

Education of the Severely Retarded Child

Classroom Programs

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Foreword

THE RAPID development of special classes for middle-range, severely retarded, or trainable children has brought into sharp focus a number of relatively new instructional problems. What educational aptitudes do these children possess and what should be the objectives and procedures in teaching them?

On the basis of the quantitative and experimental data and the statements of practice currently available, this publication discusses some of the factors in classroom programs for middle-range retarded children.

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Education of Exceptional Children and Youth: The Mentally Retarded

THIS PUBLICATION is one of the studies by the Section on Exceptional Children and Youth, in the U.S. Office of Education, on the education of the mentally retarded. It contains suggestions for the development of classroom programs for severely retarded children, based on the current literature, both theoretical and experimental, and on the joint experience of the collaborators named in the acknowledgments. It is hoped that this publication will prove useful in further study of this group of children and in the development of educational programs for them.

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Courtesy of the County Schools, Modesto, Calif.

SECTION I

***Characteristics of Severely Retarded
Children***

Characteristics of Severely Retarded Children

Harold M. Williams

THIS REPORT deals with some of the problems and procedures in classroom programs for the middle group or range of retarded, sometimes called the "trainable." As educational programs for the retarded developed, they tended to concentrate primarily on the upper range, or the so-called "educable," group. Whenever children from the middle group were included in school programs they were placed, typically, either in classes designed primarily to meet the needs of the upper group or in mixed classes for both groups.

Until recently, there was comparatively little specific planning for this group in public schools, but there were exceptions, for example, in New York City, Detroit, and St. Paul. The widespread development of the special classes specifically designed for the severely retarded, however, began about 1950, largely under the stimulation of parent groups and interested professional personnel. Wirtz (64) has summarized the history of programs for the severely retarded in institutions and public day schools. He also included a brief history of the National Association for Retarded Children.

Since 1950, then, a new opportunity has arisen for educational study of these children as a distinct group. Previously, observation and study took place largely in a relatively mixed setting or on a relatively small scale. A substantial body of literature has now developed, which has been presented in the form of a bibliographical review (62).

The emphasis in this report is on the children, what they are like, how they learn, what the realistic objectives for their education might be, and what kinds of classroom experiences could contribute to the attainment of these objectives. In addition, the report discusses some essential administrative problems.

While the results of research and of fact-finding studies about current practice have been used when these are available, it will be seen that they by no means cover the problem in adequate detail. It is recognized also that, as in any new program, there are differences of opinion, and that future research and experience may modify the findings reported here.

DEFINITIONS

While the major concern in this report is not with definitions, they are of some value, especially in describing the group of children who are being included in educational programs. The definitions of importance to this report are of two types: (1) technical definitions and (2) definitions which are included in State laws and regulations. Each of these types has had an influence on the kind of child placed in public school programs. While laws and regulations have relied heavily on technical definitions, they have generally had the effect of translating theory into practice.

Technical definitions

Many definitions of mental retardation and its various degrees have been reported. Some authors have attempted a composite definition. Others have offered definitions from different points of view: medicine, psychology, sociology, education, and rehabilitation. Mental retardation is undoubtedly a complex condition, with many aspects which come within the purview of several professions. There are the medical aspects of diagnosis and treatment. Psychological interest has been concentrated primarily on measurement of degree of retardation and on problems of learning and behavior. The sociologist and social worker have been interested primarily in matters of general adjustment and adequacy of the retarded in community or institutional life. Rehabilitation service workers are concerned primarily with the vocational-economic adjustment of the retarded. The educator is interested primarily in school programs for the retarded, on a broad child development base.

A three-way division of the mentally retarded into what are essentially broad groupings or ranges of ability has been used for many years. In earlier times, and still to some extent today, the terms "moron," "imbecile," and "idiot," to describe a descending order of ability, were used in the United States.

A confusing number of alternate terms has more recently been used to describe these three groups. The upper range has also been variously called "educable," "high-grade," "marginal-independent," and "moderately retarded." Other words for the middle range have been "trainable," "severely retarded," "semidependent." For the lowest range, the terms "custodial," "dependent," "low grade," and "very severely retarded" and "totally dependent" have been used.

