool	Metropolitan Reading Readiness Test California Achievement Test Basic Concept Inventory
•	Syracuse University Children's Center (No date)	Disadvantaged (Syracuse, N.Y.) 6 to 8 yrs. 6 mos. to 2 yrs.	Preschool Attainment Record Caldwell-Soule Preschool Inventory Iowa Tests of Basic Skills Bohem Test of Basic Concepts Piaget Sensori Motor Test**
• Achievement	Dreyer, et al. (No date)	4 to 8 yrs., migrant, Mexican American	Wide Range Achievement Test

Examples of Impact Measures used with Children in Day Care Settings, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
READINESS AND ACHIEVEMENT			
• Auditory discrimination	Travers, et al. (1970)	Preschool	Wepman Auditory Discrimination California Auditory Discrimination
ATTITUDES AND BEHAVIOR RELATED TO ACADEMIC ACHIEVEMENT			
• Degree of interest and involvement	Prescott & Jones (1967)	Preschool (Los Angeles)	Observer Rating**
•	Travers, et al. (1970)	Preschool	Preschool Behavior Inventory
• Reflectivity-impulsivity			Cincinnati Autonomy Test Battery: Embedded Figures Replacement Puzzle
• Persistence			
• Curiosity			Curiosity Box Dog and Bone
SELF-CONCEPT			
• Self-social	Syracuse University Children's Center (No date)	6 mos. to 8 yrs., Disadvantaged (Syracuse, N.Y.)	Children's Self-Social Construct Scale**

• Feeling about self	Huntington* (1971)	Birth to 3 yrs. (Washington, D.C.)	Observation and Clinical Judgment**
• Ego development-self image	Provence* (1971)	Birth to 3 yrs. Lower Class (New Haven)	Observations by Participant and Non-participant Observers**
SOCIAL AND EMOTIONAL BEHAVIORS			
• Personal-social responsiveness, parent-child interactions	Heinicke (1956)	Average age: 22.7 mos. Lower Class (Great Britain)	Observation scheme in classroom and special doll-play situation** Open-ended, written record of impressions as soon after home visit as possible
• Child's readiness to separate from his mother	Keister (1970)	3 to 48 mos., Middle Class, White, (Greensboro, N.C.)	Situation I: Narrated account of interviewer's attempt to get child to leave Mother and come to interviewer**
• Child's ability to assert self			Situation II: Examiner arouses child's interest in a new toy and attempts to substitute it for one of child's old ones**
• Social development			Preschool Attainment Record Vineland Social Maturity Scale
• Social maturity	Travers, et al. (1970)	Preschool	Behavior Inventory

Examples of Impact Measures used with Children in Day Care Settings, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
SOCIAL AND EMOTIONAL BEHAVIORS			
•	Frank Porter Graham Child Development Center* (1971)	Birth to 2 yrs.	Vineland Social Maturity Scale
		6 to 12 yrs. Mixed socio-economic status (Chapel Hill, N.C.)	Coping Analysis Schedule for Educational Settings (CASES)
• Home stimulation		6 mos. to 8 yrs.	Inventory of home stimulation**
• Psychological maturity	Wolins (1970)	Average age: 12.5 to 16.5 years. (Austria, Poland and Israel)	Thematic Apperception Test Clinical judgments**
• Feelings about others	Huntington* (1971)	Birth to 3 yrs. (Washington , D.C.)	Observations and clinical judgments**
• Coping mechanisms, flexibility - adaptive behavior			Observations and clinical judgments**
• Maternal attachment, identification, ego development	Provence* (1971)	Birth to 3 yrs., Disadvantaged (New Haven)	Observations by participant and nonparticipant observers**
• Self-social, cooperation, social and emotional development	Syracuse Children's Center* (1971)	Disadvantaged (Syracuse, N.Y.)	Children's Self-Social Construct Scale* Observations** (weekly)

• Emotional development happy, cooperative self-reliance	Abt (Thompson 1971)	Disadvantaged, Nationwide sample, 20 centers	Observation of arrival, departure, play, mealtimes**
PHYSICAL DEVELOPMENT AND/ OR COORDINATION			
• Sensorimotor coordination and perceptual discrimination	Kraft et al. (1968)	3 to 5 yrs., Black (Washington, D.C.)	Merrill-Palmer Scale of Mental Tests, selected subtests
• Physical development	Peters et al. (1969)	2 to 15 mos.	Records of developmental milestones
		5 mos. to 3-1/2 yrs.	Behavior Rating Scale**
		4.6 years	Frostig Test of Visual Perception
		5 years	Bender Visual Motor Gestalt Test
		5.6 years, Mixed socioeconomic status (Chapel Hill, North Carolina)	Ayres Battery of Tests
•	Keister (1970)	3 to 48 mos., Middle Class (Greensboro, North Carolina)	Clinical Exams by Pediatrician -- height and weight
• Physical health			Illness and Accident Report
			Mother's Reports of Sleeping and Eating
• Motor development			Bayley Infant Scales of Development
• Piaget perceptual-motor tasks	Syracuse Children's Center (1970)	Birth to 2 yrs., Disadvantaged (Syracuse)	Piaget's Infancy Battery**

