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A COMPARISON OF PARENTS' AND TEACHERS' ASSESSMENTS OF  
TRAINABLE MENTALLY RETARDED STUDENTS

by

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A DISSERTATION

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## Introduction

During the last several years, the parents of mentally retarded children have, through the process of litigation, reasserted their right to active involvement in decisions related to the education of their children. In 1968 the Superior Court of the State of California in the case of Arreola v. Board of Education affirmed the right of parents to a hearing prior to the placement of their children in special classes for the educable mentally retarded. Since that time the right of parents to participate in various decisions affecting the education of their mentally retarded children has been maintained by our nation's courts with marked consistency (Stewart v. Phillips, 1970; Pennsylvania Association for Retarded Citizens (PARC) v. The Commonwealth of Pennsylvania, 1972; Guadalupe Org. v. Tempe Elementary School District No. 3, 1972; Mills v. Board of Education of the District of Columbia, 1972; LeBanks v. Spears, 1973).

Recently enacted federal legislation has also supported parental involvement in the education of their mentally retarded children. Public Law 93-380, the Education Amendments of 1974, requires state departments of education to establish due process procedures for involving the parents of mentally retarded and other handicapped

children in the process of educational identification, evaluation, and placement (Abeson, Bolick, & Hass, 1975). These legislative provisions have been constructively refined in Public Law 94-142 which additionally requires that parents be given an opportunity to assist in the development of an individualized instructional plan for their child.

The involvement of parents in educational decisions which affect their mentally retarded child should enhance the effectiveness of special education programs and promote the growth and development of the child (Justison, 1958; Voelker, 1967; McDonald, 1971; Doernberg, 1972; Kelly, 1973). The potential benefits of parental involvement in the education of mentally retarded children are illustrated by the results of an investigation of Head Start programs (Midco Educational Associates, 1972) which revealed that the children of parents who were highly involved in the educational program performed better on measures of intelligence, achievement, social behavior, and self-concept than did the children of parents who were only minimally involved in the program. These results are representative of the overall body of research on parental involvement in the schooling of their children which indicates that parental participation correlates positively with increased child development and improved academic achievement (Lopate, Flaxman, Bynum, & Gordon, 1970).

Though both parents and school personnel desire the educational welfare of the mentally retarded child, achievement of the potential benefits associated with parental involvement in the education of mentally retarded children may be hindered by perceptual differences between parents and school personnel. The parents' view of the child is based primarily on a knowledge of the child in family and neighborhood settings in which the child engages mainly in social, non-academic activities. The professional educator's impression of the child is derived from observations of the child in a relatively structured, classroom setting in which the social, motor, language, and academic abilities of the child can be, more or less, objectively compared to the abilities of other children in the class. It is understandable, therefore, that parents and educators may not share common perceptions of mentally retarded children and that these perceptual differences may interfere with their ability to agree on educational programming for mentally retarded children.

Parental Assessments of  
Mentally Retarded Children

Assessment differences. Research which has focused on parental perceptions of the abilities of their mentally retarded children reveals an unbroken pattern of high ability estimates by parents. Assessments of

mentally retarded children which have been provided by mothers, by fathers, and by both parents have all been found to be higher than the criteria to which they were compared regardless of whether the criterion was educational placement, IQ test results, or a professional's estimate of the child's abilities (Goldstein, 1956; Ewert & Green, 1957; Cain, Levine, Tallman, Elzey, Baker & Moss, 1959; Schulman & Stern, 1959; Zuk, 1959; Capobianco & Knox, 1964; Olshansky & Schonfield, 1965; Goldstein, Moss & Jordan, 1965; Kurtz, 1965, Gorelick & Sandhu, 1967; Heriot & Schmickel, 1967; Meyerowitz, 1967; Van Every, 1969; Jamison, Attwell, & Fils, 1971; Wolfensberger & Kurtz, 1971; Newman & Doby, 1973). When specific interrater comparisons have been examined, maternal estimates have generally been higher than paternal estimates and significantly higher than both teachers' estimates and test results (Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Capobianco & Knox, 1964; Heriot & Schmickel, 1967; Gorelick & Sandhu, 1967; Van Every, 1969; Jamison, Attwell & Fils, 1971). Paternal estimates have also, without exception, been higher than teachers' assessments and test results. However, the magnitude of these differences has not been shown to be statistically significant (Capobianco & Knox, 1964; Van Every, 1969; Wolfensberger & Kurtz, 1971).

Assessment correlations. Though parental estimates of the abilities of their mentally retarded children do differ from one another and from criterion evaluations, it should be noted that the relationships between mothers' and fathers' assessments and between parental and professional assessments have, with rare exceptions, been found to be very strong. Significant positive correlations have been found between maternal and paternal assessments of the abilities of their retarded children (Cain, Levine, Tallman, Elzey, Baker & Moss, 1959; Van Every, 1969; Wolfensberger & Kurtz, 1971). Similar correlations have been reported between combined parental assessments and professional assessments, between maternal and professional assessments, and between paternal and professional assessments (Goldstein, 1956; Ewert & Green, 1957; Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Schulman and Stern, 1959; Kurtz, 1965; Heriot & Schmickel, 1967; Van Every, 1969; Wolfensberger & Kurtz, 1971).

Correlates of parental assessment accuracy. A number of investigators have attempted to identify variables related to the accuracy of parental evaluations of their retarded children (Ewert & Green, 1957; Stoddard, 1959; Zuk, 1959; Kurtz, 1965; Heriot & Schmickel, 1967; Gorelick & Sandhu, 1967; Van Every, 1969; Wolfensberger & Kurtz, 1971, Jamison, Attwell & Fils, 1971; Weller,

Costeff, Cohen, & Rahman, 1974). Though various studies have cumulatively examined the relationship of over 30 variables to parental assessment accuracy, only two variables, child's IQ and parental socio-economic status, have repeatedly shown a significant correlation with parental accuracy. The parents of children with lower IQ scores have tended to be more accurate in assessing the abilities of their retarded children (Kurtz, 1965; Heriot & Schmickel, 1967; Weller, Costeff, Cohen, & Rahman, 1974). However, Wolfensberger and Kurtz (1971) reported a significant relationship between comparatively high IQ (65 and above) and parental accuracy; and other investigators have found no significant relationship between child's IQ and the accuracy of parental assessments (Ewert & Green, 1957; Stoddard, 1959). A significant positive correlation between parental socio-economic status and assessment accuracy has also been reported in more than one study (Wolfensberger & Kurtz, 1971; Weller, Costeff, Cohen, & Rahman, 1974) though other investigations have not found the relationship between these two variables to be statistically significant (Heriot & Schmickel, 1967; Van Every, 1969).

Significant positive relationships have also been found between parental accuracy and the child's chronological age (Ewert & Green, 1957), sex (Jamison, Attwell, & Fils, 1971), social quotient, presence of seizures

(Heriot & Schmickel, 1967), presence of motor handicaps (Zuk, 1959), parental education (Ewert & Green, 1957), parental religion (Wolfensberger & Kurtz, 1971), and the age of the child when the parents first became concerned (Ewert & Green, 1957). However, the significance of the relationships between these variables and parental accuracy has either not been examined in more than one study or, in the case of the child's age and sex variables, has not been confirmed by other investigations which have examined the relationships of these variables to the accuracy of parental assessments.

Parents' and Teachers' Assessments  
of Trainable Mentally Retarded  
Children

Assessment differences. Relatively few studies have focused on parents' and teachers' assessments of trainable mentally retarded (TMR) children. However, each of the studies which have compared parents' and teachers' ratings of the abilities of TMR children has reported higher overall ability ratings by parents (Goldstein, 1956; Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Van Every, 1969; Jamison, Attwell & Fils, 1971; Newman & Doby, 1973). Parents of TMR children not only provide higher total ratings of their children than do teachers but also rate their children higher on a majority of the skills and skill areas being assessed (Goldstein, 1956; Cain, Levine, Tallman, Elzey, Baker,

& Moss, 1959; Van Every, 1969). When specific inter-rater comparisons have been undertaken, maternal estimates have been higher than paternal estimates and significantly higher than teachers' estimates (Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Jamison, Attwell, & Fils, 1971). Higher maternal estimates have also been found when parents' and teachers' subscale ratings have been compared (Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Van Every, 1969). Thus far, though Van Every (1969) has reported paternal estimates to average higher than teachers' estimates, no study has undertaken a statistical analysis of the differences between fathers' and teachers' assessments of TMR children.

Assessment correlations. Though parental assessments of the abilities of their TMR children have consistently been found to be higher than those of teachers, it should be emphasized that significant positive correlations have generally been found between parents' and teachers' ratings. Goldstein (1956) reported correlations between .81 and .90 for parents' and teachers' assessments of TMR children completed at three different times over a two year period. Significant positive correlations have also been reported between mothers' and teachers', fathers' and teachers', and mothers' and fathers' total-score and subscale ratings of the abilities of TMR

children (Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Van Every, 1969).

Correlates of parental assessment accuracy. Investigators have not succeeded in verifying a significant relationship between any demographic variable and the accuracy of parental evaluations of TMR children. Though Jamison, Attwell, and Fils (1971) reported the sex of the child to be related to differential ratings by mothers and teachers, previous investigators had failed to find a significant relationship between the sex of the child and agreement between parent and teacher assessments (Stoddard, 1959; Van Every, 1969). In addition to student's sex, the relationship of student's chronological age, mental age, IQ, achievement level, progress in a school program, parental reality level (Stoddard, 1959), and family socio-economic status (Van Every, 1969) have been examined and found not to be significantly related to the accuracy of parental assessments of their TMR children.

Conclusions. Research on parents' and teachers' assessments of TMR children strongly supports the following conclusions: (1) parents rate TMR children higher than do teachers on both total scores and subscale scores; (2) mothers rate their TMR children significantly higher than do teachers on both total scores and subscale scores; (3) significant positive

correlations exist between mothers' and fathers' assessments and between mothers' and teachers' assessments of TMR children. Differences between fathers' and teachers' assessments of TMR children have not been statistically analyzed nor has any one study compared mothers' and teachers' assessments, fathers' and teachers' assessments, and mothers' and fathers' assessments of TMR children on either total scores or subscale scores. Similarly, investigators have, to a great extent, neglected attempting to identify variables which are related to differences between parents' and teachers' assessments and between mothers' and fathers' assessments of TMR children. (A detailed review of research on parental assessments of the abilities of their TMR children is presented in Appendix A.)

#### Purpose of This Study

The purpose of this study is twofold: (1) to investigate the relationships and the differences among mothers', fathers', and teachers' assessments of TMR children, and (2) to attempt to identify demographic variables which are significantly related to differences between parents' and teachers' and between mothers' and fathers' assessments of TMR children. In the course of this study, the following hypotheses will be examined.

1. There will be a significant positive correlation between each of the following:

- (a) mothers' and teachers' assessments  
of TMR children
  - (b) fathers' and teachers' assessments  
of TMR children
  - (c) mothers' and fathers' assessments of  
TMR children
2. The assessments of TMR children completed  
by mothers will be significantly higher  
than those completed by teachers.
  3. There will not be a significant difference  
between the assessments of TMR children com-  
pleted by fathers and those completed by  
teachers.
  4. There will not be a significant difference  
between the assessments of TMR children  
completed by mothers and those completed  
by fathers.
  5. There will be a significant difference among  
the skill area profiles of assessments of  
TMR children completed by mothers, fathers,  
and teachers.
    - 5a. There will be a significant dif-  
ference among mothers', fathers',  
and teachers' assessments of TMR  
children in the following skill  
areas:

- (1) Self-Care
- (2) Motor Skills
- (3) Communication Skills
- (4) Number Skills
- (5) Domestic Skills
- (6) Personal Development

6. There will not be a significant correlation between parent-teacher difference scores and the following group of variables:

Parent's:

- (a) sex
- (b) age
- (c) education
- (d) social position
- (e) race

Child's:

- (f) sex
- (g) IQ
- (h) chronological age
- (i) length of time in a TMR program
- (j) additional handicaps

6a. There will not be a significant correlation between parent-teacher difference scores and the following variables:

Parent's:

- (1) sex
- (2) age

(3) education

(4) social position

(5) race

Child's:

(6) sex

(7) IQ

(8) chronological age

(9) length of time in a TMR

program

(10) additional handicaps

7. There will not be a significant correlation between mother-father difference scores and the following group of variables:

(a) social position

(b) sex of child

(c) IQ of child

(d) chronological age of child

(e) length of time in TMR program

(f) additional handicaps

7a. There will not be a significant correlation between mother-father difference scores and the following variables:

(1) social position

(2) sex of TMR child

(3) IQ of child

(4) chronological age of child

(5) length of time in TMR program

(6) additional handicaps

Definition of Terms

Trainable mentally retarded (TMR) refers to students in the special program for the trainable mentally retarded in the Birmingham, Alabama, city school system. These students range in age from 3-21 years and have, for the most part, scored between 30-55 on individual IQ tests.

Mothers designates de facto female guardians (mothers, grandmothers, foster mothers, aunts).

Fathers designates de facto male guardians (fathers, brothers, foster fathers, stepfathers).

Skill area profile refers to performance scores on the subscales of the TMR-Functional Skills Record (TMR-FSR): Self-Care, Motor Skills, Communication Skills, Number Skills, Domestic Skills, Personal Development.

Social position refers to an individual's Two Factor Index of Social Position Score which is a composite of weighted occupational and educational scale scores (Hollingshead, 1957).

Additional handicaps refers to the following categories of motor and/or sensory impairments: blind, partially sighted, deaf, hard of hearing, cerebral palsied, seizures, motor handicaps.

## Method

### Subjects

Sample selection. Three months prior to the initiation of data gathering procedures, 144 students were selected from a total population of approximately 270 students enrolled in the TMR program of the Birmingham, Alabama, city school system. Eleven students were subsequently discarded from this random sample--three had moved from the area; two had been transferred out of the TMR program; two were primarily sensory impaired; and four were eliminated by school system personnel who feared adverse parental reaction to a request for participation in the study. The Director of Guidance of the Birmingham city school system sent the parents of the remaining 133 students a letter (see Appendix B) requesting their participation in the study and permission to use school-record information on their retarded child. A stamped, addressed postcard was enclosed for parental response to this letter. The parents of 103 students participated in the study.<sup>1</sup>

Student-characteristics. The 103 student subjects of this study ranged in age from 5.0 years to 20.9 years with a mean average of 13.4 years (SD = 3.7 years) and had been enrolled in a TMR program between 5 months

and 15+ years with a median enrollment time of 3.5 years. Sixty-one of the student subjects were male, and 42 were female, 43 were White; 60 were Black; 20 had motor and/or sensory handicaps in addition to being mentally retarded; and 83 had no additional handicaps. The median IQ for the 101 student subjects who had been given individual intelligence tests was 41.67 with a range of below norms-  
60.<sup>2</sup>

Parent-characteristics. The parent population used in this study consisted of 165 parents of the 103 TMR student subjects. This parent sample included 62 sets of parents, 36 single (divorced, separated, widowed, unmarried) parents, and 5 married parents whose husbands or wives did not participate in the study. More specific information on the marital status of the parent population is presented in Table 1.