The psychometric limits have varied from time to time and from place to place, but a range of 50 to 70 or 75 IQ has most frequently been used to define the upper ability group, a range of from 25 or 30 to 50 IQ to define the middle group, and a range of 25 or 30 IQ down to define the lowest group. Children immediately above these three ranges have usually been described as "borderline," "educationally retarded," "dull," "dull-normal," and "slow-learning."

LEGISLATIVE AND REGULATORY DEFINITIONS**Legislative definitions**

In the process of setting up legislation, certain guidelines have been established in State laws regarding the nature of the group to be served through a school program. Among the bases for these guidelines are: (1) a certain IQ range, based on adequately administered intelligence tests; (2) the fact that a child has been declared ineligible for regular grades or "educable" classes; and (3) a descriptive term such as "trainable." Some laws have given the responsibility for establishing the regulations to a State agency, such as the State department of education; others have ruled that eligibility to attend the classes should be on the basis of competent professional recommendations.

Wisconsin (65), in one of the early instances of legislation, defined severely retarded children primarily in terms of IQ. In this legislation, both upper and lower limits were specifically set, the range being 35 to 50 IQ. New Jersey (46), Illinois (26), and California (5) are examples of States which use the criterion of ineligibility for upper-range special classes. The Illinois statutes read: ". . .incapable of being educated properly and efficiently through ordinary classroom instruction, or special facilities for educable mentally handicapped children. . . ."

The California statutes also illustrate the use of a definition in terms of social competence: ". . .who may be expected to benefit from special educational facilities designed to educate and train them to further their individual acceptance, social adjustment, and economic usefulness within their own homes and within a sheltered environment. . . ." California also specifies in its statutes certain additional criteria of eligibility. These include a recommendation by a certified psychological or medical examiner. In addition, the child must:

1. Have the ability to hear spoken connected language.
2. Have the ability to see well enough to engage in special class activities with undue risk.
3. Be ambulatory to the extent that no undue risk is involved in activities.
4. Be toilet trained to the point that it is feasible to keep him in school.
5. Be able to communicate to the extent of making his wants known and understanding simple directions.
6. Have sufficient social development so that his behavior does not endanger self or others.
7. Be emotionally stable to the extent that the group situation will not unduly intensify his problem, he can react to learning situations, and his presence is not inimical to others.

Minnesota (42) and North Carolina (47) are examples of States which use the term "trainable." North Carolina also charges the State superintendent of public instruction with the duty of prescribing

"... reasonable rules for determining a child's eligibility for participation in the program on the basis of adequate individual psychological, sociological, and medical evaluations and other related factors."

Administrative regulations

In most instances, definition is carried one step further through administrative regulations. The more detailed of these are usually issued by the State education agency and by local school districts. Typical administrative rulings have included some or most of the following.

1. The child must be toilet trained to the extent that he can recognize needs and make them known.
2. He must be ambulatory and without other major physical defects (vision, hearing, cardiac, severe crippling).
3. He must have the ability to communicate needs to others, or to understand simple instructions.
4. He must be socially adjusted to the degree that he will not be a hazard in the group, either to self or others.
5. He must be between specified ages. (In some instances this is statutory; in others it is incorporated in State agency rulings, and in others, local rulings.)
6. He must live at a distance from the class that is feasible for transportation.
7. Enrollment is conditional, pending successful trial placement in the class. In other instances it may be terminated where professional judgment concludes that maximum improvement has been reached.
8. A medical examination is a frequent prerequisite, and it may specify the physical limitations to be observed.
9. A validly administered individual intelligence test (often plus other types of appraisal) may be required.
10. I.Q. limits are frequently prescribed. Generally the upper limit is 50 or thereabouts.

The kind of child the teacher is most likely to find in a classroom for the middle range or "trainable" group is, from the point of view of definitions and regulations, therefore:

1. A child who falls in the middle group of the three broad ranges in mental retardation, with an IQ of about 25 or 30 to about 50, as measured by a competently administered individual mental test.
2. A child who does not show a major physical disability, such as severe crippling, blindness, or deafness.
3. A child who has established certain habits, such as those of self care and safety and has shown at least a minimum development in speech and language.