Examples of Impact Measures used with Children in Day Care Settings, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
PHYSICAL DEVELOPMENT AND/ OR COORDINATION			
• General Development	Provence* (1971)	Birth to 3 yrs., Disadvantaged (New Haven)	Extensive physical examination by Pediatrician Yale Developmental Scale*
•	Dreyer et al, (No date)	4 to 8 yrs., igrant, Mexican American	Sequin Form Board
• Respiratory disease	Peters et al, (1969)	2 mos. to 5 yrs., (Chapel Hill, North Carolina) Mixed socioeconomic status	Cord blood sample Venous blood sample Nasopharymgeal, throat swabs Records of respiratory symptoms Observation by nurse twice daily Examination by physician Isolation of viruses, mycoplasma, bacteria
• Response of host to infection			Serum samples collected at regular intervals
• Vaccine evaluation			Records of influenza infection and illness

• Symptomatic experiences during infancy	Maternal diary Nurse observations
• Dental development and dental health	Diagnostic dental exam Panorex X-ray of all primary and permanent teeth Lateral cephalogram Cultures of oral florae

APPENDIX D

EXAMPLES OF IMPACT MEASURES USED WITH CHILDREN IN NATIONAL STUDIES

The following tables give the variables measured and the subjects studied for some of the measures discussed in section 2.5, "Evaluations of Other Programs". The tables have been arranged according to category (General Intelligence, Language, etc.) and, within each category, according to date of study.

Note: * indicates data received as personal communication, rather than from published report.

** indicates measures that were developed for the study noted.

EXAMPLES OF IMPACT MEASURES USED WITH CHILDREN IN NATIONWIDE STUDIES

Characteristics	Author and Date	Subjects	Tests and Measures
GENERAL INTELLIGENCE			
•	Datta (1969)	Head Start	Stanford-Binet Intelligence Scale
		Head Start Subsample	Pictorial Test of Intelligence
			Wechsler Preschool & Primary Scale of Intelligence
			Subtests: Animal House, Picture Completion, Mazes, Geometric Designs, Block Designs, Sentences
•	Costello (1970)	Parent-Child Centers, Disadvantaged Selected Subsamples	Bayley Infant Scales of Development
•	Stanford Research Institute* (1971)	Head Start Planned Variation	Stanford-Binet Intelligence Scale (conventional scoring and Birch Response Style Codes)
LANGUAGE			
• Analogies	Coleman (1966)	6 to 8 yrs.	Picture Vocabulary
• Synonyms		11 yrs.	Inter-American Tests of General Ability
			ETS School and College Ability Test Series

•	Datta (1969)	Head Start	Illinois Test of Psycholinguistic Abilities - (subtests: auditory-vocal, visual-motor sequencing)
•	Westinghouse (1969)	6, 7, and 8 yrs., Disadvantaged	Illinois Test of Psycholinguistic Abilities
•	Ball & Bogartz (1970)	3 to 5 yrs.	Peabody Picture Vocabulary Test
READINESS AND ACHIEVEMENT			
• Association	Coleman (1966)	6 to 7 yrs.	Inter-American Tests of General Ability
• Classification		6 to 9 yrs.	
• Reading, mathematics		8 yrs.	ETS Sequential Tests of Educational Progress
• Sentence completion		8 to 11 yrs.	
• Categorization	Datta (1969)	Head Start Subsample	Sigel Picture Categorization Tasks Leiter International Performance Scale Preschool Inventory
• Motor control			Maccaby-Moss Draw-A-Line Slowly
• Reading readiness	Westinghouse (1969)	6, 7, and 8 yrs., Disadvantaged	Metropolitan Readiness Test

Examples of Impact Measures used with Children in Nationwide Studies, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
READINESS AND ACHIEVEMENT (cont'd.)			
• Achievement			Stanford Achievement Tests
• Body parts	Ball & Bogartz (1970)	3 to 5 yrs., Disadvantaged and Upper Class; Rural-Urban	Body Parts Test**
• Leters of alphabet			Letters Test**
• Form recognition			Forms Test**
• Numbers			Number Test**
• Sorting skills	Stanford Research Institute* (1971)	Head Start -- Planned Variation	Preschool Inventory Subtests and/or items** from New York University Institute for Developmental Studies: Pre-math tests, Pre-science tests, Alphabet recognition, Shapes, Prepositions
•	Ball & Bogartz (1970)	3 to 5 yrs., Disadvantaged, Upper Class, Urban, Rural	Sorting Skills Test**
• Relational terms			Relational Terms Test**

• Classification			Classification Skills Test**
• Puzzles			Puzzles Test**
ATTITUDES TOWARD LEARNING AND ACHIEVEMENT			
• Behavior in test situation	Datta (1969)	Head Start	Tester Rate** (after administration of Stanford-Binet Intelligence Scale)
•	Westinghouse (1969)	6, 7, and 8 yrs., Disadvantaged	Teacher Rate**
• Attitudes toward school	Stanford Research Institute* (1971)	Kindergarten Follow Through Subsample	Mark the Face** In My Classroom** Test Anxiety Scale
• Locus of control			Intellectual Achievement Responsibiiity Scale**
• Cognitive style, task persistence, confidence			Puzzle Completion**
• Intrinsic motivation			Activity Pictures**
• Impulsivity			Maccaby Draw-A-Line
• Maternal Teaching			Hess and Shipman Eight-Block Sorting Task