The 101 mothers in the parent sample ranged in age from 25-74 with an average age of 42.78 (SD = 10.20 years). These mothers averaged 11.10 years of formal schooling (SD = 2.67 years) with a range of 5-17 years. The fathers in this parent population were, as a group, older and less well-educated than the mothers. The average age of the 64 fathers was 46.14 (SD = 11.11) with a range of 26-84 years. The educational level of the fathers extended from no formal schooling to college

Table 1  
Marital Status of Parent Sample

	Married (Spouse parti- cipated in study)	Married (Spouse did not participate in study)	Single (divorced, sepa- rated, widowed, unmarried)	Total
Mothers	62	4	35	101
Fathers	62	1	1	64
Total	124	5	36	165

graduation with an average of 10.41 years of school attendance (SD = 4.11 years).

#### Assessment Instrument

The TMR-Functional Skills Record (TMR-FSR) (see Appendix C) was used to evaluate each of the 103 TMR student subjects. The TMR-FSR is a simple, efficient instrument for assessing a broad range of behaviors appropriate for students in public school TMR programs. This instrument measures the abilities of TMR students on 100 different skills which have been organized into 18 skill areas. Since the evaluator's past observations of the student serve as the bases for determining the degree to which a student has mastered each of the skills on the instrument, the assessment of a student by either a parent or a teacher can be easily completed in less than 15 minutes.

The TMR-FSR yields a total score and six subscale scores: Self-Care, Motor Skills, Communication Skills, Number Skills, Domestic Skills, and Personal Development. The internal consistency (Cronbach's Coefficient Alpha) for the overall instrument is .98; the internal consistency of the individual subscales ranges from .87 (Motor Skills) to .96 (Self-Care). The test-retest reliability (Pearson product-moment correlation) of the total instrument is .95. Subscale test-retest reliabilities range from .83 (Personal Development) to .96

(Number Skills). Detailed information on the development and reliability of the TMR-FSR is presented in Appendix D.

Since the internal consistency of the TMR-FSR had not been previously established for parent-completed assessments of TMR children, Cronbach's Coefficient Alpha for the overall TMR-FSR and each of its subscales was determined for both the mother-completed and father-completed assessments of the student subjects used in this study. Total instrument and subscale internal consistency correlations were also computed for the teacher-completed assessments of the 103 student subjects. The internal consistency correlation coefficients for both the parent-completed and teacher-completed TMR-FSRs are presented in Table 2.

#### Data-Gathering Procedures

Teacher-assessments. The teachers of the 103 student subjects were asked to complete a TMR-FSR on each of the subjects enrolled in their respective classes. The assessment instruments with accompanying written instructions were delivered to each teacher by the investigator who provided a brief oral summary of the directions for completing the instrument. The teachers were requested to complete the assessments within three days at which time the investigator collected the instruments.<sup>3</sup> In instances where a teacher had failed

Table 2

Internal Consistency<sup>a</sup> of TMR-FSR: Mothers', Fathers', and Teachers' Assessments

Area	Mothers (n = 101)			Fathers (n = 64)			Teachers (n = 103)		
	M	SD	$\bar{r}_{\alpha}$	M	SD	$\bar{r}_{\alpha}$	M	SD	$\bar{r}_{\alpha}$
Self-Care	94.30	12.08	.93	96.11	11.20	.94	93.84	13.94	.96
Motor Skills	38.08	4.60	.84	39.28	3.73	.82	37.80	4.74	.89
Communication Skills	37.50	8.86	.93	38.33	8.60	.93	36.82	9.92	.95
Number Skills	22.25	6.72	.92	23.58	6.81	.93	21.47	6.79	.93
Domestic Skills	26.28	5.62	.88	27.36	5.62	.91	25.67	6.40	.94
Personal Development	26.65	4.93	.84	27.59	4.52	.84	24.94	5.57	.90
Total Score	245.06	37.24	.98	252.25	35.18	.98	240.53	42.46	.98

<sup>a</sup>Cronbach's Coefficient Alpha

to rate a student on a particular skill (missing data), the investigator asked the teacher to estimate the student's ability on that skill and recorded the teacher's response. This procedure effectively eliminated all missing data from the teacher-completed assessments.

In addition to completing assessments on the student subjects, the teachers were asked to provide information on the student's race, sex, IQ, birthdate, date of entry to a TMR program, and additional handicapping conditions (see Appendix E). In those cases where the teacher was unable to furnish this demographic data, the investigator secured the information from the student's records.

Parent-assessments. On the day prior to the collection of the teachers' assessments, TMR-FSRs were mailed to the parents of the student subjects. A letter (see Appendix F) accompanying the evaluation instruments requested that each parent complete a TMR-FSR assessment of his child without assistance from his or her spouse or the child's teacher. Each parent was also asked to furnish information on his age, relationship to the child, religious preference,<sup>4</sup> last year of school completed, and occupation (see Appendix G). A stamped, self-addressed envelope was provided for the return of the completed instruments and demographic information to the investigator. The parents were asked to complete and

return their evaluations within ten days. One week after the requested due date, the investigator telephoned a reminder to those parents who had not yet returned their assessments. Twelve days later a postcard reminder was mailed to parents who had still not responded. In those instances where a parent failed to evaluate a child on a skill or to provide requested demographic data, the investigator telephoned the parent, requested the information, and recorded the parent's response. This procedure was effective in eliminating all missing data from the parent-completed assessments.

Information provided by teachers indicated that the parents of 13 student subjects could not read or could read only with great difficulty. These parents were visited by the investigator who explained the instructions for completing the TMR-FSR to the parents, read and explained the assessment items, and recorded the parents' responses.

#### Data-Treatment Procedures

The statistical analyses used to test Hypotheses 1-7a were performed on a Univac 1004 computer at The University of Alabama.

Hypothesis 1. Pearson product-moment correlations --program CORR01 (Barker, 1973)--were computed to determine the relationships between mothers' and teachers', fathers' and teachers', and mothers' and fathers'

TMR-FSR total scores. One hundred and one mother-teacher pairs of assessments, 64 father-teacher pairs of assessments, and 62 mother-father pairs of assessments were used in these statistical analyses.

Hypotheses 2-4. Since mothers' and teachers' TMR-FSR total scores, fathers' and teachers' total scores, and mothers' and fathers' total scores were significantly correlated, t-tests for matched pairs--program ANOVO2 (Barker, 1973)--were used to evaluate the assessment differences between raters. A one-tailed t-test was used to assess the predicted difference between the 101 pairs of mothers' and teachers' TMR-FSR total scores. Two-tailed t-tests were conducted to evaluate the difference between the 64 pairs of fathers' and teachers' assessments and the difference between the 62 pairs of mothers' and fathers' TMR-FSR total scores.

Hypothesis 5. The TMR-FSR is composed of six subscales: Self-Care, Motor Skills, Communication Skills, Number Skills, Domestic Skills, and Personal Development. Scores on these subscales provide a wide-ranged profile of student abilities. A discriminant analysis--program CORR20 (Barker, 1973)--was used to determine the difference among subscale profiles for the 101 mother-completed, 64 father-completed, and 103 teacher-completed TMR-FSR assessments.

Hypothesis 5a. For each of the six TMR-FSR subscales, Univariate F-tests--program CORR20 (Barker, 1973)--were computed to test the difference among the 101 mothers', 64 fathers', and 103 teachers' assessments. When the F-ratio for the difference among the three raters was statistically significant, t-tests for independent groups--program ANOV01 (Barker, 1973)--were used to make post hoc comparisons between mothers' and teachers' assessments, fathers' and teachers' assessments, and mothers' and fathers' assessments. Since the direction of the differences among the three raters on the individual subscale assessments had not been predicted, a Scheffé t value<sup>5</sup> was calculated to evaluate the statistical significance of the t-ratios derived from the differences between mothers' and teachers', fathers and teachers', and mothers' and fathers' assessments (McNemar, 1962).

Hypothesis 6. A multiple regression analysis--program CORR03 (Barker, 1973)--was used to determine the relationship of parent-teacher total assessment difference scores to the following set of variables: parent's sex, age, education, social position, race, TMR child's sex, IQ, age, length of time in a TMR program, and additional handicaps. Mother-teacher difference scores were derived--program ANOV02

(Barker, 1973) --by subtracting the teacher-completed TMR-FSR total score for a student subject from the mother-completed TMR-FSR total score for that same subject. A similar procedure was also used to compute father-teacher difference scores. Negative difference scores were converted to positive scores through sign reversal. Ninety-nine mother-completed TMR-FSRs, 62 father-completed TMR-FSRs, and 101 (see Footnote 2) teacher-completed TMR-FSRs were used to generate the 161 parent-teacher difference scores used in this multiple regression analysis.

Difference scores capitalize on measurement error and tend to be highly unreliable (Lord, 1956; Thorndike & Hagen, 1969; Cronbach & Furby, 1970). For these reasons caution should be exercised in interpreting the results of statistical procedures which employ difference scores. To aid in evaluating the results of this multiple regression procedure, the reliabilities of the mother-teacher and father-teacher difference scores were calculated (see Appendix H). The reliability of the mother-teacher difference scores was .92; the reliability of the father-teacher difference scores was .89. The different scores used in this multiple regression analysis were highly reliable; consequently the results of this statistical procedure can be interpreted without excessive qualification.

The ten demographic variables used in the multiple regression analysis were quantified in a variety of ways. Parent's sex, parent's race, child's sex, and additional handicaps were coded as dichotomous variables. Parent's age and education were rounded to the last complete year and treated as continuous variables. Child's chronological age and length of time in a TMR program were rounded to the nearest month and treated as continuous variables.<sup>6</sup> Student's IQ was also treated as a continuous variable.<sup>7</sup> The occupation and educational level of the parents were coded and transformed to Two Factor Index of Social Position Scores (Hollingshead, 1957). These scores were used to quantify parental social position and were treated as a continuous variable in the multiple regression analysis.<sup>8</sup>

Hypothesis 6a. Pearson product-moment correlations--program CORRO3 (Barker, 1973)--were computed between the 161 parent-teacher difference scores and each of the ten demographic variables: parent's sex, age, education, social position, race, child's sex, IQ, age, length of time in a TMR program, and additional handicaps. The reliability of the parent-teacher difference scores used in these analyses and a description of the procedures used in quantifying the demographic variables were presented in the preceding section.

Hypothesis 7. A multiple regression analysis--program CORR03 (Barker, 1973)--was computed to determine

the relationship of mother-father difference scores to the following group of six demographic variables: parent's social position, child's sex, IQ, age, length of time in a TMR program, and additional handicaps. Mother-father difference scores were derived--program ANOVO2 (Barker, 1973)--by subtracting father-completed TMR-FSR total scores from mother-completed total scores. Negative difference scores were converted to positive scores through sign reversal. Sixty mother-father difference scores were regressed on the six demographic variables.<sup>9,10</sup> The reliability of the mother-father difference scores used in this statistical procedure was .73 (see Appendix H). Since the reliability of these difference scores was only moderately high, a degree of caution should be used in interpreting the results of this multiple regression analysis. The six demographic variables used in this multiple regression were quantified in a variety of ways. An explanation of the procedures used in coding each of these variables was previously provided.<sup>11</sup>

Hypothesis 7a. Pearson product-moment correlations --program CORR03 (Barker, 1973)--were computed between the 60 mother-father difference scores and each of the six demographic variables: parent's social position, child's sex, age, IQ, length of time in a TMR program, and additional handicaps. The reliability of the

mother-father difference scores used in these analyses and an explanation of the procedures used in quantifying each of the six demographic variables were previously reported.

## Results

The .05 criterion of significance was used in deciding to accept or reject each of the following hypotheses.

### Hypothesis 1

There will be a significant positive correlation between each of the following: (a) mothers' and teachers' assessments of TMR children, (b) fathers' and teachers' assessments of TMR children, and (c) mothers' and fathers' assessments of TMR children. Pearson product-moment correlations were computed to test the relationships between mothers' and teachers' TMR-FSR total scores, fathers' and teachers' TMR-FSR total scores, and mothers' and fathers' TMR-FSR total scores. Each of these correlations was statistically significant--mothers' and teachers' assessments,  $r_{(99)} = .76$ ,  $p < .01$ ; fathers' and teachers' assessments,  $r_{(62)} = .83$ ,  $p < .01$ ; mothers' and fathers' assessments,  $r_{(60)} = .91$ ,  $p < .01$ . Hypothesis 1 was, therefore, accepted.

### Hypothesis 2

The assessments of TMR children completed by mothers will be significantly higher than those completed by teachers. A t-test for matched pairs was used to evaluate the difference between mother-completed TMR-FSR

total scores and teacher-completed TMR-FSR total scores. The mean for the 101 mother-completed assessments was 245.14 (SD = 37.20); the mean for the corresponding teacher-completed assessments was 240.34 (SD = 42.75); the difference between the means for mother-completed assessments and teacher-completed assessments was 4.80. Since the direction of the difference between mother and teacher assessments had been predicted, the critical value for a one-tailed t-test was used to evaluate the significance of the obtained t-ratio. The difference between mothers' and teachers' assessments was statistically significant, t<sub>(100)</sub> = 1.71,  $p < .05$ . Hypothesis 2 was consequently accepted.

### Hypothesis 3

There will not be a significant difference between the assessments of TMR children completed by fathers and those completed by teachers. A t-test for matched pairs was calculated to evaluate the difference between father-completed TMR-FSR total scores and teacher-completed TMR-FSR total scores. The mean for the 64 father-completed assessments was 252.19 (SD = 35.40); the mean for the teacher-completed assessments was 244.86 (SD = 40.30); the difference between the means of the father-completed assessments and the teacher-completed assessments was 7.33. The critical value of t for a two-tailed test was used to assess the statistical significance of

the resultant  $t$ -ratio. The difference between father and teacher assessments was statistically significant,  $t_{(63)} = 2.59$ ,  $p < .02$ . Hypothesis 3 was, therefore, rejected.

#### Hypothesis 4

There will not be a significant difference between the assessments of TMR children completed by mothers and those completed by fathers. A  $t$ -test for matched pairs was used to evaluate the difference between mother-completed TMR-FSR total scores and father-completed TMR-FSR total scores. The mean for the 62 mother-completed assessments was 252.47 ( $SD = 35.00$ ); the mean for the corresponding father-completed assessments was 251.40 ( $SD = 35.45$ ); the difference between the mean total scores of the mother-completed and father-completed assessments was 1.07. The resultant  $t$ -ratio was evaluated using the critical value of  $t$  for a two-tailed test. The difference between mothers' and fathers' assessments was not statistically significant,  $t_{(61)} = .56$ ,  $p > .05$ . Thus, Hypothesis 4 was accepted.

#### Hypothesis 5

There will be a significant difference among the skill area profiles of assessments of TMR children completed by mothers, fathers, and teachers. A discriminant analysis was computed to determine the difference among the TMR-FSR subscale profiles completed by mothers,

fathers, and teachers. The discriminant analysis yielded a Wilk's Lambda of .91. This index of group separation was statistically significant,  $F_{(12,520)} = 2.12$ ,  $p < .05$ . Thus, Hypothesis 5 was accepted.