The major concern in this report, however, is not the problem of definition, but the education of these children in school programs.

MEDICAL CLASSIFICATIONS

Educators are interested in medical classifications of severely retarded children for the light these may throw on their educational

problems. Such information is especially important, too, for the educator, in relation to the makeup of special class grouping. A typical statement is to be found in the 1956 report of the U.S. Public Health Service (61), which covered over 7,200 first admissions to State institutions for the mentally retarded. This report included both the etiological diagnosis and the classification of the individual into the three levels described in this publication.¹

One important overall finding is that the number definitely diagnosed as having brain pathology varied from 24 percent in the upper range, to 52 percent in the middle range, to 69 percent in the lowest range. The familial, undifferentiated, and unknown etiologies totaled 47.9 percent in the middle group, consisting of 2,862 cases.

The data show, too, that there is great variation in the percent of cases in the different pathological classifications. For the middle group, for example, mongolism was highest, with 19 percent; post-traumatic next, with 9.5 percent; postinfectious third, with 6.0 percent; and developmental cranial anomalies fourth, with 6.0 percent. It appears, too, that some of the frequently discussed conditions, such as endocrine disorders and tuberous sclerosis are rare.

Results reported from community classes suggest that one-third or more of the children in these community groups are mongoloid, a number somewhat higher than in the institutional group. The brain-injured and the neurologically impaired compose another one-fourth or somewhat more. There is, rather regularly, a small percentage of the cerebral palsied and an occasional epileptic. The familial and the undifferentiated account for approximately another one-fourth. The remaining children are distributed among a number of diagnostic classifications. As a whole about 75 percent of the children show some definite medical pathology in these samples from community classes as compared with about 50 percent among first admissions to institutions.

In brief, the teacher can expect to find from one-half to three-fourths of the children in community classes showing some type of neurological disturbance. The highest percentage will be mongoloid. It is likely, too, that the teacher will find about twice as many children with definite brain pathology in a middle-range class than he will in an upper-range class.

The medical diagnostic data reported in the preceding section lead one to expect that this will be a complex and heterogeneous group as far as behavior and learning are concerned. The picture that may be derived from ordinary psychometric classification alone may be considerably oversimplified, therefore, for educational purposes even though the mental test data may give a very useful and basic frame of reference.

¹ The complete table is given in the appendix, page 79, for both the institutional group and a sampling of community groups.

BEHAVIORAL CHARACTERISTICS

Psychometric characteristics

Mental test results, nevertheless, provide one helpful approach to describing these children and establishing a basis for determining their learning readiness. Mental ages and intelligence quotients have been generally used as the major criteria in psychometric descriptions. Though such data may have great weaknesses when considered alone, they do throw considerable light on certain educationally important aspects of these children.

Data from the Stanford Binet test (60) show that a slowing down of mental growth begins to appear at about age 13, and that it approaches a full stop at about age 16. The mental ages in column 12 of the tabulation below are therefore close to being terminal mental ages. It shows, too, that for an IQ of 50, for example, academic work of approximately second grade level is a reasonable final expectancy. Little or no academic work, such as reading, can be expected below an IQ of 40 to 45.

Mental ages corresponding to specified chronological ages and IQ's

IQ	Chronological age										
	6-0	7-0	8-0	9-0	10-0	11-0	12-0	13-0	14-0	15-0	16-0
1	2	3	4	5	6	7	8	9	10	11	12
50.....	3-0	3-6	4-0	4-6	5-0	5-6	6-0	6-6	6-10	7-2	7-6
45.....	2-9	3-2	3-7	4-1	4-6	5-0	5-5	5-10	6-2	6-6	6-9
40.....	2-5	2-10	3-2	3-7	4-0	4-5	4-10	5-3	5-6	5-9	6-0
35.....	2-1	2-5	2-10	3-2	3-6	3-10	4-2	4-7	4-10	5-1	5-3
30.....	1-8	2-1	2-8	2-8	3-0	3-4	3-7	3-11	4-1	4-4	4-6

At the school readiness end of the scale, a minimum mental age of 3-0 is sometimes specified for special classes. Children around the 30 IQ level may be expected to show this readiness at 10 years of age.