Examples of Impact Measures used with Children in Nationwide Studies, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
ATTITUDES TOWARD LEARNING AND ACHIEVEMENT (cont'd)			
• Style-interaction, cooperation, spontaneous verbalizations, classifications			
•		Kindergarten, Follow Through, Disadvantaged	Subtests and/or items** from: Preschool Inventory, Lee Clark Readiness Test, New York University for Developmental Studies Tests: Pre-math, Pre-science, Alphabet recognition, Shapes, Prepositions
•		Elementary Grades, Follow Through	Wide Range Achievement Test (with slight modification) Subtests and/or items** from: Metropolitan Readiness Test, Metropolitan Achievement Tests, Stanford Achievement Tests, Comprehensive Test of Basic Skills
• Embedded Figures			Hidden Triangles Test**
• Sequence			Which Comes First Test**

SELF CONCEPT			
•	Datta (1969)	Head Start	Brown IDS Self-Concept Reference Test
•	Westinghouse (1969)	6, 7, and 8 yrs., Disadvantaged	Children's Self-Concept Index II
SOCIAL ATTITUDES -- BEHAVIOR			
• Social interaction	Datta (1969)	Head Start	Observation of social interaction and protocol** (rate and content of peer and adult social interaction of forty-five minutes free play for each child)
• Child-child interaction		Head Start Subsample	Garfunkel's Classroom Behavior Survey**
• Sociometric			Picture Playboard Sociometric**
OTHER			
• T.V. viewing habits	Ball & Bogartz (1970)	3 to 5 yrs.	Parent Questionnaire** Classroom Observation** Daily reports by parents or teachers**

APPENDIX E

AN OVERVIEW OF CHILD MEASURES PROPOSED FOR USE IN ETS-OEO LONGITUDINAL STUDY

(From: Disadvantaged Children and Their First School Experiences: ETS-OEO Longitudinal Study, Theoretical Considerations and Measurement Strategies. Princeton, New Jersey: 1968. Appendix e.)

Various measures can be used to gauge the economic return of participation in the labor or work forces. Earning capacity is a simple measure of the hourly wage of persons who are actually working. For those in the labor force who are not working, expected wage can be used as a measure of earning capacity. Expected wage is based on personal characteristics, such as education, sex, occupation, and, where available, earning capacity on last job. While earning capacity is a useful measure of a person's return for his participation in the labor or work force, it does not provide an accurate measure of the actual impact of that participation on the family's economic status. For example, one family may use the additional, earned income to supplement income from other sources, such as Social Security; thus, a relatively small amount of income from earnings may be combined with other income so that the family has a larger total income than would be known by measuring the income from earnings alone.

To provide a total measure of the family's total income, it is necessary to take into account not only earnings, but also incomes that the family may receive from other sources. For this, one would want to look at the gross family income. Gross family income is the sum of both family earnings and transfers.

Family earnings are, of course, the sum of the earnings of the individual family members. Transfers are defined as unearned income and income in kind to the family. Transfers are an important consideration in measurements for families that receive substantial amounts of public assistance payments or child care subsidies. For such a family, the dollar amount of the public assistance payment is the measure of the transfer income from that source. The transfer income for families receiving child care subsidies is more complex. Suppose, for example, that a

OVERVIEW OF CHILD MEASURES PROPOSED FOR USE IN ETS-OEO LONGITUDINAL STUDY*

Test Category	Age 3-1/2	4-1/2	Grade K	1	2	3
REASONING AND ANALYTIC STYLES						
Block Design: WPPSI and WISC		●	●	●	●	●
Children's Embedded Figures Test				●	●	●
ETS Logical Reasoning Tests (written exercises VI-4 and VI-5)			●	●	●	
Hess and Shipman Eight-Block Sorting Task	●	●	●	●	●	●
Hess and Shipman Toy Sorting Task (or equivalent)	●	●	●	●	●	●
Picture Block Test		●	●			
Picture Completion: WPPSI and WISC	●	●	●	●	●	●
Portable Rod-and-Frame Test			●	●	●	●
Preschool Embedded Figures Test	●	●	●			
Tanaka Classification Test					●	●
ATTENTION, LEARNING, MEMORY						
Animal House: WPPSI		●	●			
Fixation Time	●	●	●	●	●	●
Form Memory		●	●	●		
Fruit-Distraction Test		●	●	●	●	
Relevant Redundant Cue Concept Task		●	●	●	●	●

Relevant Redundant Cue Concept Task Second Administration		•		•	•	•	•
Stanford Memory Test		•		•	•	•	•
Stroop Color-Word Interference Task						•	•
ATTITUDES, INTERESTS							
Brown IDS Self-Concept Referents Test	•	•		•	•	•	•
Northwestern University Interest Inventory (ETS Adaptation)				•	•	•	•
Social Schemata (or equivalent)		•		•	•	•	•
CONTROLLING MECHANISMS							
I-E Scale (Locus of Control)		•		•	•	•	•
Kreitler Cognitive Orientation		•		•	•	•	•
Matching Familiar Figures Test	•	•		•	•	•	•
Mischel Technique	•	•		•	•	•	•
Modified Hertzig Procedure	•	•		•	•	•	•
Motor Inhibition Test	•	•		•	•	•	•
Risk-Taking Tasks	•	•		•	•	•	•
Sigel Conceptual Style Sorting Task	•	•		•	•	•	•

*Disadvantaged Children and Their First School Experiences: ETS-OEO Longitudinal Study, Theoretical Considerations and Measurement Strategies. Princeton, New Jersey: 1968. Appendix e.