One hundred per cent of the trace was extracted by two roots. Root 1 accounted for 90% of the variance,  $\chi^2_{(7)} = 22.60$ ,  $p < .01$ ; Root 2 accounted for only 10% of the variance,  $\chi^2_{(5)} = 2.58$ ,  $p > .05$ . The discriminant loads for the two roots are reported in Table 3. The means and standard deviations for the mothers', fathers', and teachers' TMR-FSR ratings on each of the six subscales are presented in Table 4.

#### Hypothesis 5a

There will be a significant difference among mothers', fathers', and teachers' assessments of TMR children in the following skill areas: Self-Care, Motor Skills, Communication Skills, Number Skills, Domestic Skills, Personal Development. Univariate F-tests were computed to determine differences among mothers', fathers', and teachers' ratings on each of the TMR-FSR subscales. The results of these statistical analyses are reported in Table 5.

The difference among mothers', fathers', and teachers' ratings on the Personal Development subscale was statistically significant,  $F_{(2,265)} = 5.90$ ,  $p < .01$ .

Table 3  
Discriminant Loads

Subscale	Root	
	1	2
Self-Care	.22	.34
Motor Skills	.41	.60
Communication Skills	.20	.09
Number Skills	.39	.33
Domestic Skills	.36	.31
Personal Development	.72	-.09

Table 4

Means and Standard Deviations for Mothers', Fathers', and Teachers' TMR-FSR Subscale Ratings

Rater	Subscale <sup>a</sup>					
	1	2	3	4	5	6
<b>Mothers (n = 101)</b>						
<u>M</u>	94.29	38.12	37.51	22.28	26.29	26.65
<u>SD</u>	12.15	4.55	8.86	6.72	5.61	4.96
<b>Fathers (n = 64)</b>						
<u>M</u>	96.11	39.28	38.25	23.58	27.36	27.61
<u>SD</u>	11.28	3.76	8.64	6.86	5.66	4.54
<b>Teachers (n = 103)</b>						
<u>M</u>	93.83	37.79	36.84	21.50	25.65	24.95
<u>SD</u>	13.99	4.76	9.98	6.83	6.44	5.57

<sup>a</sup> Subscale key: 1 = Self-Care, 2 = Motor Skills, 3 = Communication Skills, 4 = Number Skills,  
 5 = Domestic Skills, 6 = Personal Development

Table 5  
Univariate F-test Summary Table<sup>a</sup>

Subscale	<u>MS<sub>b</sub></u>	<u>MS<sub>w</sub></u>	<u>F</u>
Self-Care	108.38	161.34	.67
Motor Skills	45.93	19.90	2.31
Communication Skills	40.12	85.67	.47
Number Skills	85.64	46.18	1.85
Domestic Skills	57.65	35.47	1.63
Personal Development	154.13	26.14	5.90*

<sup>a</sup>For each subscale  $df_b = 2$  and  $df_w = 265$

\*p<.01

Post hoc comparisons (t-tests for independent groups) as evaluated by a Scheffé t value indicated that the differences between mothers' and teachers' assessments and between mothers' and fathers' assessments on this subscale were not statistically significant,  $t_{(202)} = 2.30$ ,  $p > .05$  and  $t_{(163)} = -1.27$ ,  $p > .05$  respectively. The difference between fathers' and teachers' assessments on the TMR-FSR Personal Development subscale was statistically significant,  $t_{(165)} = 3.36$ ,  $p < .01$ . Hypothesis 5a was accepted for the Personal Development subscale and was rejected for the Self-Care, Motor Skills, Communication Skills, Number Skills, and Domestic Skills subscales.

#### Hypothesis 6

There will not be a significant correlation between parent-teacher difference scores and the following group of variables: parents' sex, age, education, social position, race, child's sex, IQ, chronological age, length of time in a TMR program, additional handicaps. A multiple regression procedure was used to determine the relationship between the composite of ten independent variables and parent-teacher difference scores. The correlation matrix for the 11 variables in the multiple regression analysis is presented in Table 6. The correlation which resulted from the regression of parent-teacher difference scores on the ten independent

Table 6

**Correlation Matrix:** Parent-Teacher Difference Scores and Ten Demographic Variables<sup>a</sup>

Table 6 (Continued)

Variable	Variable <sup>b</sup>									
	2	3	4	5	6	7	8	9	10	11
11. Parent-teacher difference score										

$$a_n = 161$$

<sup>b</sup>Coding Key: Parent sex: Male = 1, Female = 2; Social position: high scores = low social position; Parent race: White = 1, Black = 2; Child sex: Male = 1, Female = 2; Additional handicaps: No additional handicaps = 1, Additional handicaps = 2.

\*p<.05

\*\*p<.01

variables was statistically significant,  $R = .38$ ,  $F_{(10,150)} = 2.47$ ,  $p < .01$ . Hypothesis 6 was, therefore rejected.

The  $R^2$  for the relationship between parent-teacher difference scores and the composite of ten demographic variables was .14. The following Beta weights were computed for the ten independent variables: parent's sex ( $\beta = .09$ ), parent's age ( $\beta = -.08$ ), parent's education ( $\beta = -.08$ ), social position ( $\beta = -.02$ ), race ( $\beta = .06$ ), child's sex ( $\beta = -.20$ ), IQ ( $\beta = -.06$ ), child's age ( $\beta = -.23$ ), length of time in a TMR program ( $\beta = .03$ ), additional handicaps ( $\beta = .19$ ).

#### Hypothesis 6a

There will not be a significant correlation between parent-teacher difference scores and the following variables: (1) parent's sex, (2) age, (3) education, (4) social position, (5) race, (6) child's sex, (7) IQ, (8) chronological age, (9) length of time in a TMR program, (10) additional handicaps. Pearson product-moment correlations were computed between parent-teacher difference scores and each of the ten demographic variables. These correlations are reported in column 11 of Table 6. Three correlations were statistically significant--parent-teacher difference scores and child's sex,  $r_{(159)} = -.17$ ,  $p < .05$ ; parent-teacher difference scores and the child's chronological age,  $r_{(159)} = -.21$ ,  $p < .01$ ; parent-teacher difference scores and the length of time the

child has been in a TMR program,  $r_{(159)} = .18$ ,  $p < .05$ .

The correlations between parent-teacher difference scores and the seven other demographic variables were not statistically significant. Thus, Hypothesis 6a was accepted for the following variables: parent's sex, age, education, social position, race, child's IQ, and additional handicaps. Hypothesis 6a was rejected for the child's sex, chronological age, and length of time in a TMR program variables.

#### Hypothesis 7

There will not be a significant correlation between mother-father difference scores and the following group of variables: social position, sex of TMR child, IQ of child, chronological age of child, length of time in a TMR program, additional handicaps. A multiple regression procedure was employed to determine the relationship between the composite of six demographic variables and differences between mothers' and fathers' TMR-FSR total scores. The correlation matrix for the seven variables used in the multiple regression analysis is reported in Table 7. The correlation which resulted from the regression of mother-father difference scores on the six demographic variables was not statistically significant,  $R = .29$ ,  $F_{(6,53)} = .79$ ,  $p > .05$ . Thus Hypothesis 7 was accepted.

Table 7

Correlation Matrix: Mother-Father Difference Scores and Six Demographic Variables<sup>a</sup>

Variable	Variable <sup>b</sup>					
	2	3	4	5	6	7
1. Social position	-.28*	-.01	.18	-.28*	.03	-.02
2. Sex of TMR child		.02	-.11	.19	.16	.18
3. IQ of child			.21	.20	-.04	.05
4. Chronological age of child				.52**	.13	.06
5. Length of time in a TMR program					-.02	.23
6. Additional handicaps						-.00

n = 60.

<sup>b</sup>Code Key: Social position: high scores = low social positions; Sex of child: Male = 1, Female = 2; Additional handicaps: No additional handicaps = 1, Additional handicaps = 2.

\*p<.05

\*\*p<.01

The  $R^2$  for the relationship between mother-father difference scores and the six independent variables was .08. The following Beta weights were computed for the six demographic variables: social position ( $\beta = .11$ ), sex of the TMR child ( $\beta = .15$ ), IQ of child ( $\beta = .01$ ), chronological age of child ( $\beta = .08$ ), length of time in a TMR program ( $\beta = .27$ ), additional handicaps ( $\beta = -.01$ ).

#### Hypothesis 7a

There will not be a significant correlation between mother-father difference scores and the following variables: (1) social position, (2) sex of TMR child, (3) IQ of child, (4) chronological age of child, (5) length of time in a TMR program, (6) additional handicaps. Pearson product-moment correlations were computed between mother-father difference scores for TMR-FSR total assessments and each of the six demographic variables. These correlations are reported in column seven of Table 7. None of the correlations were statistically significant. Hypothesis 7a was, therefore, accepted.

## Discussion

### Hypothesis 1

Significant positive correlations were found between mothers' and teachers', fathers' and teachers', and mothers' and fathers' TMR-FSR total scores. The strongest correlation existed between mothers' and fathers' assessments of TMR children. Although this correlation (.91) was extremely high, it should not be readily interpreted as an index of parental collaboration in completing the TMR-FSR assessments--nearly identical correlations between mothers' and fathers' assessments of TMR children have been previously reported (Van Every, 1969). The relationships between mothers' and teachers' assessments and between fathers' and teachers' assessments support the results of prior investigations of correlations between parents' and teachers' assessments of TMR children (Cain, Levine, Tallman, Elzey, Baker & Moss, 1959; Van Every, 1969). However, the size of the correlations revealed in this study indicated the existence of stronger relationships between parents' and teachers' assessments than have heretofore been reported.

### Hypothesis 2

The total scores of the TMR-FSR completed by mothers were significantly higher than the total scores of the

assessments completed by teachers. Only the 101 student subjects for whom both mothers' and teachers' assessments had been completed were included in this analysis of differences between raters. The average score of the mother-completed assessments was 4.80 points higher than the average of the teacher-completed assessments. This mean difference, although statistically significant, was for practical purposes very small and indicated substantial agreement between mothers' and teachers' assessments of TMR students. Such small though statistically significant differences between mothers' and professionals' assessments of retarded children have been reported in a number of investigations (Schulman & Stern, 1959; Capobianco & Knox, 1964; Heriot & Schmickel, 1967; Gorelick & Sandhu, 1967). However, this pattern has not been clearly observed in previous studies which have focused exclusively on TMR students.

### Hypothesis 3

The total scores of the father-completed assessments were significantly higher than the total scores of the teacher-completed assessments. Only the scores for the 64 student subjects who had been assessed by

both fathers and teachers were included in this analysis of differences between raters. The assessments of the fathers demonstrated less variability and averaged 7.33 points higher than those of the teachers. This mean difference, though statistically significant, was quantitatively small and indicated substantial agreement between fathers' and teachers' assessments. These findings confirm and extend the work of Van Every (1969) who reported higher assessments by fathers of TMR students but did not examine the statistical significance of the differences between fathers' and teachers' assessments.

#### Hypothesis 4

For the 62 students who were assessed by both parents, the mother-completed and father-completed TMR-FSR total scores did not differ significantly. The assessments of the mothers averaged higher than those of the fathers. However, the mean difference was only 1.07 points. Differences of similar magnitude have been reported in previous comparisons of mothers' and fathers' assessments of TMR children (Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Van Every, 1969). In each instance the assessments of mothers have been just slightly higher than those of fathers. It appears that parents generally agree on the overall abilities of TMR children.

### Hypothesis 5

The TMR-FSR subscale profiles of the 101 mother-completed assessments, 64 father-completed assessments, and 103 teacher-completed assessments differed significantly from one another. For each of the six subscales, the ratings by fathers averaged the highest; the ratings by mothers were intermediate; and the ratings by teachers were the lowest. One root accounted for an overwhelming majority of the variance among rater profiles. The Personal Development subscale correlated most strongly with this root indicating that scores on this subscale contributed heavily to the difference among skill area profiles for the three raters. The Motor Skills, Number Skills, and Domestic Skills subscales correlated moderately with the primary root and also contributed to the significant difference among mothers', fathers', and teachers' skill area profiles. Ratings on the Self-Care and Communication Skills subscales were found to have contributed little to the difference among the profiles for the three groups of raters.

### Hypothesis 5a

The differences among mothers', fathers', and teachers' assessments on the Self-Care, Motor Skills, Communication Skills, Number Skills, and Domestic Skills subscales were not statistically significant; however, a significant difference was found among the raters' assessments on the Personal Development subscale.

Post hoc comparisons between raters' scores on this subscale were conducted to specify the location of assessment differences. Mother-father differences and mother-teacher differences were not statistically significant based on a Scheffé  $t$  criterion of significance. (Had the standard value of  $t$  for a two-tailed test served as the criterion of significance, the difference between mothers' and teachers' assessments would have been statistically significant.) However, using the same conservative criterion, the subscale assessments completed by the fathers were found to be significantly higher than those completed by teachers. Since the Personal Development subscale is composed largely of social interaction skills, the difference between fathers' and teachers' ratings may be, at least partially, attributed to the fact that fathers and teachers observe TMR children in very different social situations (home and neighborhood v. school) and consequently develop diverse perceptions of the students' social interaction abilities.

The results of the comparisons of mothers', fathers', and teachers' subscale assessments of TMR students undertaken in this study run counter to the findings of previous research which have shown significant differences between parents' and teachers' ratings on a majority of the subscales examined (Cain, Levine, Tellman, Elzey, Baker, & Moss, 1959; Van Every, 1969). Three factors

may have contributed to the atypical results disclosed by this investigation: (1) the statistical procedures used to analyze the differences among the three raters on individual subscale assessments were conservative, lacked sensitivity, and may have resulted in Type II error; (2) the assessment instruments used in prior studies were different versions of a single instrument and were composed of four, nearly identical subscale areas; the items and subscales of the TMR-FSR differed from those which constituted the instruments used in previous studies; and (3) during the time which has intervened since early investigations, parents' and teachers' assessments of TMR children may have begun to converge as a consequence of better public understanding of the educational needs of TMR children and of the increased availability of public school TMR programs.

#### Hypothesis 6

A significant correlation was found between parent-teacher TMR-FSR difference scores and the following set of variables: parent's sex, age, education, social position, race, child's sex, IQ, chronological age, length of time in a TMR program, and additional handicaps. The parent-teacher difference scores used in the multiple regression analysis averaged 20.99 and demonstrated considerable variability (Range = 0-79; SD = 16.25). The composite of ten independent variables accounted for 14% of the variance among these

difference scores. Those variables which contributed most heavily to the multiple correlation coefficient were child's sex, chronological age, and additional handicaps, respectively. These three variables accounted for 12% of the variance among difference scores; the seven remaining demographic variables contributed very little to the overall correlation and accounted for only 2% of the difference score variance.