The curriculum implications of results such as these are great. They suggest the importance of knowing with reasonable accuracy the mental age level of the child and his approximate rate of growth. They also suggest that the timing of curricular experience should be constantly kept in mind if the child is to learn successfully, and that these experiences should not be presented too early. They also show that some of the more intellectual and academic experiences are very questionable for this group of children.²

² Recently, it has been shown that some schools deviate from the IQ limits described above. Connor and Goldberg (7) have summarized the results from studies of about 1,200 children in special classes. They found that 23 percent of the children had IQ's above 80. Public day schools enrolled the highest percentage of children above the 80 IQ level (34 percent). This suggests that there may be a tendency to include some children with a higher IQ in these classes. In this report, special effort has been made to keep this factor in mind.

Physical and motor characteristics

Because of regulations in many States and local communities, children with extreme cases of physical handicap, such as blindness, deafness, inability to walk, lack of bladder and bowel control, and so on, are less likely to appear in school programs. The teacher can reasonably expect to find, however, at least some members of the class showing some form of physical or motor impairment, including cerebral palsy, somewhat distorted head conformation, microcephaly, and hydrocephaly.

Studies on the physical size of retarded children (27) have suggested that the children may tend to be smaller than average. Some may have physical growth anomalies; some may be quite obese. Connor and Goldberg (7) have stressed the frequency with which associated deviations are found. The deviation in physical size, however, does not seem to be as marked as that in motor coordination.

In motor control, upper range retarded boys and girls have been found to score below normal boys and girls of the same ages on a series of tasks, such as standing high jump, balancing on one foot, tapping speed, fifty-yard dash, and ball throw for accuracy. In one study (21), for example, retarded boys were able to balance on one foot for an average of only 22 seconds; normal boys for 51 seconds. In another study (13), it was reported that the mean scores of a group of upper-range mentally retarded children were, on most measures, 2 to 4 years behind the published age norms of normal children.

The above data apply to the upper range of the retarded. Although similar data for the middle group have not as yet appeared, there is little doubt that the differences would be even more marked. The teacher may expect to find retardation in motor coordination among the severely retarded quite frequently. It may also be quite severe. This also has significant curricular implications, in that it stresses the need for paying particular attention to improvement in motor coordination in the school program.

Sensory defects

A number of research workers have investigated hearing loss in retarded children and adults. Kodman (35), for example, found 19 percent of the age group 7 through 19 in an institution showing a hearing loss of 30 decibels or more, and interpreted this to be four times as many as that usually estimated for public school children as a whole. Similar results have been reported by other workers. While no experimental data on visual defects of this group have been reported it is to be expected that there may be fairly high percentage of defects, both of refraction and eye coordination, in the group. Again, this is a type of defect which the teacher will need to watch for in these children.

Language and speech

A number of experimenters have concluded that the retarded show specialized disability in language, especially on word association elements of mental tests, on picture vocabulary and sentence completion items, and on tests requiring response to verbal directions (1, 9, 12, 31, 41, 59). If reading is included as part of language, studies (11) have found specialized deficiency on the part of the retarded in this area also. Kirk (34) found the upper range of retarded deficient in visual and auditory memory, speech articulation, and sentence length.

Harrison (17) has summarized the studies on speech and language and found that speech and language defects in a high percentage of the children observed were reported in all the studies. Several studies reported, however, that there seemed to be no basic qualitative differences between the speech of the retarded and that of young normal children, that is, that the speech of the retarded resembles most nearly the imperfect speech of young children. As a whole, language facility was positively related to mental and chronological age and negatively mated to the degree of retardation.

The speech and language problems of these retarded have been classified into five categories by Schneider and Wallon (54) as delayed language development, insufficient language development, articulatory disturbances, vocal disturbances, and disturbances in speech perception.

Schlanger (53) classified the expressive language level of a group of residential school children into three groupings: (1) rudimentary with a complete or partial lack of verbal response not beyond one-word sentences; (2) verbal output consisting of short incomplete sentences and phrases with prepositions, relative pronouns, adverbs, and adjectives omitted; (3) full sentence usage of one or more words, expressing complete thoughts or ideas. Johnson and Capobianco (30) found that a small sample of middle-range retarded children tested a full year lower in language age than in mental age.