Overview of Child Measures Proposed for use in ETS-OEO Longitudinal Study, continued:

Test Category	Age 3-1/2	4-1/2	Grade K	1	2	3
CREATIVITY						
Children's Drawings			●	●	●	●
Ideational Fluency Tests			●	●	●	●
Naming Category Instances		●	●			
Uses Test (Nonverbal)	●	●	●	●	●	●
GENERAL KNOWLEDGE						
Cooperative Preschool Inventory (Caldwell)	●	●	●			
TAMA General Knowledge	●	●	●	●	●	●
GENERAL PERSONALITY						
Classroom Observation Rating Scale		●	●			
Classroom Teacher Rating Scale		●	●	●	●	●
Head Start Inventory, Test Performance	●	●	●	●	●	●
Test Situation Ratings of Children	●	●	●	●	●	●
PERCEPTION						

Analysis of Visually Perceived Forms (Birch and Lefford)		•	•	•	•	•
Auditory Discrimination Test			•	•	•	•
Children's Auditory Discrimination Inventory	•	•				
Developmental Test of Visual-Motor Integration	•	•	•	•	•	•
Johns Hopkins Perceptual Test	•	•	•	•	•	•
Seguin Form Board	•	•	•			
Synthesis of Visually Perceived Forms (Birch and Lefford)			•	•	•	•
Visual Perception Inventory: Position-in-Space Sub-test		•	•	•	•	•

PHYSICAL

Apgar	•	•	•	•	•	•
Auditory Screening	•	•	•	•	•	•
Blood Test	•	•	•	•	•	•
Child and Family Medical History Report Form	•	•	•	•	•	•
Physical Examination	•	•	•	•	•	•
Teacher Questionnaire on Child's Health		•	•	•	•	•
Urinalysis	•	•	•	•	•	•
Vigor Measures	•	•	•	•	•	•
Visual Examination	•	•	•	•	•	•

Overview of Child Measures Proposed for use in ETS-OEO Longitudinal Study, continued:

Test Category	Age 3-1/2	4-1/2	Grade K	1	2	3
PIAGETIAN						
Conception of Natural Events		●	●	●	●	●
Conservation of Number		●	●	●	●	
ETS Spatial Egocentrism Task		●	●	●	●	●
ETS Enumeration	●	●	●	●	●	●
Physical Identity and Sex Role Constancy Tasks	●	●	●	●	●	●
Spontaneous Correspondence	●	●	●			
QUANTITATIVE						
Cooperative Primary Tests: Mathematics				●	●	●
Supplementary Computation Exercises					●	●
SOCIAL MOTIVES						
Gumcookies		●	●	●	●	●
Hess and Shipman Etch-a-Sketch Interaction Task	●	●	●	●	●	●
Open Field Test	●	●	●	●	●	●
Play Situation--Picture Board Sociometric Technique		●	●	●		

VERBAL

Clymer-Barret Prereading Battery: Test 6, Copy-a-Sentence					●	●	●
Cooperative Primary Tests: Listening					●	●	●
Cooperative Primary Tests: Pilot					●		
Cooperative Primary Tests: Reading					●	●	●
Cooperative Primary Tests: Word Analysis					●	●	●
Cooperative Primary Tests: Writing Skills						●	●
ETS Communications Skills V-5				●			
ETS Matched Pictures Comprehension Task	●	●		●			
ETS Story Sequence Task, Part I	●	●					
ETS Story Sequence Task, Part II	●	●		●			
Gray Oral Reading Tests					●	●	●
Harrison-Stroud Reading Readiness Profiles, Test 6, Givihg the Names of Letters				●			
Harvard Story Completion Test				●	●	●	●
Illinois Test of Psycholinguistic Abilities: Auditory-Vocal Automatic Subtest		●		●	●		
Massad Mimicry Test	●	●		●	●	●	●
Metropolitan Readiness Tests				●			
Peabody Picture Vocabulary and ETS Adaptation	●	●					
TAMA Language Completion Test, Exercise A						●	●
TAMA Language Completion Test, Exercise B						●	●
TAMA Sentence Dictation Test						●	●
TAMA Tell-a-Story Task	●	●		●	●	●	●
TAMA Write-a-Story						●	●

APPENDIX F

EXAMPLES OF IMPACT MEASURES USED WITH CHILDREN IN SMALL RESEARCH STUDIES

The following tables give the variables measured and the subjects studied for some of the measures discussed in section 2.5, "Evaluations of Other Programs". The tables have been arranged by category (General Intelligence, Language, etc.) and, within each category, by date of study.

Note: ** indicates measures that were developed for the studies noted.

EXAMPLES OF IMPACT MEASURES USED WITH CHILDREN IN SMALL RESEARCH STUDIES

Characteristics	Author and Date	Subjects	Tests and Measures
GENERAL INTELLIGENCE			
•	Skeels (1966)	Institutionalized "Retarded" (Iowa) Over 4 yrs.	Kuhlman-Binet Intelligence Test Stanford-Binet Intelligence Scale Iowa Tests for Young Children
•	Davidson & Greenberg (1967)	10 to 11 yrs., Black (Harlem, N.Y.)	Wechsler Intelligence Scale for Children
•	Klaus & Gray (1968)	3.6 to 4.5 yrs. & 7.7 to 8.6 yrs., Disadvantaged (Tennessee)	Stanford-Binet Intelligence Scale Peabody Picture Vocabulary Test Wechsler Intelligence Scale for Children
•	Meier, et al. (1968)	3 to 4 yrs., Spanish surname (Colorado)	Stanford-Binet Intelligence Scale
•	Painter (1968)	8 to 24 mos., Disadvantaged (Colorado)	Merrill-Palmer Scale of Mental Tests