The correlation between parent-teacher difference scores and the composite of demographic variables was inflated by six suppressor variables: parent's age, education, social position, child's sex, IQ, and chronological age. Each of these variables correlated more strongly with other demographic variables than with parent-teacher difference scores thereby increasing the size of the multiple correlation coefficient. The value of the Sanforized R (.29) further indicated that the obtained correlation coefficient capitalized on inter-correlations among the demographic variables used in this statistical analysis.

#### Hypothesis 6a

The Pearson product-moment correlations between parent-teacher TMR-FSR difference scores and parent's sex, age, education, social position, race, child's IQ, and additional handicaps were not statistically significant. By and large, these results support the findings of previous research on the relationship of these

demographic variables to differences between parents' and teachers' assessments of TMR children. Although previous studies based on sample populations in which only some of the student subjects were TMR have reported significant correlations between differences in parents' and professionals' assessments and social position (Wolfensberger & Kurtz, 1971; Weller, Costeff, Cohen, & Rahman, 1974), parental education (Ewert & Green, 1957), child's IQ (Kurtz, 1965; Heriot & Schmickel, 1967; Wolfensberger & Kurtz, 1971; Weller, Costeff, Cohen & Rahman, 1974), and additional handicaps (Zuk, 1959), no study which has focused exclusively on parents' and teachers' assessments of TMR children has reported significant relationships between parent-teacher difference scores and these four variables.

The correlation between the sex of the TMR child and parent-teacher difference scores was statistically significant. Parents' and teachers' assessments of boys differed more than parents' and teachers' assessments of girls. The relationship of child's sex to assessment differences accounted for 3% of the variance among parent-teacher difference scores. Previous studies based on samples in which only some of the students were TMR have consistently reported finding no significant relationship between child's sex and the accuracy of parental assessments (Ewert & Green, 1957; Heriot &

Schmickel, 1967; Gorelick & Sandhu, 1967). However, investigations which have focused exclusively on TMR students have produced mixed results: although Van Every (1969) found no significant relationship between child's sex and parent-teacher assessment differences, Jamison et al. (1971) reported a significant interaction between the sex of the child and differential assessments by mothers and teachers on certain skills. The results of this study support the existence of a significant correlation between child's sex and parent-teacher assessment differences and indicate a need for continued examination of the relationship between these two variables.

A second variable which correlated significantly with parent-teacher difference scores was the chronological age of the child. The differences between parents' and teachers' assessments of younger children were greater than assessment difference for older children. The age of the child accounted for 4% of the variance among parent-teacher difference scores. Studies in which only some of the subjects were TMR have generally reported no significant relationship between child's age and the accuracy of parental assessments (Heriot & Schmickel, 1967; Gorelick & Shanhu, 1967; Wolfensberger & Kurtz, 1971). However, since no study which has focused exclusively on TMR

children has heretofore examined the relationship between child's age and differences in parents' and teachers' assessments, the results of this investigation cannot, appropriately, be compared with previous research.

The correlation between length of time in a TMR program and parent-teacher difference scores was also statistically significant. The relationship between these two variables accounted for 3% of the variance between parents' and teachers' assessments and indicated that parent-teacher differences diminish as the length of time a student is enrolled in a TMR program increases. In 1956, Goldstein observed that correlations between parents' and teachers' assessments tended to increase over time and speculated that the length of time a student spent in a TMR program may be related to agreement between parents' and teachers' assessments. However, the relationship between these two variables had not been systematically examined prior to this investigation. The results of this study indicate the existence of a significant relationship between length of time in a TMR program and parent-teacher assessment differences and, thus, substantiate Goldstein's earlier speculation.

### Hypothesis 7

The relationship between mother-father TMR-FSR difference scores and the composite of six demographic variables--social position, child's sex, IQ, chronological age, length of time in a TMR program, and additional handicaps--was not statistically significant. The number of mother-father difference scores used in this multiple regression analysis was not sufficient to adequately test the relationship between parental assessment differences and the composite of six variables (Nunnally, 1967). The low variable:subject ratio combined with the fact that two of the independent variables--chronological age and additional handicaps--were suppressor variables resulted in a multiple correlation coefficient which was based heavily on error.

### Hypothesis 7a

The Pearson product-moment correlations between mother-father TMR-FSR difference scores and parental social position, child's sex, IQ, chronological age, length of time in a TMR program, and additional handicaps were not statistically significant. Although sizeable differences did exist between the assessments of individual sets of parents (Range = 0-41), the high correlation between mothers' and fathers' total scores and the extremely small difference between the means of mothers' and fathers' assessments supported the

likelihood of not being able to identify demographic variables which correlated significantly with differences between parental assessments. Since no prior study has attempted to identify variables which correlate with differences between parental assessments of TMR children, the results of this study cannot be compared to previous research.

#### Implications

The results of this study support the possibility of parents and teachers working effectively together in the education of TMR children. Although differences between parents' and teachers' perceptions of the abilities of TMR children did exist, the size of these perceptual differences should not substantially hinder the attainment of those benefits associated with parental involvement in the process of educational programming. Parents and teachers generally agreed on both the overall abilities and subscale performances of children. However, relative disagreement was noted between parents' and teachers' total-score and Personal Development subscale assessments. Planned activities such as parent-teacher discussions of students' abilities and shared observations of students in a variety of settings may facilitate a convergence of parents' and teachers' assessments of the abilities of TMR children. Similar procedures should also be designed to diminish differences between parents' and teachers'

perceptions of the abilities of TMR boys, young students, and students who have recently entered TMR programs. Such techniques would be valuable aids to effective parental involvement in educational planning for these groups of TMR students.

This investigation also revealed substantial agreement between mothers' and fathers' assessments of their TMR children. These results indicate that in many instances it would be equally suitable to involve one or both parents in the process of educational programming for TMR children. However, in those cases where the differences between mothers' and fathers' assessments are relatively large, it may be advisable to involve only one of the parents in the initial phase of educational planning and, as parent-teacher agreement is increased, gradually involve the other parent. This procedure may be effective in avoiding a breakdown in the process of cooperative educational planning and may lead to an increase in agreement between mother's and father's perceptions of the abilities of their TMR child.

#### Recommendations for Further Study

This study confirmed some of the findings of previous research and indicated directions for future investigations of parents' and teachers' assessments of TMR children. There is no longer a strong need to examine correlations among total score assessments.

completed by the mothers, fathers, and teachers of TMR children. Research has consistently shown such correlations to be significantly positive. Similarly, the differences between mothers' and teachers' and between mothers' and fathers' assessment total scores need no longer be assigned investigative priority. However, the difference between fathers' and teachers' assessment total scores deserves continued examination; and further attention should also be given to differences among mothers', fathers', and teachers' subscale assessments of TMR children.

The present study globally examined the relationship of several demographic variables to differences between parents' and teachers' total-score assessments of TMR students. The parent-teacher difference scores used in this study were not differentiated on the basis of direction (positive v. negative) or parental sex (mother-teacher difference scores v. father-teacher difference scores). Since both a composite of demographic variables and individual variables were found to significantly correlate with these undifferentiated scores, further studies should attempt to confirm the relationships of these demographic variables to parent-teacher difference scores which have been differentiated on the bases of direction and parental sex. Studies which seek to identify variables associated with differences

between parents' and teachers' assessments on subscale areas would also be worthwhile as would investigations which strive to identify variables related to differences between mothers' and fathers' total score and subscale assessments of their TMR children.

The primary implication of this investigation was support for the possibility of parental involvement in educational programming for TMR children. As such programs of parental involvement become increasingly widespread, additional questions related to parents' and teachers' assessments of TMR children can be investigated. Does parental involvement reduce differences between parents' and teachers' assessments of TMR students? Are certain programs of involvement more effective than others in reducing assessment differences between parents and teachers? Does involvement by both parents reduce the differences between mothers' and fathers' assessments of their TMR children? The search for answers to these and related questions should result in a better understanding of parents' and teachers' assessments of TMR children, the identification of effective procedures for parental involvement, and improvement in educational programming for TMR children.

### Summary

The purpose of this study was twofold: (1) to investigate the relationships and differences among mothers', fathers', and teachers' assessments of TMR children, and (2) to attempt to identify demographic variables which were significantly related to differences between parents' and teachers' and between mothers' and fathers' assessments of TMR children.

The 103 student subjects of this study were randomly selected from the population of students enrolled in the TMR program of the Birmingham, Alabama, city school system. The teachers and parents (101 mothers and 64 fathers) of the student subjects separately completed TMR-FSR assessments of the students' abilities. A variety of univariate and multivariate statistical analyses were used to determine the relationships and differences among the assessments completed by the mothers, fathers, and teachers and to identify demographic variables related to assessment differences.

The results of the data treatment procedures indicated that significant relationships existed between mothers' and teachers', fathers' and teachers', and mothers' and fathers' total-score assessments of TMR

students. Comparisons of parents' and teachers' total scores also disclosed that the differences between mothers' and teachers' and between fathers' and teachers' assessments were statistically significant with both mothers and fathers providing higher ratings than teachers. However, the difference between mothers' and fathers' assessments was not found to be statistically significant.

A discriminant analysis of mothers', fathers', and teachers' TMR-FSR subscale profiles indicated a significant difference among the profiles completed by the three groups of raters. Fathers' assessments averaged the highest on each of the six subscales; teachers' assessments averaged the lowest. Analyses of differences among the raters' assessments on individual subscales revealed fathers' ratings to be significantly higher than teachers' ratings on the Personal Development subscale. However, no significant differences were noted between parents' and teachers' assessments on the Self-Care, Motor Skills, Communication Skills, Number Skills, and Domestic Skills subscales.

The relationship of ten demographic variables to differences between parents' and teachers' assessments was also investigated. Parent-teacher difference scores were derived and regressed on a composite of ten demographic variables. The relationship between the composite of variables and the difference scores was statistically significant as were correlations between the

difference scores and three individual demographic variables: sex of the TMR child, age of the child, and length of time in a TMR program. Correlations were also computed between six demographic variables and mother-father difference scores. However, neither a composite of the six variables nor any single variable was found to be significantly related to differences between mothers' and fathers' assessments of TMR children.

The overall results of this investigation revealed substantial agreement among mothers', fathers', and teachers' perceptions of the abilities of TMR children and indicated that parents and teachers should be able to work together constructively in planning effective educational programs. These results also indicated a need for continued research on differences between parents' and teachers' assessments of TMR children and on the relationships of specific demographic variables to these assessment differences.

## Footnotes

<sup>1</sup>Twelve days after the letters had been mailed, those parents from whom no response had been received were either telephoned or visited by the investigator in an attempt to enlist their participation. The parents of 112 students initially agreed to take part in the study. Of this number, the parents of 104 students actually participated. The child of one set of participating parents was discarded from the sample when it was discovered that he had an IQ of 70.

<sup>2</sup>Two of the student subjects had never taken an individual IQ test.

<sup>3</sup>On the day of instrument delivery, four teachers were absent and remained absent through the date designated for instrument collection. Three of the absent teachers completed their TMR-FSR assessments when they returned to school. These teachers mailed their completed instruments to the investigator in envelopes which had been provided for that purpose. The TMR-FSRs for the two student subjects in the fourth absent teacher's class were completed by another teacher who was very familiar with the abilities of these two students.

<sup>4</sup> Religious preference was to be used as a demographic variable in the multiple regression analyses. However, the religious preference breakdown for the 165 participating parents--160 Protestant, 5 Catholic, 0 Jewish--indicated that this variable should not be included in the multiple regression procedures.

<sup>5</sup> The formula for Scheffé  $t$  is:  $t_s = [(\underline{K}-1) \underline{F}_\alpha; \underline{v}_1, \underline{v}_2]^{\frac{1}{2}}$

where  $K$  = number of experimental groups  
 $\underline{F}_\alpha$  = the tabled values of  $F$  for  $\underline{v}_1$  and  $\underline{v}_2$  degrees of freedom

The computed values for Scheffé  $t$  were:  $t_{s.05} = 2.46$ ;  $t_{s.01} = 3.06$ .

<sup>6</sup> Program entry information on seven of the students was inexact. For these subjects the earliest known date of TMR program participation was considered their entry date.

<sup>7</sup> The intelligence of the students in this study had been evaluated by one of three intelligence tests: Revised Stanford-Binet Intelligence Test, Weschler Intelligence Scale for Children, or the Hiskey Nebraska Test of Learning Aptitude. The intelligence test performance of 18 students had been classified as "below norms". Each of these students was assigned an IQ of 20 for the purpose of the multiple regression analyses.

<sup>8</sup>The 62 married women whose husbands also participated in the study were awarded the same social position scores assigned their respective husbands. Single parents and parents whose spouses did not participate in the study were assigned social position scores based on their own occupations and levels of education.

<sup>9</sup>Sixty-two sets of parents completed assessments of the students. However, two student subjects for whom evaluations by both parents had been completed had never been given an IQ test; consequently, the mother-father difference scores for these students were not included in this analysis.

<sup>10</sup>The number of subjects used in this statistical procedure does not meet the criterion of ten subjects per variable recommended by Nunnally (1967).

<sup>11</sup>There were two exceptions to the explanation of quantification procedures reported in the section on Hypothesis 6: (1) only nine of the student subjects used in the regression of mother-father difference scores were assigned IQs of 20, and (2) only five of the student subjects in this multiple regression analysis had uncertain dates of program entry.

## **APPENDICES**

APPENDIX A

Review of Research

## Introduction

The purpose of this section is to present an orderly review of the research related to parental estimates of the abilities of their TMR children and to synthesize the results of these investigations. Research on parental estimates of the abilities of their TMR children can be organized into two general categories: (1) studies which have involved sample populations in which only some of the children were TMR, and (2) studies which have focused on sample populations composed exclusively of TMR children. Within each of these two major categories, further subdivisions can be designated on the basis of the type and degree of parental knowledge being investigated: (a) parental general awareness of retarded functioning by their child, (b) parental estimates of the mental or developmental age of their child, and (c) parental knowledge of specific abilities of their retarded child. The preceding organizational structure will be used in reviewing the body of research related to parental assessment of TMR children.

### Studies in Which Only Some Subjects Were TMR

#### Parental general awareness of retarded functioning.

Weller, Costeff, Cohen, and Rahman (1974), in a study conducted in Israel, explored the relationships of the country of origin, socio-economic status, and the degree

of their children's retardation to mothers' perceptions of mental retardation in their children. The results of interviews with 76 mothers of retarded children (IQ 70 and below) revealed that middle class mothers and mothers of children with IQs below 50 were significantly more accurate in their perceptions of their children's mental retardation. The mother's country of origin was not significantly related to the accuracy of her perceptions.

Parental estimates of mental and developmental age.

Ewert and Green (1957) asked the parents (primarily mothers) of 100 retarded children to estimate the mental ages of their children. These mental age estimates were converted to IQ scores and compared to the children's scores on a standardized intelligence test. The mean tested IQ for this group of children was 44.1 (SD = 14.7) and ranged from 7-69. The parent-estimated IQs had a mean of 58 (SD = 20.1) and a range of 8-100. The correlation between parent-estimated IQs and tested IQs was .55.