In brief, the studies indicate that retarded children show special retardation in speech and language, which is in general related to mental age and chronological age. They show, too, that the speech and language errors of the retarded tend to be qualitatively similar to that of young normal children. On the whole, they also show some improvement through training, although improvement seems also to be greatest in those of higher mental and chronological age.

These findings point to the need for a systematic and planned attack on speech and language improvement in classes for the severely retarded, especially since communication skills play such a large part in the better adjustment of this group to daily living.

Social competence.—Social competence includes matters of practical self-help, personal routines, care of property, safety routines, and the

like. As State standards so frequently point out, a successful school program for these children rests on a basic minimum in these matters.

Johnson and Capobianco (30) found that the social quotients on the Vineland Social Maturity Scale tended to run somewhat higher than the IQ's on the children reported in their study, both in the beginning and at the end of the 2-year experimental classroom period. The Illinois Study Project (34) reported similar results.

The Illinois study project staff also reported results from a behavior checklist devised by them (25). Each item on this list included seven levels of performance, from level one (completely unacceptable behavior) to level seven (highly acceptable behavior). The results of final ratings by teachers after 2 years are shown in the following tabulation. These findings should be of special interest, since they show results on a number of practical, everyday accomplishments.

Average Scores on a Behavior Rating Scale After 2 Years of Training

Item	Average rating	Item	Average rating
1 Resting	4.7	12 Putting away toys	5.6
2 Toileting	6.3	13 Housekeeping	4.4
3 Eating	5.0	14 Serving food	4.0
4 Drinking	5.1	15 Crossing street	5.1
5 Undressing	5.7	16 Reading signs	2.2
6 Dressing	5.4	17 Riding bus	2.1
7 Washing	5.1	18 Self-play	5.5
8 Use of handkerchief	4.4	19 Group play	4.8
9 Tooth brushing	4.3	20 Response to others	5.4
10 Use of clothes	4.7	21 Listening	5.0
11 Combing	3.8	22 Talking	4.3

It will be seen from the ratings that these children showed a potential of fairly acceptable social behavior in some of these aspects of social competence. The results show, too, that a substantial teaching challenge remains in these very important areas of learning.

These findings are especially important for community school programs because matters of personal safety and the ability of the children to care for their own personal needs are essential in group situations.

Social and emotional characteristics. Various studies have been made of the behavioral characteristics of the severely retarded. Goldberg (15), for example, presented estimates of the behavioral characteristics of these children as they are found in community day classes, based on the reports of 85 teachers on 1,200 children in special classes. About 40 percent of the statements he classified as "satisfactions," about 60 percent as "problems." As satisfactions he lists (in rank order of frequency of mention):

Alert, eager, active
 Obedient, docile
 Amenable, good natured
 Good social competence
 Gay, happy, cheerful
 Good communication

Independent
 Special talents: music, art
 Good motor ability
 Dependable, trustworthy
 Orderly

As problems he lists (also in rank order):

Shy, fearful, tense	Withdrawn
Hyperactive, nervous	Infantile, immature
Attention seeker	Annoying and undesirable habits
Short attention span	Selfish, egotistical
Stubborn, obstinate	Not dependable
Poor communication	Socially incompetent
Poor motor ability	Perseverates
Mischievous, destructive	Lazy
Aggressive	Tires easily
Emotionally unstable	

Johnson and Capobianco (30) applied the Fels Child Behavior Scales to group of middle-range children. The characteristics of 45 children in their public school group were described as follows:

Cheerful-depressed: Good-natured but rather easily disturbed.

Conformity: Not unusual, will ignore some expected standards.

Emotional control and excitability: Occasionally demonstrates outbursts but inhibits expression overtly rather well.

Sensitiveness: Neither unusually great nor slight.

Friendliness: Not overtly friendly, remains at a distance, but not unfriendly.

Obedience and patience: Sometimes disobeys, especially when disturbed in a pleasant task, can wait turns rather successfully but is sometimes impatient.