•	Van de Reit, et al.(1968-1969)	5 yrs., Disadvantaged, Black (Florida)	Stanford-Binet Intelligence Scale Peabody Picture Vocabulary Test Bender Gestalt Test for Young Children Sequin Form Board Human Figure Draw-A-Man
•	Willmon (1969)	6 to 7 yrs., former Head Start (Florida)	Detroit Group Intelligence Test
•	Schaefer (Infant Education) (No date)	14 to 21 mos. 27 to 36 mos.	Bayley Infant Scales Stanford-Binet Intelligence Scale
LANGUAGE			
• Oral language	Davidson & Greenberg (1970)	10 to 11 yrs. Black (Harlem, N.Y.)	Oral Language Sample**
• Written language productivity	Klaus & Gray (1968)	5.9 to 8 yrs., Disadvantaged, Black (Tennessee)	Illinois Test of Psycholinguistic Abilities (all sub-tests) Peabody Picture Vocabulary Test
•	Meier, et al. (1968)	3 to 4 yrs., Disadvantaged, Spanish surname (Colorado)	Peabody Picture Vocabulary Test
•	Painter (1968)	8 to 24 mos., Disadvantaged (Illinois)	Illinois Test of Psychilinguistic Abilities Merrill-Palmer Scale of Mental Tests

Examples of Impact Measures used with Children in Small Research Studies, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
LANGUAGE			
• Ability to express ideas	Van de Reit (1968-1969)	5 yrs., Disadvantaged, Black, (Florida)	Illinois Test of Psycholinguistic Abilities (vocal encoding)
• Language comprehension			Illinois Test of Psycholinguistic Abilities (visual decoding)
			Peabody Picture Vocabulary Test
• Verbal reasoning			Illinois Test of Psycholinguistic Abilities (auditory-vocal association)
• Reading, word knowledge	Almeida (1969)	7 to 8 yrs., Disadvantaged, Black & Spanish-speaking (New York City)	Metropolitan Achievement Test
			Word Knowledge, Read Subtests
• Associative vocabulary	Evaluation Report, Calif. Bureau of Preschool Ed. (1970)	3 to 5 yrs., Disadvantaged (California)	Preschool Inventory
•	Schaefer (Infant Education) (No date)	36 mos.	Peabody Picture Vocabulary Test
			Aaronson & Schaefer Preposition Test**
• Speech	Carter, et al. (No date)	3 to 6 yrs.	Screening (by speech clinician, pathologist)
			Peabody Picture Vocabulary Test

READINESS AND ACHIEVEMENT

• Adult educational level	Skeels (1966)	Adults, 25 to, 35 yrs., (Iowa)	Interview: Adult educational level and occupation
• Reading readiness	Willmon (1967)	6 yrs., former Head Start (Florida)	Metropolitan Readiness Test
•	Klaus & Gray (1968)	5.9 to 8 yrs., Disadvantaged (Tennessee)	Gates Reading Readiness Test (Subtests: Picture Directions, Word Matching, Word Card Matching, Rhyming, Numbers & Letters)
			Metropolitan Readiness Test
• Achievement		6.9 to 8 yrs.	Metropolitan Achievement Test (Subtests: Word Knowledge, Word Discrimination, Reading, Arithmetic, Spelling)
•		7 to 8 yrs.	Stanford Achievement Test (Subtests: Word Reading, Paragraph Meaning, Vocabulary, Spelling, Word Study, Skills, Arithmetic)
• General inventory	Meier, et al. (1968)	3 to 4 yrs., Disadvantaged, Spanish surname (Colorado)	Preschool Inventory
• Color identification			Color Identification**
• Reading readiness			Metropolitan Readiness Test

Examples of Impact Measures used with Children in Small Research Studies, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
READINESS AND ACHIEVEMENT			
• Color identification	Painter (1968)	8 to 24 mos., Disadvantaged (Illinois)	Color identification**
• Color labeling			Color Labeling** Visual Closure Subtest of Minnesota Preschool Scale
• Readiness for school	Van de Reit (1968-1969)	5 yrs., Disadvantaged, Black (Florida)	Metropolitan Reading Test (Subtests: Word Meaning, Sentences, Information Matching, Numbers, Copying)
• Ability in writing, reading, and numbers		6 to 7 yrs.	Teacher Rate -- Ten-Point Scale** for each
• Ability in arithmetic concepts			Teacher Rate -- Ten-Point Scale**
• Standing in class			Teacher Rate -- Ten-Point Scale**
• Readiness for school			School Readiness Screening Test**
• Readiness for school	Almeida (1969)	5 to 6 yrs., Black & Spanish-speaking (New York City)	Metropolitan Readiness Test

• Ordinal or numerical relations	Evaluation Report, Calif. Bureau of Preschool Ed. (1970)	3 to 5 yrs., Disadvantaged (California	Preschool Inventory
• Sensory attributes			
ATTITUDES AND BEHAVIORS RELATED TO ACADEMIC ACHIEVEMENT			
• Attitudes and motivations related to academic learning	Davidson & Greenberg (1967)	10 to 11 yrs., Black (Harlem, New York)	Story-telling Task** Child Interview** Achievement Attitudes Test
• Emphasis placed on role as learner			Written Composition**
• Relationship to examiner			Test Behavior Schedule**
• Reactions to tasks and materials			
• Child's attitude toward his performance			School Behavior Rating Scale**
• Reflectivity and impulsivity	Klaus & Gray (1968)	5.9 to 6 yrs., Disadvantaged, Black	Matching Familiar Figures Test (Kagan)
• Achievement motivation		6.9 to 7 yrs., Disadvantaged, Black (Tennessee)	Achievement Motivation Test**
• Autonomy	Meier, et al. (1968)	3 to 4 yrs., Disadvantaged, Spanish surname (Colorado)	Cincinnati Autonomy Test Battery (curiosity box, impulse control, innovative behavior, field independence)