Ewert and Green also examined the relationship of certain demographic variables to the accuracy of parent-estimated IQ scores. The variables studied were parent's age, education, occupation, reason for first concern about the child, areas in which the child was perceived to be most advanced and most deficient, child's age, sex, tested IQ, physical handicaps, number and ages of siblings, cause of retardation (organic v. non-organic),

history of previous pyschological testing, and age of the child at the time of the first parental concern and first medical examination. A significant positive relationship was found between the mother's level of education and the accuracy of her mental age estimate. For children with organically caused mental retardation, a significant relationship existed between the accuracy of the parental age estimate and two variables: (1) the child's chronological age and (2) the child's age at the time of first parental concern and first medical examination. The parents of younger organic mentally retarded children and the parents of children who were younger at the time of first parental concern and first medical examination were more accurate in estimating the intellectual level of their children.

In 1959 Schulman and Stern conducted a study involving the parents of 50 mentally retarded children who were referred to a hospital clinic for psychometric evaluation. The children ranged in intellectual ability from profoundly mentally retarded to borderline mentally retarded. As in the study by Ewert and Green, the parents of these children were asked to estimate the mental age of their child. The estimated mental age was converted to an IQ score and compared with the child's score on a standardized measure of intelligence. The mean parent-estimated IQ was 57.2 (SD = 17.4) with a

range of 17-100; the mean tested IQ was 55.5 (SD = 16.6) with a range of 17-82. The correlation between parent-estimated IQ and tested IQ was .67. The authors interpreted the results of their study to indicate extensive parental awareness of mental retardation in their children prior to seeking professional assistance.

Kurtz (1965) compared the mental age estimates of the parents of 100 children, ranging in intellectual level from mentally retarded to average, with mental age estimates taken from the reports of pediatricians, psychologists, and speech pathologists who had previously evaluated the children. Strong correlations were found between pairs of professional mental age estimates (.75-.86) and between parents and professionals' estimates (.63-.78). Kurtz noted that parents tended to overestimate the intellectual ability of their children and that the highest agreement between parents' and professionals' estimates was found for children at the higher and lower extremes of intellectual development. Parent-professional agreement was especially strong for profoundly retarded children (IQ 25 and below).

Heriot and Schmickel (1967) also employed the technique of parental estimates of mental age in their study involving the mothers of 65 children being seen at a hospital diagnostic and evaluation center. The children participating in this study ranged in mental

ability from severely retarded to intellectually gifted. The mothers of these children were asked to estimate the mental ages of their children. These estimates were then converted to IQ scores and compared with a tested IQ score and with a social quotient (SQ) derived from the Vineland Social Maturity Scale. The average tested IQ was 77.32; the mean SQ was 80.79, and the mean maternal-estimated IQ was 80.54. The mean maternal-estimated IQ was significantly greater than the mean tested IQ. The difference between the mean Vineland SQ and the mean maternal-estimated IQ was not statistically significant. The correlation between estimated IQ scores and tested IQ scores was .50; the correlation between estimated IQ and SQ was .48. Both of these correlations were statistically significant.

Heriot and Schmickel also examined the relationship of certain independent variables to the accuracy of maternal mental age estimates. Discrepancy scores based on the differences between estimated IQ scores and tested IQ scores and between estimated IQ scores and SQ scores were computed. Each of these discrepancy scores was correlated with the variables of child's age, sex, race, behavior problems, seizures, Vineland SQ, tested IQ, and an index of maternal social position. Parents' estimates of mental age were found to be significantly more

accurate for children with seizures, for children with low Vineland SQs, and for children with low tested IQs.

In 1971 Wolfensberger and Kurtz undertook a detailed study of parental perceptions of their children's development. This study involved 190 parents of 117 children who ranged in intelligence from profoundly retarded to average. The Parental Realism Assessment Techniques (PRAT) was used to measure parental estimates of their child's developmental age in eight behavioral areas: Expressive Language, Receptive Language, Gross Motor Skills, Dexterity and Eye-Hand Coordination, Self-Help Skills, Occupational Skills, General Intellectual Functioning, and Academic Achievement Level. A battery of standardized tests served as criterion measures for determining the child's actual level of performance in these eight areas. The degree of parental realism regarding their child's abilities in these eight behavioral areas was determined by comparing the scores from the parent-completed PRAT with the child's scores on the battery of criterion tests. Significant correlations (.5-.6) were reported between parental PRAT scores and corresponding criterion scores for seven of the eight areas. Intercouple agreement for the various behavioral areas ranged from .4-.6. Though a pattern of consistently higher ratings by fathers was noted, the difference between paternal and maternal ratings was not statistically

significant. In general, both parents were more likely to overestimate their child's abilities. However, in the areas of Self-Help Skills and Occupational Skills there was a tendency to underestimate.

A major aspect of the Wolfensberger and Kurtz study was an examination of the relationships between a number of demographic variables and the realism of parental estimates of their children's abilities. A parental realism score was computed by adding a constant of 100 to discrepancy scores which were derived by subtracting criterion measure scores from PRAT estimates. The relationships of parent's education, occupation, income, socio-economic status, source of income, place of residence, age, sex, religion, child's chronological age, mental age, IQ, sex, birth order, and number of siblings to parents' realism scores were subsequently determined. Parents with higher socio-economic status were found to be significantly more realistic in their evaluations of their children's abilities than were parents of lower socio-economic status. Protestant parents were found to be significantly more realistic than Catholic parents; and parents with less severely retarded children (IQ 65 and above) were found to be more realistic than were the parents of more severely retarded children.

Parental knowledge of specific abilities. A study by Zuk (1959) used parental knowledge of precise

behaviors to examine the question of parents' perceptions of their children's abilities. Zuk compared the Vineland Social Maturity Scale SQs of 145 motor handicapped children and 22 non-motor handicapped children with their respective IQ scores. The SQs were based on Vineland Social Maturity Scales which used parents as informants. The IQs, which ranged from 10-92, resulted from the administration of individual intelligence tests. When the SQs and IQs of the non-motor handicapped children were compared, the SQs were found to be significantly higher than the IQs. However, for those children who were motor handicapped the SQs were significantly lower than the IQs. On the basis of these results, Zuk concluded that the presence of a motor handicap has an influence on parental objectivity regarding their children's abilities.

In a separate study involving a limited sample of non-motor handicapped mentally retarded children attending a nursery school program, Zuk (1959) compared parent-completed Vineland SQs with teacher-completed Vineland SQs. The children's scores on the parent-completed Vinelands were found to be significantly higher than their scores on the teacher-completed instruments.

Capobianco and Knox (1964) in their study of the relationship between marital integration and parental estimates of their retarded child's intelligence, employed

research methods which required parental knowledge of specific child-abilities. The parents of 66 mentally retarded children were asked to answer a list of questions as they thought their children would respond. The items administered to the parents were taken from the Stanford-Binet Intelligence Test (Form L). These items were organized by type and content thereby differing from the order in which they appeared on the intelligence test. The parent-completed Stanford-Binet modifications were compared with the children's actual performances on the Stanford-Binet. The mean tested IQ was 61.1 (SD = 14.1); maternal estimates of the children's performance averaged 67.7 (SD = 15.4); and the average for paternal estimates was 61.7 (SD = 18.2). Maternal estimates were found to be significantly higher than the paternal estimates and the children's actual test scores. The difference between paternal estimates and the children's tested IQs was not statistically significant.

Gorelick and Sandhu (1967), in their investigation of parental perceptions of the intelligence of their retarded children, utilized research procedures very similar to those used by Capobianco and Knox. The mothers of 25 retarded children were asked to complete the Revised Stanford-Binet Intelligence Test the way they believed their children would respond. One

psychologist administered the intelligence test to the mother while a second psychologist administered the test to her child. The children's IQ scores ranged from 27-82 with a mean of 51.8. The IQ scores based on parent information ranged from 24-126 with a mean of 58.7. The difference between the means of actual IQ scores and parental estimates was a statistically significant 6.92 points. The age and sex of the child were not found to be significantly related to differences between maternal and actual test scores.

Studies Focusing Exclusively  
on TMR Children

Parental general awareness of retarded functioning.

In her investigation of parental attitudes and the achievement of TMR children, Stoddard (1959) studied the relationship of several variables to parental awareness and acceptance of their child's retarded development. In directed interviews, the parents of 32 TMR children (IQ 25-50) were asked to respond to questions related to their awareness and acceptance of their child's "disability". The parents' responses to key questions were quantified and subsequently correlated with their TMR child's chronological age, mental age, IQ, achievement level, one year's progress in school, and with a parental reality level score. None of these correlations were found to be statistically significant nor was the additional factor of the child's sex found to be

significantly related to parental recognition and acceptance of the disability of their TMR Child.

Parental estimates of mental or developmental age.

In 1973 Newman and Doby conducted a study of the relationship of selected environmental and biological factors to the social competence of TMR children. In this study both the parents and teachers of 110 TMR children were asked to complete a 27 item expectation questionnaire on which they indicated the age at which the child had accomplished a particular skill or the age at which it was anticipated that the child would accomplish the skill. The mean parental expectation score was 231.0; the mean expectation score of the teachers was 196.36. The parents perceived their children as being able to perform more skills at a younger age than did the teachers. The correlation between parents' and teachers' expectation scores was a low .14. Newman and Doby did not separate parents' and teachers' expectation scores into concurrent and predictive components (Wolfensberger & Kurtz, 1971) nor did they compare parents' and teachers' estimates of TMR students' present functioning on specific skills.

Parental knowledge of specific abilities. In 1956 Goldstein reported the results of a study of the efficacy of public school TMR programs in Illinois. This study involved 138 TMR children (IQ 13-53) ranging in

age from 5 years 10 months to 16 years 7 months. The Behavior Check List was used to assess student performance. This instrument was completed by both parents and teachers at three different times over a two year period. The mean initial parental rating was 101.9 compared to a mean initial teachers' rating of 83.5. An analysis of parents' and teachers' ratings on each of the 22 items on the checklist indicated that the parents rated the children higher than the teachers on 21 of the 22 items. On the second evaluation parents' assessments average 109.6 and teachers' assessments averaged 102.9. On this evaluation the parents rated their children higher than the teachers on 18 of the 22 items. The third and final evaluation revealed the same pattern of higher parental evaluations: parents' ratings averaged 113.5 compared to an average teachers' rating of 102.9; and parents' mean ratings were higher than teachers' ratings on each of the 22 checklist items. Rank order correlations between parents' and teachers' ratings for the three test administrations ranged from .81-.95. Goldstein noted that the magnitude of the correlations between parents' and teachers' ratings increased uniformly from administration to administration indicating that the relationship between parents' and teachers' ratings may be influenced by the length of time the child is in a TMR program.

Cain, Levine, Tallman, Elzey, Baker, and Moss (1959) conducted a thorough study of the effectiveness of special day classes for TMR children in California. As part of this study, these investigators compared mothers' and teachers' assessments of 73 TMR children (IQ 20-59) ranging in age from 5-12 years. An experimental version of the San Francisco Social Competency Scale was used to measure the abilities of the TMR children in this study. The 72 items on this instrument focused on the child's adjustment in the home situation by sampling four areas of ability: Self-Help, Social Skills, Communication, and Initiative and Responsibility. A comparison of mothers' and teachers' mean scores for each completed item on the instrument revealed an overall item average of 2.64 for the mothers' ratings and an overall item average score of 2.18 for the teachers' ratings. The difference between mothers' and teachers' total-item average scores was statistically significant. Mothers' mean item scores were also significantly higher than teachers' scores on each of the four subscale areas measured by this instrument. The correlation between mothers' and teachers' ratings on the total instrument was .28. Mother-teacher rating correlations on the four subscales ranged from .05 in the Initiative and Responsibility area to .63 in Communication.

Although Cain and his associates did not examine differences between fathers' and teachers' assessments of TMR children, they did compare fathers' and mothers' evaluations of 86 TMR children. Maternal overall ratings and ratings on each of the four subscales averaged higher than did paternal overall and subscale ratings. However, none of the differences between mothers' and fathers' assessments was found to be statistically significant. The correlation between mothers' and fathers' ratings for the total instrument was .81; interparent correlations on the four subscales ranged from .67-.82. These correlations indicated a strong relationship between the ability estimates provided by mothers and fathers of TMR children.

In 1969 Van Every undertook a study very similar to the one reported by Cain and his colleagues. The subjects of this investigation were 291 TMR children having an average age of 11 years and a mean IQ of 42.3. At the beginning and at the end of a school year both of the parents and the teachers evaluated these children using the Cain-Levine Social Competency Scale. (This instrument, consisting of 44 items which assess home-related abilities in the areas of Self-Help, Social Skills, Initiative, and Communication, is the final version of the San Francisco Social Competency Scale used by Cain and his associates in the above-summarized

study.) On both the first and second evaluations, mothers rated the children higher than did either the fathers or the teachers. The mean ratings for the initial assessment were 135.0 (mothers), 132.3 (fathers), and 123.3 (teachers). The mean ratings for the second evaluation were 141.2 (mothers), 139.2 (fathers), and 128.2 (teachers). The highest-to-lowest order of mother, father, teacher was also maintained for the average ratings on each of the four subscale areas for both test administrations. The difference among mothers', fathers', and teachers' total scores was statistically significant as were the differences among the three raters on the Self-Help, Social Skills, and Communication subscales. (The differences among raters were not analyzed to determine the significance of differences between specific pairs of raters.) Interrater total score correlations for the first test administration were .90 (mothers-fathers), .66 (mothers-teachers), and .63 (fathers-teachers). Correlations of approximately identical magnitude were recorded between pairs of raters for the second test administration. The Van Every study also examined the relationships of student sex and socio-economic status to parents' and teachers' ratings of social competency. Neither variable was found to be significantly related to differential ratings by parents and teachers.

The most recent study requiring parental knowledge of the abilities of their TMR child on specific tasks was conducted by Jamison, Attwell, and Fils (1971). These investigators asked the mothers of 65 TMR children in a public school program to use the Test Behavior Observation Guide to rate their children on ten behavioral characteristics. The teachers of these children completed the same rating instrument on each of the children. A comparison of the parents' and teachers' ratings which also considered the effect of students' sex on the ratings revealed that the mothers rated their daughters significantly higher than did the teachers in the areas of Speech and Motor Activity and that the teachers rated the boys significantly lower than did their mothers in the areas of Effort and Cooperation. In this study the sex of the child and the skill area being rated were related to differences in assessments by mothers and teachers.

#### Synthesis of Research

To facilitate interpretation of the preceding review of research on parental assessments of the abilities of their TMR children, four facets of the general problem have been identified: (1) assessment differences (total scores), (2) assessment differences (items and subscales), (3) assessment correlations, and (4) correlates of assessment accuracy. Research results on each of these

aspects of parental assessment of TMR children will be synthesized below.