Suggestibility: Usually suggestible but resists when suggestions seem unreasonable.

Cruelty: Only rarely shows cruelty to others.

Curiosity, originality: Narrow areas of curiosity, somewhat indifferent, unimaginative, does not initiate make-believe, plays conventionally, copies others.

Jealousy: Relatively little envy, seems unconcerned with superiority of other children.

Playfulness: Haphazard in play, makes repeated trial and error, dives into things carelessly.

The Illinois Study (25) reported the results from the use of a portion of the Haggerty-Olson-Wickman Behavior Rating Schedules. The results from ratings by teachers on 127 children are given here in terms of the questions asked and the description that applied to the average rating of the group.

1. Is he abstracted or wide awake?	Keenly alive and alert. ¹
2. Is he indifferent or does he take interest in things?	Interests are easily aroused.
3. In his attention sustained?	Attends adequately.
4. What is his output of physical energy?	Moves with required speed.
5. Is he easily fatigued?	Rarely shows fatigue.
6. Does he lack nerve or is he courageous?	Resolute.

¹ This probably means that the children tend to be responsive socially, rather than alert in the sense of understanding situations.

- | | |
|---|--|
| 7. Is he quiet or talkative? | Upholds his end of talks. |
| 8. What are his social habits? | Follows few social activities. |
| 9. Is he shy or bold in social relationship? | Confident in himself. |
| 10. How does he accept authority? | Ordinarily obedient. |
| 11. How flexible is he? | Slow to accept new customs and methods. |
| 12. Does he give in to others or does he assert himself? | Assertive. |
| 13. Is he easily discouraged or is he persistent? | Persistent until convinced of his mistake. |
| 14. Is he even-tempered or moody? | Happy or depressed as conditions warrant. |
| 15. Is he generally depressed or cheerful? | Usually in good humor. |
| 16. How does he react to frustrations or unpleasant situations? | Tolerant, rarely blows up. |
| 17. Is he emotionally calm or excitable? | Emotions are slowly aroused. |
| 18. Is he negativistic or suggestible? | Follows any suggestions. |
| 19. Does he act impulsively or cautiously? | Very cautious and calculating. |

These are, of course, average scores only. Many individual variations from these descriptive phrases are possible; some of the group will score higher, others lower. Nevertheless, the overall picture is rather on the favorable side, as far as classroom possibilities with these children are concerned. There are many suggestions and teaching challenges among these lists of characteristics.

As instruments such as these become more generally standardized, the teacher should find it quite helpful to have such records available. They will be useful for his work in the classroom and with the parents, and also to others besides the teacher, who may have professional responsibilities to the child and his family, as well.

These records can be supplemented by anecdotes, samples of work done (especially of artwork and other expressive activities), and records of interviews with parents and professional workers, as each of these will add its contribution to the detailed portrait of the child which is necessary for any program to foster the child's social and emotional adjustment.

Sociological characteristics.—One principal sociological characteristic of this group of children appears to be that they tend to come from homes of higher socioeconomic status more often than do children in the upper-range group. Mullen and Nee (43) have reported data on this problem as it appears in Chicago. Chicago is a city which has been intensively studied sociologically, and the outward movement of the population as families attain higher socioeconomic status has been demonstrated. Mullen and Nee amassed their data as part of

a program of preparation for meeting educational needs of the severely retarded. Their findings were based on psychometric tests of about 10,000 children in 1949. The "educable" group represents children recommended for "educable" special classes. The comparison group was composed of children who were either potential candidates for "trainable" classes or who were too young in mental age for "educable" special classes. It was found that 65 percent of the "educable" group concentrated in 16 census districts in what was described as the "slum areas" of Chicago. Sixty-five percent of the other group spread out over a total of 31 census districts.

Saenger (51) has also pointed out that a large proportion of the high-grade retarded come from homes of low socioeconomic status, while the lower grades are evenly distributed through all ethnic and economic groups.

It is probable, therefore, that the teachers of middle-range retarded children will be working with children from relatively favorable home environments in a much larger percent of the cases than will teachers of upper-range children. Thus, many interesting challenges, especially in the area of teacher-parent cooperation, may be presented to those working in the education of the severely retarded.