Examples of Impact Measures used with Children in Small Research Studies, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
ATTITUDES AND BEHAVIORS RELATED TO ACADEMIC ACHIEVEMENT			
• Effort	Van de Reit (1968-1969)	6 to 7 yrs., Disadvantaged, Black (Florida)	Teacher Rate -- Ten-Point Scale**
• Interest in school work			Teacher Rate -- Ten-Point Scale**
• Overall adaptation to first grade			Teacher Rate -- Ten-Point Scale**
OTHER COGNITIVE - INTELLECTUAL			
• Cognitive factors	Davidson & Greenberg (1967)	10 to 11 mos., Black (Harlem, N.Y.)	Rorschach
• Ideational fluency and spontaneous flexibility			Uses for Objects**
• Breadth of categories Appropriate superordinate levels			Object Sorting** Bender Motor Gestalt Test
• Problem Solving	Beller (1969)	Preschool, Get-set Head Start (Philadelphia)	Experimental Task (find object hidden under one of three boxes, 30 trials)**

SELF-CONCEPT			
• Child's view of himself and his family relationships	Davidson & Greenberg (1967)	10 to 11 yrs., Black (Harlem, N.Y.)	Free Drawing Task
			Self-Appraisal Scale**
• Self-perception			Clinical Appraisal Scale**
•	Meier, et al. (1968)	3 to 4 yrs., Disadvantaged, Spanish surname (Colorado)	IDS Self-Concept Reference Test
•	Klaus & Gray (1968)	6.9 to 8 yrs., Disadvantaged, Black (Tennessee)	An Adaptation of Piers & Harris' Draw-A-Plan
SOCIAL AND EMOTIONAL BEHAVIORS AND ATTITUDES			
• Affective personality factors	Davidson & Greenberg (1967)	10 to 11 yrs., Black (Harlem, N.Y.)	Rorschach
• Child's view of himself and family relationships			Free Drawing Task**
• Cautiousness			Test of Caution**
			Semantic Difference**
• Anxiety, hostility, control, need hunger, perception of authority, degree of emotional disturbance, reality testing			Clinical Appraisal Scales** (Ratings by clinical psychologists using nearly all other testing information)
• Informal psychiatric screening	Hotkins, et al. (1968)	Head Start (New York City)	Observation in classroom

Examples of Impact Measures used with Children in Small Research Studies, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
SOCIAL AND EMOTIONAL BEHAVIORS AND ATTITUDES			
• Reputation among peers	Klaus & Gray (1968)	6.9 to 7 yrs., Disadvantaged, Black (Tennessee)	Who Are They?**
• Social deprivation			Marble Drop (Social Reinforcement)
• Ability to get along with other children	Van de Reit (1968-1969)	6 to 7 yrs., Disadvantaged, Black (Florida	Teacher Rate**
OTHER: MISCELLANEOUS			
• Adult development	Skeels (1966)	Adults (Iowa)	Evaluation of house; neighborhood attitudes toward adoption, military service, community activities, hobbies, special interests
• Creativity, ability to think divergently	Davidson & Greenberg (1967)	10 to 11 yrs., Black (Harlem, N.Y.)	Drawing Completion Test**
• Delay of gratification	Klaus & Gray (1968)	6.9 to 7 yrs., Disadvantaged, Black	"Some Now or More Later"**
• Social schemata		5.9 to 6 yrs., Disadvantaged, Black (Tennessee)	Free Felt Figure Placement**

• Leadership	Van de Reit (1968-1969)	5 yrs., Disadvantaged Black (Florida)	Teacher Rate -- Ten-Point Scale**
• Overall discipline			Teacher Rate -- Ten-Point Scale**
PHYSICAL DEVELOPMENT			
• Vision screening	Kraskin (1968)	Head Start, 3 to 6 yrs.	External appearance of eyes Eye alignment Peripheral orientations
• Pediatric	Mico (1968)	Head Start (Boston)	Pediatric (Physical) evaluation
• Vision			Vision test
• Speech			Speech evaluation
• Dental			Dental examination
• Trunk and limbs	Krogman (1970)	7 to 17 yrs., middle class (Philadelphia)	26 Measurements of trunk and limbs
• Physical growth and development	Maresh & Beal (1970)	2, 4, and 6 mos. at 6 mos. intervals until 18 yrs. Upper middle-class (Denver)	Serial roentgenograms of the extremities Measurements of width, muscle, fat at selected sites
• Distance vision	Carter, et al. (no date)	Rural Tennessee 4 yrs. 8 mos. to 5 yrs. 7 mos.; Low Income	Screening
• Hearing		Urban, 3 yrs. 8 mos. to 4 yrs. 8 mos.	Audiogram

Examples of Impact Measures used with Children in Small Research Studies, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
PHYSICAL DEVELOPMENT			
• Medical history birthweight			Available medical records from health dept., hospital repords, private physicians
• Physical status			Physical examination
• Height, weight; arm, chest, head circumference; muscles, skinfold thickness			Anthropometric measures
• Skeletal maturation and bone density			X-ray of left hand
• Dental status			Dental examination
• Hemoglobin count and nutritional status			Biochemical analysis of blood specimens
• Presence of ova, parasites			Scotch tape swab Stool examination

APPENDIX G

MEASUREMENT OF THE IMPACTS OF PARENT PARTICIPATION IN CHILD CARE PROGRAMS

The following tables give the variables measured and the subjects studied for each of the measures in section 3.0, "Measurement of the Impacts of Parent Participation in Child Care Programs." The tables include both the studies in which widely used measures were standardized and examples of typical kinds of measures used to assess program outcomes. Both sets of tables have been ordered chronologically, according to date of study.