Assessment differences (total scores). Parents' estimates of the abilities of their mentally retarded children have been consistently higher than estimates furnished by other sources. Parental evaluations have been found to be higher than the estimates of clinical professionals (Kurtz, 1965), higher than the assessments of teachers (Goldstein, 1956; Zuk, 1959; Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Van Every, 1969; Jamison, Attwell, & Fils, 1971; Newman & Doby, 1973), and higher than the results of objectively administered intelligence tests (Ewert & Green, 1957; Schulman & Stern, 1959; Zuk, 1959; Capobianco & Knox, 1964; Gerrick & Shandhu, 1967; Heriot & Schmickel, 1967; Wolfensberger & Kurtz, 1971; Weller, Costeff, Cohen & Rahman, 1974). The conclusion of higher parental assessments has received repeated support regardless of whether the parental estimates being investigated were general or specific in form or whether the population being studied was composed exclusively or only partially of TMR children.

The pattern of higher parental assessments of their retarded children has been found in studies which have examined estimates provided by both parents, by mothers only, and by fathers only. When assessments that have been independently completed by both the mothers and

fathers of retarded children have been compared to other assessments of their children, the parental assessments have been higher than the criterion assessments to which they were compared (Goldstein, 1965; Zuk, 1959, Kurtz, 1965, Newman & Doby, 1973). Studies which have analyzed the differences between maternal and professional assessments of retarded children have consistently found the assessments of mothers to be significantly higher than those provided by professionals (Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Capobianco & Knox, 1964; Heriot & Schmickel, 1967; Gorelick & Sandhu, 1967; Jamison, Attwell, & Fils, 1971). Only two studies have compared paternal and professional assessments of mentally retarded children (Capobianco & Knox, 1964; Van Every, 1969). In both of these studies, the fathers' assessments were higher than the assessments of the professionals. However, the difference between paternal and professional assessments of retarded children has, thus far, not been shown to be statistically significant.

Comparisons of maternal and paternal estimates of the abilities of their retarded children have yielded diverse results. Capobianco and Knox (1964) found the assessments of mothers to be significantly higher than those of fathers. These results, however, were not confirmed by Wolfensberger and Kurtz (1971) who found that

fathers evaluated their retarded children higher than did the children's mothers. It should be noted that both of these studies focused on sample populations in which only some of the children were TMR. In studies which have focused exclusively on TMR children, the results of comparisons of maternal and paternal assessments have been uniform: mothers of TMR children have provided higher assessments than fathers (Cain, Levine, Tallman, Elzey, Baker, & Moss, 1959; Van Every, 1969). However, the magnitude of these intercouple assessment differences has not been statistically significant.

Assessment differences (items and subscales). The pattern of high parental estimates of the abilities of their TMR children is present not only when the total scores of evaluations are compared but also when ratings on individual skills and test subscales are compared. Research which has compared parent and teacher evaluations of TMR children on individual items and subscale areas has consistently found parental evaluations to be higher than those provided by teachers. Goldstein (1956) found, on three separate occasions, that when parents and teachers were asked to rate the abilities of TMR children the parents rated their children higher than the teachers on 80-100% of the skills assessed. Cain and his associates (1959) reported that mothers rated TMR children significantly higher than teachers on each of the four subscales

of the San Francisco Social Competency Scale--Self Help, Social Skills, Initiative and Responsibility, and Communication. These results were substantially confirmed by Van Every (1969) who found significant differences among mother, father, and teacher ratings on the Self-Help, Social Skills, and Communication subscales of the Cain-Levine Social Competency Scale. On each of these subscales the highest ratings were assigned by the mothers of TMR children; the lowest ratings were assigned by the children's teachers. Jamison, Attwell, and Fils (1971) reported that mothers and teachers differed significantly from one another in their evaluations of TMR children's abilities in certain skill areas. Mothers rated their TMR daughters significantly higher than did teachers in the areas of Speech and Motor abilities, and teachers rated TMR boys significantly lower than did mothers in the areas of Effort and Cooperation. Mothers' and teachers' evaluations in the areas of Performance Rate, Manual Dexterity, Attention, Anxiety, Self-Confidence, and Interest did not differ significantly from one another. The preceding exceptions notwithstanding, the overall body of research on parental estimates of the abilities of TMR children leads to the inescapable conclusion that parents' estimates of their TMR children's abilities on individual

test items and subscales tend to be significantly higher than estimates provided by teachers.

Assessment correlations. Research on parental estimates of the abilities of their mentally retarded children has consistently revealed the existence of significant positive correlations between parental and professional assessments of mentally retarded children (Goldstein, 1956; Ewert & Green, 1957; Schulman & Stern, 1959; Cain, Levine, Tallman, Elzey, Baker & Moss, 1959; Kurtz, 1965; Heriot & Schmickel, 1967; Van Every, 1969; Wolfensberger & Kurtz, 1971). In studies which have focused exclusively on TMR children, parents' and teachers' assessments have, repeatedly, been found to be significantly related. Goldstein (1956) reported parent-teacher assessment correlations ranging from .81-.90 for three separately conducted assessments of TMR children. Cain and his associates (1959) found a correlation of .28 between mothers' and teachers' ratings of TMR children. Though this correlation is much lower than those reported by Goldstein, it is, nevertheless, statistically significant. Van Every (1969) also discovered significant positive correlations (.66 and .58) between mothers' and teachers' ratings of TMR children as well as significant correlations (.63 and .61) between fathers' and teachers' ratings.

Few studies have investigated the relationship between mothers' and fathers' assessments of TMR children. Cain and his associates (1959) reported a correlation of .81 between mothers' and fathers' assessments of TMR children. This finding was confirmed by Van Every (1969) who found intercouple correlations of .90 and .92 for two separately conducted assessments. The work of Wolfensberger and Kurtz (1971), though based on a sample population in which only some of the children were TMR, also found a significant positive correlation between mothers' and fathers' assessments of retarded children's abilities on each of eight skill areas investigated. Though research on intercouple agreement regarding the abilities of their TMR children is extremely limited, results have consistently revealed significant positive correlations between mothers' and fathers' assessments of TMR children.

Correlates of parental assessment accuracy. A number of studies have attempted to identify factors related to the accuracy of parental assessments of their retarded children. Though several of the variables investigated have been found to correlate significantly with the accuracy of parental assessments, no variable has, thus far, been identified which consistently correlates with the accuracy of parental assessments of their retarded children.

Most of the variables which have been found to correlate significantly with the accuracy of parental assessments have been identified in investigations which focused on sample populations in which only some of the children were TMR. That variable which has, most frequently, been found to relate significantly to parental accuracy is the IQ of the child. Parents of retarded children with low IQs have tended to be more accurate in assessing the abilities of their children (Kurtz, 1965; Heriot & Schmickel, 1957; Weller, Costeff, Cohen & Rahman, 1974). However, Wolfensberger and Kurtz (1971) found greater accuracy by parents whose children had relatively high IQ scores (65 and above). These contradictory findings generate doubt about the nature of the relationship between the accuracy of parental assessments and their child's IQ. This uncertainty is intensified by the results of an investigation by Ewert and Green (1957) in which the relationship between parental accuracy and child's IQ was found not to be significant. It appears that further study is required to clarify the nature of the relationship between child's IQ and the accuracy of parental assessment.

Family socio-economic status is another variable which has been found to be significantly related to the accuracy of parental assessments. Parents of higher socio-economic status have been shown to be more accurate

in their assessments than parents of lower socio-economic status (Wolfensberger & Kurtz, 1971; Weller, Costeff, Cohen, & Rahman, 1974). However, the strength of this relationship has not received consistent support (Heriot & Schmickel, 1967) and should, at present, be considered uncertain.

Investigators have also reported significant relationships between the accuracy of parental assessments and parent's education, parent's religion, child's social quotient, motor handicaps, seizures, chronological age, and the age of the child when the parent first became concerned and the child had his first medical examination. Parents who are better educated have been found to be significantly more accurate in their estimates of the abilities of their mentally retarded children (Ewert & Green, 1957). However, the existence of such a relationship has not received consistent support (Wolfensberger & Kurtz, 1971). Protestant parents have been found to be significantly more accurate than Catholic parents (Wolfensberger & Kurtz, 1971); and the parents of children with low social quotients have been shown to be more accurate in evaluating their children than parents of children with high social quotients (Heriot & Schmickel, 1967). Zuk (1959) reported that the parents of non-motor handicapped retarded children estimated the abilities of their children to be significantly

higher than an IQ test criterion and that the parents of motor handicapped retarded children offered ability estimates which were significantly lower than the IQ test criterion. Heriot and Schmickel (1967) discovered a significant positive correlation between the presence of seizures in a retarded child and the accuracy of parental assessment. Ewert and Green (1957) found that parents of younger organically involved retarded children were significantly more accurate than the parents of older children. However, the majority of studies which have investigated the correlation of child's age and parental assessment accuracy have failed to find a significant relationship between these two variables (Heriot & Schmickel, 1967; Gorelick & Sandhu, 1967; Wolfensberger & Kurtz, 1971). Ewert and Green also reported a significant correlation between the age of the child when the parents first became concerned and the accuracy of parental ability estimates. The parents who became concerned about their retarded child and requested a medical examination when the child was comparatively young were significantly more accurate than the parents who did not become concerned until their children were older. Though significant relationships between parental accuracy and a number of variables have been identified, it should be noted that the strength of these relationships has not been verified by more than one investigation.

In addition to those variables which have, in one study or another, been found to be significantly related to the accuracy of parental estimates of the abilities of their mentally retarded children, a large number of variables have been found not to be significantly related to parental accuracy. Wolfensberger and Kurtz (1971) were unable to find evidence to support the existence of a significant relationship between a retarded child's mental age and the accuracy of his parents' evaluations. A similar lack of support has been reported for the relationship between parental accuracy and child's sex (Ewert & Green, 1957; Heriot & Schmickel, 1967; Gorelick & Sandhu, 1967; Wolfensberger & Kurtz, 1971), mother's country of origin (Weller, Costeff, Cohen, & Rahman, 1974), presence of physical handicaps, reason for first parental concern, areas in which the child is most advanced and most deficient, ages of the retarded child's siblings, cause of retardation, history of previous psychological testing (Ewert & Green, 1957), parental income, source of income, place of residence, birth order of child's siblings (Wolfensberger & Kurtz, 1971), parental age, parental occupation, number of siblings of the retarded child (Ewert & Green, 1957; Wolfensberger & Kurtz, 1971), race, and the presence of behavior problems (Heriot & Schmickel, 1967).

Though a number of the preceding studies involving sample populations in which only some children were TMR have, to a limited degree, succeeded in identifying variables which correlated significantly with the accuracy of parental assessments, similar success has not been characteristic of investigations which have focused on sample populations composed exclusively of TMR children. Stoddard (1959) examined the relationships of the TMR child's sex, chronological age, mental age, IQ, achievement level, one year's progress in a school program, and parental reality level to parental awareness and acceptance of their child's retarded development. None of the variables investigated were found to correlate with parental recognition and acceptance. Van Every (1969) examined the relationships of student's sex and socio-economic status to parents' and teachers' ratings of TMR children. Neither of these variables was significantly related to differences in parents' and teachers' ratings. However, Jamison, Attwell, and Fils (1971), in contrast to the work of Stoddard and Van Every, did find the sex of the TMR child to be significantly related to differential ratings by mothers and teachers on certain skills. The findings of Jamison and her associates notwithstanding, studies which have focused exclusively on TMR children have not identified a single variable

which correlates consistently with the accuracy of parental assessments of their TMR children.

#### Summary

Research on parental assessments of the abilities of their TMR children reveals an unbroken pattern of high ability estimates by parents. This pattern is present in studies in which only some of the children have been TMR and in studies which have focused exclusively on TMR children. Assessments by both mothers and fathers have been higher than other measures of the abilities of TMR children. However, only the assessments by mothers have proven to differ significantly from those measures which served as criteria. When mothers' and fathers' assessments of their TMR children have been compared, mothers have generally rated their children higher than fathers though the magnitude of these assessment differences has not been found to be statistically significant. The preceding differences between parents' and professionals' assessments hold true not only for comparisons of assessment total scores but also for comparisons of test subscale scores.

Parental assessments of the abilities of their retarded children have consistently been shown to correlate significantly with other measures of their children's abilities. In those studies which have focused exclusively on TMR children, positive significant

correlations have repeatedly been found between parents' and teachers' assessments. Significant positive correlations have also been shown to exist between mothers' and fathers' assessments of their TMR children.

To date no variable has been identified which consistently correlates significantly with the accuracy of parental assessments of TMR children. Investigations in which only some of the children studied were TMR provide repeated, though not unanimously, support for the existence of significant relationships between parental assessment accuracy and two variables: child's IQ and family socio-economic status. However, the strength of these relationships has not been confirmed in studies which have focused exclusively on TMR children. Indeed, this latter group of studies has failed to identify a single variable for which a significant relationship with parental assessment accuracy has been consistently demonstrated.

An examination of research which has focused on sample populations composed exclusively of TMR children reveals that no thorough study comparing parents' and teachers' assessments of TMR children has thus far been undertaken. No study has directly compared fathers' and teachers' assessments of TMR children nor has any one study compared mothers' and teachers' assessments, fathers' and teachers' assessments, and mothers' and fathers' assessments of TMR children. The identification

of variables associated with the accuracy of parental assessments has suffered similar neglect. These long-overlooked areas of inquiry signal the need for a comprehensive study which compares parents' and teachers' assessments of TMR children and attempts to identify variables which relate significantly to the accuracy of parental assessments.

APPENDIX B

Letter Requesting Parental Permission  
and Participation

BIRMINGHAM BOARD OF EDUCATION  
Post Office Drawer 10007  
Birmingham, Alabama 35202  
(205) 323-8521

February 23, 1976

Dear Parents:

Mr. William Geiger, a doctoral student in special education at the University of Alabama, has been granted permission to undertake a research project involving parents and teachers of students in special programs for the trainable mentally retarded. The purpose of this study is to gain information which will be useful in developing better ways in which parents and teachers can work together in planning appropriate instruction for a child.

The parents of 140 special program children have been selected to take part in this research. If you agree to help, your participation in this study will involve two things:

1. Your permission for your child's teacher to provide Mr. Geiger with information on your child's age, sex, I.Q., physical handicaps, and length of time in the special program.
2. Your completion of a checklist evaluation of your child's ability to perform a number of skills.

If you agree to take part in this study, a checklist, to be completed by each parent, will be mailed to you. It should only take about 20 minutes to fill out this checklist.

All of the information used in this study will be treated confidentially and will be reported only as information on groups not as information about individual parents or children. All participating parents will receive a summary of the research results at the conclusion of the study.

Please sign and return the enclosed postage-paid postcard after indicating your willingness or refusal to participate in this research project.

If you have any questions about this study, feel free to call Dr. Jeannine Spann, Teacher/Coordinator of Special Education, at 323-8521. She will be happy to talk with you about any concerns you may have.

Sincerely,  
*Jack K. Cress*  
Jack K. Cress  
Director of Guidance

Enclosure

APPENDIX C  
TMR-Functional Skills Record

## INSTRUCTIONS FOR COMPLETING THE TMR-FUNCTIONAL SKILLS RECORD

The TMR-Functional Skills Record is used to evaluate the PRESENT behavior of students on 100 selected skills. Use your past observations of the student as the bases for your judgment of his abilities. If you have never observed the student perform one of the skills on the record, estimate how much of the skill you think he could perform based on your knowledge of his abilities on other tasks. Use the following guidelines in rating the student on each skill.