Note: * indicates measures that were developed for the study noted, although not as a major purpose of that study.

** indicates measures whose development was a major purpose of the study noted.

MEASUREMENT OF THE IMPACTS OF PARENT PARTICIPATION IN CHILD CARE PROGRAMS

Measures based on middle class subjects:

Characteristics	Author and Date	Subjects	Tests and Measures
PARENT:			
• Child-rearing behavior of parents and general home and family atmosphere On three dimensions: warmth, intellectual objectivity, and control	Baldwin, et al. (1949)	Families participating in the Fels Research Institute's Longitudinal Study of Human Development (small town, Ohio)	Fels Behavior Rating Scale**
CHILD:			
• No measure			
PARENT:			
• Parent attitudes toward child-raising	Shoben (1949)	White, Urban, Middle Class mothers	Parent Attitude Survey**
CHILD:			
• No measure			

PARENT: • Mother's attitude toward independence in children	Winterbottom (1958)	Eight-year old boys and their mothers, (small midwestern community)	Maternal Attitudes Toward Independence Training**
CHILD: • Achievement needs			Stories told by children*
PARENT: • Mother's attitude toward children's independence and achievement	Chance (1958)	High-intelligence, elementary-age children and their parents	Parental Attitudes Research Instrument, (see Schaefer & Bell, 1958) Maternal Attitudes toward Independence Training, (Winterbottom, 1958)
CHILD: • Motivation for achievement locus of control			Intellectual Achievement Responsibility Questionnaire, (Crandall, Katkovsky, Crandall, 1965) Incomplete story technique*

Measures based on middle class subjects, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
PARENT:			
• Mother's attitude toward child-rearing and family life	Schaefer & Bell (1958)	Middle Class women tested after child-birth (military hospital, Washington, D.C.)	Parental Attitudes Research Instrument**
CHILD:			
• No measure			
PARENT:			
• Mother's attitude toward child-rearing	Brody (1966)	Middle Class pre-school children and their mothers	Parent Attitude Research Instrument (PARI) Maryland Parent Attitude Survey (MPAS)
CHILD:			
• Behavior			Observation using Bales interaction process analysis
PARENT:			
• Behavioral response toward children's achievement behavior	Katkovsky, et. al. (1966) (Study A)	Middle Class, high intelligence, elementary-age children and their parents from families participating in the Fels Research Institute's Longitudinal Study of Human Development (small town, Ohio)	Nine Scales taken from Fels Parent Behavior Rating Scales (see Baldwin, Kalhorn, Breese, 1949)

CHILD:			
• Perception of locus of control of their achievement behavior			Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky, Crandall, 1965)
PARENT:			
• Behavioral response toward children's achievement behavior	Katkovsky, et. al. (1966) (Study B)	Same as for Study A	Semi-structured interviews Parent Reaction Questionnaire*
CHILD:			
• Perception of locus of control of achievement behavior			Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky, Crandall, 1965)

Measures developed for use with Disadvantaged Families

Characteristics	Author and Date	Subjects	Tests and Measures
PARENT:			
• Mother-child interaction, mother's cognitive style, classification behavior and teaching effectiveness	Hess & Shipman (1965)	Four-year old urban children from four social classes and their mothers (Chicago)	Hess-Shipman Mother-Child Interaction Test
• Mother's technique for influence and control of child			Parent interview
• Mother's language ability			Story told by mother*
CHILD:			
• Learning resulting from mother's teaching			Experimenter's questioning of child
PARENT:			
• Mother's coerciveness toward child; responsiveness to child; perception of child's fears, hopes; expectations for child; self-image,,, perception of own power	Hess (1966)	Disadvantaged, Head Start children from two Chicago centers and their mothers	Parent Interview
• Mother's perception of child's achievement, independence, aggressiveness, sociability			Checklist Behavior Inventory

• Attitudes toward educational system			Education Attitude Survey
• Perceptual ability to distinguish form from color			Witkin's Embedded Figures Test
• Ability to conceptualize child's personality			Bieris' Cognitive Roles Test
CHILD:			
• Cognitive and affective development			A wide range of measures of children's cognitive and affective development
PARENT:			
• Self-concept	Gordon (1967)	Disadvantaged infants and their mothers (rural and small town, South)	How I See Myself Scale
• Autonomy and sense of personal effectiveness			Rotter Scale Reaction Inventory
• Language usage			Markel Voice and Language Assessment
CHILD:			
• Infant mental development			Griffith Scale of Development Bayley Scale
• Race awareness			Goldman Race-Awareness Test