### RATING GUIDELINES:

NO Place a check (X) in the NO column if the student is not able to correctly perform any part of the skill without assistance. NO means that the skill is completely beyond the present abilities of the student.

Sample:

<u>NO</u>	<u>PARTIALLY</u>	<u>YES</u>
X	—	—

Shampoos own hair

PARTIALLY Place a check (X) in the PARTIALLY column if the student is USUALLY able to correctly perform part (large or little) of the skill without assistance. For example, if the student can turn on the water and pour shampoo into his hand but cannot completely wash his hair without assistance, you should check the PARTIALLY column.

Sample:

<u>NO</u>	<u>PARTIALLY</u>	<u>YES</u>
—	X	—

Shampoos own hair

YES Place a check (X) in this column if the student USUALLY is able to correctly begin and complete the ENTIRE skill without assistance.

Sample:

<u>NO</u>	<u>PARTIALLY</u>	<u>YES</u>
—	—	X

Shampoos own hair

CHECK ONLY ONE ANSWER--NO, PARTIALLY, OR YES--FOR EACH SKILL. IT IS VERY IMPORTANT THAT YOU RATE THE STUDENT ON EACH SKILL.

## TMR-FUNCTIONAL SKILLS RECORD

STUDENT \_\_\_\_\_ RATER \_\_\_\_\_

NO PARTIALLY YESCLEANLINESS

- \_\_\_\_               1. Wipes food from hands
- \_\_\_\_               2. Wipes food from face
- \_\_\_\_               3. Blows nose with Kleenex or handkerchief
- \_\_\_\_               4. Washes and dries hands
- \_\_\_\_               5. Washes and dries face
- \_\_\_\_               6. Brushes teeth

EATING

- \_\_\_\_               7. Eats solid finger food (e.g., cookies, crackers)
- \_\_\_\_               8. Drinks from glass
- \_\_\_\_               9. Feeds self with spoon
- \_\_\_\_               10. Feeds self with fork
- \_\_\_\_               11. Uses knife to cut and spread
- \_\_\_\_               12. Uses napkin correctly
- \_\_\_\_               13. Uses acceptable table manners while eating

SAFETY SKILLS

- \_\_\_\_               14. Knows dangerous objects to be avoided
- \_\_\_\_               15. Knows objects which can be harmful to eyes
- \_\_\_\_               16. Knows objects which are harmful if swallowed
- \_\_\_\_               17. Gets off school bus safely
- \_\_\_\_               18. Passes sharp objects safely
- \_\_\_\_               19. Behaves in safe manner at play
- \_\_\_\_               20. Crosses safely at intersection with light

DRESSING AND UNDRESSING

- \_\_\_\_               21. Pulls down clothes when undressing

<u>NO</u>	<u>PARTIALLY</u>	<u>YES</u>	
_____	_____	_____	22. Pulls up clothes when dressing
_____	_____	_____	23. Puts on own socks
_____	_____	_____	24. Opens and closes snaps on clothing
_____	_____	_____	25. Buttons own clothing
_____	_____	_____	26. Zips own zippers on front of clothing
_____	_____	_____	27. Ties own shoe laces
<u>TOILETING AND HEALTH SKILLS</u>			
_____	_____	_____	28. Reports sickness or injury to person in authority
_____	_____	_____	29. Uses bathroom independently to urinate
_____	_____	_____	30. Uses bathroom independently to defecate
<u>GROOMING</u>			
_____	_____	_____	31. Combs own hair
_____	_____	_____	32. Brushes own hair
_____	_____	_____	33. Applies deodorant
_____	_____	_____	34. Knows which clothing is his/her own
_____	_____	_____	35. Knows appropriate clothing for different types of weather
_____	_____	_____	36. Hangs clothes on hanger
<u>POSITION IN SPACE</u>			
_____	_____	_____	37. Points to major body parts when asked, "Show me your head", "arm", etc.
_____	_____	_____	38. Names major body parts (head, arms, legs, etc.) when asked, "What is this?"
Understands concepts:			
_____	_____	_____	39. Up-down
_____	_____	_____	40. Over-under
_____	_____	_____	41. Front-back
_____	_____	_____	42. Around-through
_____	_____	_____	43. Left-right

NO    PARTIALLY    YES

MOTOR COORDINATION SKILLS

- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    44. Grasps and picks up small objects
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    45. Opens and closes doors correctly
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    46. Walks
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    47. Runs
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    48. Climbs stairs
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    49. Throws object underhand (e.g., ball, bean bag)
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    50. Catches object (e.g., ball, bean bag)

LISTENING

- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    51. Knows difference between loud and soft sounds
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    52. Follows three-step set of directions correctly

SPOKEN LANGUAGE

- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    53. Able to repeat ten different words after each is spoken by another
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    54. Able to name ten different foods (milk, apple, etc.) when asked, "What is this?"
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    55. Able to identify each of ten different foods when asked, "Show me the milk.", "apple", etc.
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    56. Able to name ten different articles of clothing (hat, dress, etc.) when asked, "What is this?"
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    57. Repeats three-word phrase or sentence after spoken by another
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    58. Independently says three or more word phrase or sentence
- \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    59. Dials private dial telephone correctly

NO PARTIALLY YES

## WRITTEN LANGUAGE

- 60. Writes whole name
  - 61. Writes phone number
  - 62. Writes street address

## READING

63. Reads ten safety words (e.g., STOP, DANGER)
  64. Understands meaning of ten written safety words
  65. Reads ten public sign words (e.g., EXIT, RESTROOMS)
  66. Understands meaning of ten written public sign words
  67. Reads ten public building title words (e.g. SCHOOL, FIRE STATION)

## COUNTING AND NUMERAL IDENTIFICATION

68. Counts orally from 1-10
  69. Counts objects from 1-10
  70. Reads written numerals, 0-10
  71. Selects requested number of  
objects from a group of  
12 objects

Understands concepts:

72. More-Less (e.g., 5 is more than 3, 1 is less than 2)  
 73. All-some-none

## MONEY HANDLING SKILLS

74. Points to correct coin when asked, "Show me the penny." "half-dollar", etc.
  75. Names coins (penny-half dollar) when asked, "What is this?"
  76. Reads prices under \$1.00
  77. Knows relative worth of different coins and currency (e.g., a quarter is worth more than a nickel)
  78. Makes change up to 50¢

NO    PARTIALLY    YES

HOUSEKEEPING

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- 79. Picks up things and puts them away
- 80. Empties trash
- 81. Sweeps floors
- 82. Cleans sink

HOMEMAKING

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- 83. Opens boxes
- 84. Opens bottles with opener
- 85. Opens jars
- 86. Uses manual can opener to open cans
- 87. Clears table after meal
- 88. Prepares water, washes, and rinses dishes
- 89. Makes-up bed correctly

SELF KNOWLEDGE

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- 90. Knows own sex (i.e., boy or girl)
- 91. States own name
- 92. States street address
- 93. States telephone number

Place an X in the column which best indicates the FREQUENCY with which your child engages in the following behaviors.

Less than 25% of the time	25-75%	More than 75% of the time
---------------------------	--------	---------------------------

SOCIAL INTERACTION

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- 94. Pays attention in group situations
- 95. Relates well physically to others (i.e., does not hit, push, etc.)
- 96. Relates well verbally to others

Less 25-75% More  
than of the than  
25% time 75%  
of the of the  
time time

- \_\_\_\_\_ 97. Cooperates with others  
\_\_\_\_\_ 98. Begins and continues work  
with minimum of super-  
vision  
\_\_\_\_\_ 99. Obeys explicit rules  
\_\_\_\_\_ 100. Respects, cares for property

APPENDIX D

TMR-Functional Skills Record:

Development and Reliability

The TMR-Functional Skills Record (TMR-FSR) is a modification of the T.M.R. Assessment-Profile (Geiger & Guertin, 1974). In the development of the TMR-FSR, three major alterations were made to the T.M.R. Assessment Profile: (1) seven skills were deleted, and 27 new skills were added; (2) the wording of the instructions and of several skills was changed in order to reduce ambiguity; and (3) the criteria for evaluating student performance in the area of Social Interaction was changed from rating the degree to which a student possessed certain social skills to rating the frequency with which the student engaged in the social skills specified.

#### Content of the TMR-FSR

The TMR-FSR consists of 100 behaviorally-stated skills which have been adjudged to be highly important in public school programming for TMR students. Seventy-three of the skills on the TMR-FSR were selected because they were attributed high importance by 122 teachers of TMR students in the State of Florida (Brown, 1974). These teachers were asked to rate the importance of each of 550 instructional objectives for TMR students. The 73 skills which subsequently became part of the TMR-FSR were all rated among the top third of the 550 objectives. The remaining 27 skills on the TMR-FSR were selected by the author from an additional collection of 300 skills which had been identified by experts in the field of mental retardation as being important to the public school

education of TMR students (Geiger, 1974). Since the skills which constitute the TMR-FSR were identified as appropriate and important for the education of TMR children by individuals experienced and knowledgeable in the education of moderately and severely retarded children, the content validity of this instrument is assured (Brown, 1974; Geiger & Guertin, 1974; Geiger, 1974).

Organization and Scoring  
of the TMR-FSR

The 100 skills measured by the TMR-FSR are organized into 18 skill areas representing six broad subscales (Table A). In completing the TMR-FSR on a child, the rater is instructed to indicate whether the child can usually perform the entire skill ("YES"), perform only part of the skill ("PARTIALLY"), or is unable to perform any part of the skill ("NO"). The instrument is subsequently scored by assigning the following numerical values to the various ratings: "YES" = 3 points, "PARTIALLY" = 2 points, "NO" = 1 point. Subscale scores are computed by summing the scores for those skills which make up a specific subscale; a TMR-FSR total score is computed by summing the scores for the entire 100 skills.

Table A  
TMR-FSR Skill Areas and Subscales

Skill Number	Skill Area	Subscale
1-6	Cleanliness	
7-13	Eating	
14-20	Safety Skills	
21-27	Dressing and Undressing	Self-Care
28-30	Toileting and Health Skills	
31-36	Grooming	
37-43	Position in Space	Motor Skills
44-50	Motor Coordination Skills	
51-52	Listening	
53-59	Spoken Language	Communication Skills
60-62	Written Language	
63-67	Reading	
68-73	Counting and Numeral Identification	Number Skills
74-78	Money Handling Skills	
79-82	Housekeeping	Domestic Skills
83-89	Homemaking	
90-93	Self-Knowledge	Personal Development
94-100	Social Interaction	

### Internal Consistency

Subjects. To determine the internal consistency of the TMR-FSR, 160 students at Augusta Evans School in Mobile, Alabama, were assessed with the instrument. Eight children were randomly selected from each of the 20 classes at Augusta Evans. Two children who were chosen through the random selection process had been in the program for less than three months and were, therefore, discarded from the sample. Two classmates who had been in the program for more than three months were randomly substituted for these two subjects. Subsequent to the assessments being completed, one subject was discarded from the sample due to extensive missing data. The remaining 159 students constituted the sample population on which the internal consistency of the TMR-FSR was based. The students in this sample ranged in age from 6.5 years to 20.7 years with a mean age of 13.4 years ( $SD = 3.5$  years) and had been enrolled in a TMR program from 5 months to 13.4 years with a mean of 4.3 years ( $SD = 2.6$  years). The IQ range for this group of students was below norms-73 with a median of 45.6. Additional information on the characteristics of this sample is presented in Table B.

Data-Gathering procedures. TMR-FSRs were distributed to the 20 teachers at Augusta Evans during an afternoon faculty meeting held at the school. Each

Table B  
 Characteristics of Sample Used to Establish  
 Internal Consistency of TMR-FSR

	Sex		Race		Handicaps	
	Male	Female	White	Black	Motor and Sensory Handicaps <sup>a</sup>	No Addi- tional Handicaps
n	99	60	58	101	31	128

Table B (Continued)

	I 2				
	Below Norms	40-49	50-59	60+	No Avail- able Score
n	47	63	38	9	2

<sup>a</sup>Partially sighted, blind, hard of hearing, deaf, motor impaired, cerebral palsied, seizures.

teacher received a packet of eight assessments (one instrument for each of the children randomly selected from a class). The names of the children had previously been written on the instruments. The teachers were directed to read the test instruction sheet and to familiarize themselves with the content of the instrument. After the teachers had reviewed the materials, questions were entertained; and the participants were encouraged to begin completing their evaluations. The teachers were allotted nine days (five school days) to complete the assessments.

Data-treatment procedures. The completed assessments were scored by the investigator. In those instances where a teacher had failed to rate a student on a particular skill (missing data), the investigator assigned the unrated skill that value (3, 2, or 1) which was closest to the student's mean rating on the remaining skills in that particular skill area. Cronbach's Coefficient Alpha--program SPEC07 (Barker, 1973)--was used to determine the internal consistency of the TMR-FSR and each of its six subscales. The results of these analyses are presented in Table C; the correlations of the individual test items with their respective subscales and with the total instrument are presented in Table D.

Table C  
 Internal Consistency of TMR-FSR and Subscales  
 (Cronbach's Coefficient Alpha)

<u>Area Measured</u>	<u>Number of Items</u>	<u>M</u>	<u>SD</u>	<u>Sm</u>	<u>r<sub>α</sub></u>
Self-Care	36	97.31	13.12	2.59	.96
Motor Skills	14	38.21	4.13	1.51	.87
Communication Skills	17	38.39	9.33	2.17	.95
Number Skills	11	23.11	7.53	1.61	.95
Domestic Skills	11	26.97	6.63	1.56	.94
Personal Development	11	26.94	5.30	1.64	.90
Total Score	100	250.92	40.62	5.15	.98

Table D

Correlation of TMR-FSR Items with Total and  
Subscale Scores

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	<u>r</u> (Total Score)	<u>r</u> (Subscale)
1. Wipes food from hands	SC	2.84	.42	.56	.69
2. Wipes food from face	SC	2.82	.44	.55	.68
3. Blows nose with Kleenix or handkerchief	SC	2.79	.45	.66	.77
4. Washes and dries hands	SC	2.88	.38	.50	.64
5. Washes and dries face	SC	2.83	.44	.52	.64
6. Brushes teeth	SC	2.74	.52	.66	.77
7. Eats solid finger food	SC	2.99	.08	.24	.28
8. Drinks from glass	SC	2.99	.08	.21	.22
9. Feeds self with spoon	SC	3.00 <sup>b</sup>	.00	.00	.00
10. Feeds self with fork	SC	2.98	.14	.32	.38
11. Uses knife to cut and spread	SC	2.32	.78	.76	.79
12. Uses napkin correctly	SC	2.75	.54	.52	.65
13. Uses acceptable table manners while eating	SC	2.77	.53	.45	.54

Table D (Continued)

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	(Total <u>r</u> Score)	(Subscale <u>r</u> )
14. Knows dangerous objects to be avoided	SC	2.42	.79	.82	.86
15. Knows objects which can be harmful to eyes	SC	2.27	.81	.84	.85
16. Knows objects which can be harmful if swallowed	SC	2.22	.84	.84	.84
17. Gets off school bus safely	SC	2.74	.54	.52	.55
18. Passes sharp objects safely	SC	2.34	.78	.82	.81
19. Behaves in safe manner at play	SC	2.69	.57	.50	.55
20. Crosses safely at intersection with light	SC	2.30	.82	.80	.79
21. Pulls down clothes when undressing	SC	2.89	.37	.34	.46
22. Pulls up clothes when dressing	SC	2.87	.37	.37	.50
23. Puts on own socks	SC	2.79	.53	.48	.63
24. Opens and closes snaps on clothing	SC	2.75	.54	.54	.68
25. Buttons own clothing	SC	2.70	.60	.60	.75

Table D (Continued)

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	(Total $\bar{r}$ Score)	$\bar{r}$ (Subscale)
26. Zips own zipper on front of clothing	SC	2.80	.47	.50	.63
27. Ties own shoe laces	SC	2.36	.84	.72	.73
28. Reports sickness or injury to person in authority	SC	2.69	.60	.69	.72
29. Uses bathroom independently to urinate	SC	2.96	.22	.39	.42
30. Uses bathroom independently to defecate	SC	2.96	.23	.41	.45
31. Combs own hair	SC	2.67	.62	.66	.78
32. Brushes own hair	SC	2.67	.62	.66	.78
33. Applies deodorant	SC	2.43	.82	.76	.83
34. Knows which clothing is his/her own	SC	2.86	.40	.56	.64
35. Knows appropriate clothing for different types of weather	SC	2.58	.64	.80	.83
36. Hangs clothes on hanger	SC	2.64	.62	.70	.79
37. Points to major body parts when asked	MS	2.91	.28	.51	.57
38. Names major body parts when asked	MS	2.87	.39	.57	.68

Table D (Continued)

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	(Total <u>r</u> Score)	(Subscale <u>r</u> )
<b>Understands Concepts:</b>					
39. Up-down	MS	2.68	.58	.72	.81
40. Over-under	MS	2.55	.65	.80	.89
41. Front-back	MS	2.56	.66	.74	.89
42. Around-through	MS	2.28	.72	.71	.80
43. Left-right	MS	2.01	.83	.68	.61
44. Grasps and picks up small objects	MS	2.92	.27	.38	.49
45. Opens and closes doors correctly	MS	2.96	.23	.42	.52
46. Walks	MS	2.97	.16	.03	.15
47. Runs	MS	2.91	.36	.03	.22
48. Climbs stairs	MS	2.92	.27	.29	.43
49. Throws object underhand	MS	2.88	.34	.53	.59
50. Catches object	MS	2.78	.48	.54	.64
51. Knows difference between loud and soft sounds	CS	2.79	.46	.60	.48
52. Follows three- step set of directions correctly	CS	2.33	.76	.75	.66
53. Able to repeat ten different words after each is spoken by another	CS	2.77	.56	.43	.50

Table D (Continued)

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	<u>r</u> (Total Score)	<u>r</u> (Subscale)
54. Able to name ten different foods	CS	2.82	.50	.49	.56
55. Able to identify each of ten different foods	CS	2.86	.43	.44	.50
56. Able to name ten different articles of clothing	CS	2.83	.49	.53	.55
57. Repeats three-word phrase or sentence after spoken by another	CS	2.70	.59	.56	.61
58. Independently says three or more word phrase or sentence	CS	2.63	.65	.58	.56
59. Dials private dial phone correctly	CS	1.94	.90	.77	.86
60. Writes whole name	CS	2.21	.89	.78	.82
61. Writes phone number	CS	1.94	.93	.78	.89
62. Writes street address	CS	1.95	.92	.78	.87
63. Reads ten safety words	CS	1.72	.88	.70	.86
64. Understands meaning of ten written safety words	CS	1.84	.88	.79	.89

Table D (Continued)

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	(Total <u>r</u> Score)	(Subscale <u>r</u> )
65. Reads ten public sign words	CS	1.67	.84	.69	.85
66. Understands meaning of ten public sign words	CS	1.79	.87	.77	.89
67. Reads ten public building title words	CS	1.62	.83	.65	.82
68. Counts orally from 1-10	NS	2.55	.76	.55	.73
69. Counts objects from 1-10	NS	2.50	.76	.63	.79
70. Reads written numerals, 0-10	NS	2.31	.85	.66	.83
71. Selects requested number of objects from a group of 12 objects	NS	2.29	.82	.77	.89
Understands Concepts:					
72. More-less	NS	2.08	.86	.75	.83
73. All-some-none	NS	2.19	.82	.78	.83
74. Points to correct coin when asked	NS	2.14	.89	.81	.87
75. Names coin	NS	2.08	.89	.83	.89
76. Reads prices under \$1.00	NS	1.70	.83	.70	.82

Table D (Continued)

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	(Total <u>r</u> Score)	(Subscale <u>r</u> )
77. Knows relative worth of different coins and currency	NS	1.75	.87	.76	.86
78. Makes change up to 50¢	NS	1.51	.72	.68	.75
79. Picks up things and puts them away	DS	2.81	.46	.52	.63
80. Empties trash	DS	2.76	.53	.57	.72
81. Sweeps floor	DS	2.69	.60	.59	.77
82. Cleans sink	DS	2.65	.62	.66	.84
83. Opens boxes	DS	2.68	.63	.69	.81
84. Opens bottles with opener	DS	2.20	.92	.77	.89
85. Opens jars	DS	2.44	.81	.70	.85
86. Uses manual can opener to open cans	DS	1.94	.94	.77	.78
87. Clears table after meal	DS	2.48	.78	.75	.89
88. Prepares water, washes, and rinses dishes	DS	2.20	.89	.80	.88
89. Makes-up bed correctly	DS	2.11	.88	.84	.85
90. Knows own sex	PD	2.87	.40	.49	.46
91. States own name	PD	2.93	.34	.46	.45
92. States street address	PD	2.47	.78	.60	.62

Table D (Continued)

Skill Item	Subscale <sup>a</sup>	<u>M</u>	<u>SD</u>	(Total <u>r</u> Score)	(Subscale <u>r</u> )
93. States telephone number	PD	2.05	.93	.77	.74
94. Pays attention in group situations	PD	2.39	.66	.54	.74
95. Relates well physically to others	PD	2.50	.63	.41	.68
96. Relates well verbally to others	PD	2.36	.72	.63	.81
97. Cooperates with others	PD	2.43	.64	.61	.82
98. Begins and continues work with minimum of supervision	PD	2.19	.80	.65	.81
99. Obeys explicit rules	PD	2.30	.70	.71	.86
100. Respects, cares for property	PD	2.45	.61	.67	.83

<sup>a</sup>Subscale Key: SC = Self-Care; MS = Motor Skills, CS = Communication Skills; NS = Number Skills, DS = Domestic Skills; PD = Personal Development.

<sup>b</sup>All of the students were able to perform this skill. Hence, there was no variance, and a correlation coefficient of .00 resulted.

### Test-Retest Reliability

Subjects. To determine the test-retest reliability of the TMR-FSR, 100 of the 160 Augusta Evans' students initially assessed with the instrument were reassessed. From each group of eight children per class who had been initially assessed, five children were randomly selected for a second assessment. The test-retest sample population consisted of 99 students. (One student who had been reassessed was discarded from the sample due to extensive missing data on the initial assessment.) The students in the test-retest sample ranged in age from 6.5 years to 20.6 years with an average age of 13.3 years (SD = 3.5 years) and had been enrolled in a TMR program from 5 months to 12.5 years with a mean of 4.2 years (SD = 2.5 years). The IQ range for the students in this group was below norms-73 with a median of 44.8. Additional information on the test-retest sample population is presented in Table E.

Data-gathering procedures. The second TMR-FSR assessment was undertaken 13 days (four school days) after the completion of the initial assessment. In a 5-10 minute afternoon faculty meeting, each teacher was given a packet containing five TMR-FSRs. The names of the students had been previously written on the instruments. The teachers were asked to complete this group

Table E  
 Characteristics of Sample Used to Establish  
 Test-Retest Reliability of TMR-FSR

	Sex		Race		Handicaps	
	Male	Female	White	Black	Motor and Sensory Handicaps <sup>a</sup>	No additional Handicaps
<u>n</u>	64	35	36	63	19	80

Table E (Continued)

	I 2			
	Below Norms	40-49	50-59	60+
<u>n</u>	28	44	19	7
				1

<sup>a</sup>Partially sighted, blind, hard of hearing, deaf, motor impaired, cerebral palsied, seizures.

of assessments using the same guidelines they had followed in completing the initial assessments. They were told that some of the children they were being asked to assess were the same children they had previously evaluated. The teachers took 13 days (nine school days) to complete this second set of TMR-FSR evaluations.

Data-treatment procedures. The second set of assessments was scored by the investigator. In those instances where a teacher had failed to rate a student on a particular skill (missing data), the investigator assigned the unrated skill that value (3, 2, or 1) which was closest to the student's mean rating on the remaining skills in that particular skill area. Student subscale scores and total scores for the two assessments were correlated to determine the test-retest reliability of the TMR-FSR. Pearson product-moment correlations--program CORR01 (Barker, 1973)--were computed to determine the test-retest reliability of the TMR-FSR and each of its six subscales. The results of these analyses are reported in Table F.

#### Summary

The TMR-FSR is an easily completed evaluation instrument which was designed for use in assessing the performance of public school TMR students on a wide range of skills. The appropriateness and importance of the 100 skills measured by this instrument were determined by teachers and other experts in the education of TMR children.

Table F  
Test-Retest Reliability of the TMR-FSR

Area	<u>r</u>
Self-Care	.91
Motor Skills	.87
Communication Skills	.92
Number Skills	.96
Domestic Skills	.87
Personal Development	.83
Total Score	.95

One hundred-sixty TMR students at Augusta Evans School in Mobile, Alabama, were assessed to ascertain the internal consistency of the TMR-FSR. After a period of thirteen days, 100 of these students were reassessed in order to establish the instruments's test-retest reliability. The results of the internal consistency and test-retest reliability data analyses indicated that the TMR-FSR was a highly accurate, temporally stable measure of the abilities of TMR students in public school programs.

APPENDIX E

Student-Data Sheet

## STUDENT-DATA SHEET

Name: \_\_\_\_\_ Code # \_\_\_\_\_  
(leave blank)

1. Sex: \_\_\_\_\_
2. Race: \_\_\_\_\_
3. Most recent IQ score: \_\_\_\_\_
4. Date of Birth: \_\_\_\_\_  
                          mo.               day               year
5. Date of entry in TMR program: \_\_\_\_\_  
                          mo.               day               year
6. Check all applicable handicapping conditions:  
 Blind or partially sighted  
 Deaf or hard of hearing  
 Seizures  
 Cerebral Palsy  
 Motor handicapped  
 Other (please specify: \_\_\_\_\_)

APPENDIX F

Letter Accompanying Parental Assessment  
Forms and Data Sheets

THE UNIVERSITY OF ALABAMA  
University, Alabama 35486College of Education  
Area of Special Education

March 16, 1976

P.O. Box 2592

Dear Parents,

In my study of parental evaluations of the abilities of their TMR children, I am using the enclosed TMR-Functional Skills Record. This instrument will provide a measure of your child's ability on 100 different skills. One of the enclosed TMR-Functional Skills Records is to be completed by the child's mother, and the other is for completion by the child's father. It is very important that each parent complete the evaluation independently, without conferring with the other parent or with your child's teacher.

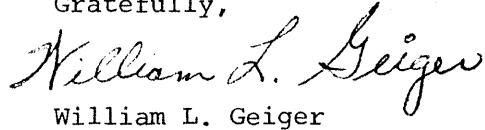
Please read the instruction page carefully before attempting to complete the assessment. As indicated on the instruction sheet, it is very important that you rate your child on each of the 100 skills.

Attached to the TMR-Functional Skills Record is a Parent-Data Sheet. The information requested on this form will be treated confidentially and will be used to determine whether parents of varying ages, religions, educational levels, etc. differ in the way they assess the abilities of their children.

When you have completed the TMR-Functional Skills Records and the Parent-Data Sheets, please return them to me in the enclosed self-addressed, stamped envelope. I would greatly appreciate receiving your evaluations by Friday, April 2.

Thank you very much for your cooperation in this research activity. It is my hope that the information you have generously provided will be of value in improving the services offered by school personnel to TMR children. When the information gathered in this study is analyzed, I will send you a summary of the results.

Gratefully,

  
William L. Geiger

William L. Geiger

WLG/bcs

Enclosures

APPENDIX G  
Parent-Data Sheet

## PARENT-DATA SHEET

Name: \_\_\_\_\_ Code # \_\_\_\_\_  
(leave blank)

1. Relationship to child: \_\_\_\_\_
2. Your age: \_\_\_\_\_
3. Religious preference: \_\_\_\_\_
4. Last year of school completed: \_\_\_\_\_
5. Occupation (please be specific): \_\_\_\_\_

APPENDIX H

Reliability of Parent-Teacher and  
Mother-Father Difference Scores

The formula for determining the reliability of a difference score is:

$$r_{\text{Diff.}} = \frac{\frac{r_{11} + r_{22}}{2} - r_{12}}{1 - r_{12}}$$

where  $r_{11}$  is the reliability of one measure  
 $r_{22}$  is the reliability of another measure  
 $r_{12}$  is the correlation between the two measures (Thorndike & Hagen, 1969)

#### Mother-Teacher Difference Scores

In calculating the reliability of mother-teacher TMR-FSR difference scores,  $r_{11} = .98$  (Cronbach's Coefficient Alpha for mother-completed TMR-FSRs);  $r_{22} = .98$  (Cronbach's Coefficient Alpha for teacher-completed TMR-FSRs); and  $r_{12} = .76$  (Pearson product-moment correlation between mothers' and teachers' TMR-FSR total scores for the 101 student subjects for whom both mothers' and teachers' assessments had been completed). The reliability of the mother-teacher difference scores was .92.

#### Father-Teacher Difference Scores

In calculating the reliability of the father-teacher difference scores,  $r_{11} = .98$  (Cronbach's Coefficient Alpha for the father-completed TMR-FSRs);  $r_{22} = .98$  (Cronbach's Coefficient Alpha for the teacher-completed TMR-FSRs);  $r_{12} = .83$  (Pearson product-moment correlation between fathers' and teachers' TMR-FSR total scores for the 64 students for whom both fathers' and teachers' assessments had been completed). The reliability

of the father-teacher difference scores was .89.

#### Mother-Father Difference Scores

In calculating the reliability of mother-father difference scores,  $r_{11} = .98$  (Cronbach's Coefficient Alpha for mother-completed TMR-FSRs);  $r_{22} = .98$  (Cronbach's Coefficient Alpha for father-completed TMR-FSRs);  $r_{12} = .91$  (Pearson product-moment correlation between mothers' and fathers' TMR-FSR total scores for the 62 students for whom both mothers' and fathers' assessments had been completed). The reliability of the mother-father difference scores was .73.

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