Measures developed for use with Disadvantaged Families, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
PARENT:			
• Parent's educational, occupational and income aspirations for child; marital relationship; parent-child interaction, child-rearing attitudes, parent's use of control and sense of competence	Sigel (1967)	Disadvantaged, urban, Black, Head Start parents	Merrill-Palmer Head Start Questionnaire**
CHILD:			
• No measure			
PARENT:			
• Kind and extent of parent involvement in Head Start	Willmon (1967)	Disadvantaged, Head Start children and their parents (rural and urban South)	Daily record of kind and extent of parent participation, kept by teachers*
CHILD:			
• Reading readiness			Metropolitan Reading Readiness Test
• Intelligence			Detroit Group Intelligence Test

PARENT: • Parent's attitude toward school policy and discipline, school readiness activities, school personnel, and parent's perception of teacher's interest in disadvantaged children CHILD: • No measure	Clarizio (1968)	Disadvantaged, Head Start and non-Head Start mothers (urban Michigan)	Maternal Attitude Scale* Teacher Rating Scale (Teacher's assessment of same parental attitudes)*
PARENT: • Attitudes toward school, attitudes toward program, attitudes toward child, attitudes toward self CHILD: • No measure	Gewirtz (1968)	Disadvantaged parents in the Parental Involvement in Reading - Improvement Program (Title I) in New York City	Structured interviews*

Measures developed for use with Disadvantaged Families, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
PARENT: • Parent attitudes: self-acceptance, alienation from community, political alienation, powerlessness, meaninglessness	Hanson, et. al. (1968)	Disadvantaged mothers, Middle and Upper Class female students, and professionals (Los Angeles)	Attitude Differences Related to Economic Status (ADRES) Scale**
CHILD: • No measure			
PARENT: • Attitudes, expectations and behavior toward children, including: educational attitudes, educational and occupational aspirations for children, punishment and influence techniques	Hervey (1968)	Disadvantaged, urban, Black, Head Start parents and non-Head Start parents	Shortened form of Merrill-Palmer Head Start Questionnaire (Sigel, 1967)
CHILD: • No measure			

PARENT:			
• Mother's language ability	Swift (1968)	Urban, disadvantaged mothers	Stories told by mother on basis of Children's Apperception Test Cards, (Bellak & Bellak, 1961)* Peabody
CHILD:			
• Vocabulary			Peabody Picture Vocabulary Test
• Language ability			Preschool Inventory based on Caldwell Illinois Test of Psycholinguistic Ability Inventory of Oral Communication for Children
PARENT:			
• Mother-child interaction	Boger, (1969)	Rural, White, Head Start children, lower and middle class, and their parents	Hess & Shipman Mother-Child Interaction Toy Sorting and Puzzle Test
• Mother's language ability			MSU Tell-a-Story Test
CHILD:			
• Intelligence			Wechsler Preschool & Primary Scale of Intelligence
• Language ability			Illinois Test of Psycholinguistic ability
• Self-concept			Experimental MSU Self-Social Constructs Test

Measures developed for use with Disadvantaged Families, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
PARENT:			
• Aspirations & expectations for child, attitudes & behavior in child-rearing, awareness of community services, degree & kind of parent participation in program	Early Childhood Education Learning System (1969)	Preschool-age Mexican-American migrant children and their parents	Parent Involvement Interview Schedule*
CHILD:			
• Intelligence			Slosson Intelligence Test
• Achievement			Leita International Performance Scale
• Behavior			Preschool Attainment Record Checklist
PARENT:			
• Extent of participation in school program for parents	Heisler & Crowley (1969)	First and second graders, mostly disadvantaged Blacks (Wyandanch, N.Y.)	Number of contacts with school*
CHILD:			
• Intelligence			Lorge-Thorndike Intelligence Tests
• School Achievement			Metropolitan Achievement Tests

PARENT: • General optimism, aspiration level for the child, child-rearing practices • Extent of parent participation in program CHILD: • No measure	Jacobs (1969)	Disadvantaged, Black Latin-American parents of Head Start children (Austin, Texas)	The Parent Interview (Hess and Shipman, 1965-7) Amount and kind of contact with Head Start assessed in interview*
PARENT: • Extent of participation in program CHILD: • Reading ability • Attitude to Parent • Assist in Learning program	Niedermeyer (1969)	Lower-Middle Class, White, kindergarten children and their parents	Number of homework exercises completed* Post test* Activities Preference Form*

Measures developed for use with Disadvantaged Families, continued:

Characteristics	Author and Date	Subjects	Tests and Measures
PARENT:			
• Parent attitudes toward Head Start, education, child-rearing, extent of community involvement	Adkins (1970)	Disadvantaged, Head Start parents and their children (Hawaii)	Unstructured interview*
• Extent of parent participation			Attendance at parent meetings*
CHILD:			
• Intelligence			Stanford-Binet Preschool Inventory
• Anxiety			WPPSI Animal House Subtest
• Achievement motivation			Inventory of factors affecting test performance
			Gumcookies (Achievement motivation test)
PARENT:			
• Participation in program	Karnes (1970)	Primarily Black, disadvantaged mothers and their infants (Champaigne-Urbana, Illinois)	Attendance at meetings
CHILD:			
• Intelligence			Stanford-Binet Intelligence Scale Form L-M
• Language ability			Illinois Test of Psycholinguistic Abilities

PARENT:			
• Value for school achievement, warmth toward child, diversity of social contact, orientation toward teaching child	Slaughter (1970)	Urban, Disadvantaged, Head Start children and their mothers	Parent Interview (Hess, 1965)
• Futility			Education Attitude Survey (Hess, 1965)
CHILD:			
• Intelligence			Stanford-Binet
• School readiness			Metropolitan Reading Readiness Tests
			Caldwell's Preschool Achievement Inventory

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