This may also be an important finding for teacher preparation, for the potential frustrations to be encountered when a retarded child lives in a home of high socioeconomic status may be quite different from those encountered when he lives in a marginal or subcultural home. The general adjustment of the children may be quite different, too, for every child brings with him to school the background of experiences he has had in his home and neighborhood. This finding stresses the need for the teacher of the middle range group to make a special effort to become familiar with the family and the cultural environment from which each child comes.

The Neurologically impaired.—In view of the large percent of children in the middle range of the retarded who have been diagnosed as having some degree of neurological damage, a brief discussion of this problem may be of value. This is a very difficult question, since definitions as well as theories and experimental findings differ about the behavior reactions of children who show evidence of damage on the basis of neurological examinations. As Gallagher (14) has pointed out there may be still ". . . some confusion as to whether the facts gathered relate to brain-injured individuals as a *group* or are describing the characteristics of *individual* cases of brain injury."

Strauss and Kephart (58) have described various symptoms of brain damage or neurological impairment. They include:

1. Disorders of perception (failure to perceive sights, sounds, etc. in the normal way).
2. Disorders in language (primarily disorders in the use of symbols).

3. Disorders in concept formation (in ability to see similarities, make generalizations, and so on).
4. Disturbances in behavior.
 - a. Distractibility and detail reaction (reacting to extraneous stimuli, inability to "concentrate," reacting to details rather than a whole).
 - b. Disinhibition (making responses that are inadequate to situations, not recognizing the inadequacy of the responses, impulsiveness).
 - c. Disorders in intensity of response (usually over-reacting to a situation).
 - d. Perseveration (tendency to continue previous activity regardless of changes in the situation).

Laufer (36) has summarized current thinking about this problem as follows:

Now, instead of referring to brain damage, we have found it preferable to refer to what we call the *syndromes of cerebral dysfunction*. Through this phrase we try to express our feeling that, occurring in appropriate phases of development, injury, maldevelopment, delayed maturation, and perhaps even intense emotional stress can result in disturbances in any one of the following categories, and often in combinations of these. In the *intellectual* sphere, they may result in mental retardation; in the *neuromotor* sphere, in the varieties of cerebral palsy. In the *neuro-sensory* sphere, one may note, for example, impairment of vision or of hearing on a neurological basis. Another area involves distortions of consciousness or control, as in the epileptic. In the *perceptual* area, difficulties occur in perception through any modality through hearing, seeing, or feeling—with consequent difficulties in learning and in establishing relationships. Lastly, there is the *behavioral* area, and this we feel is especially characterized by what we have called "hyperkinetic impulse disorder," and quite possibly by some components of the condition called childhood schizophrenia.

It is not within the scope of this report to make a detailed evaluation of the effects of brain damage on learning in the school situation. It seems to be generally agreed that not all neurologically impaired children belong in the "trainable" classification, but that some may. Some may not even belong in the retarded classification. Some of the evidence seems to indicate that children not diagnosed as brain-damaged sometimes show similar disturbances in learning.

It seems reasonable to conclude that the teacher should always be alert to the possibility of behavior such as that described and plan to make individual adaptations in teaching on this basis. He may well be aware of the possibility that at least some children in any group may have specialized disabilities of perception and attention which interfere with their learning by the more usual educational procedures.

Learning characteristics

Since there are still relatively few studies which deal specifically with how retarded children learn, any report on how this particular group of children learns must depend in part upon what is known about how children learn generally. Some of the studies of the learning of the retarded which appeared quite early have had substantial influence on teaching theories and procedures ever since. Hollingworth (20),

for example, concluded on the basis of her own work and that of others that the rate of learning of retarded children is most nearly like the rate of learning of normal children of the same mental age, and this finding has had great influence on experimentation and practice.

The practical situation is, however, not this simple because the rate of mental growth of bright children is faster than the rate of growth of dull or retarded children. Even if an upper-range retarded child were started in the fall in a regular grade where the average mental age matched his, he would have fallen behind by spring since his mental age would then be lower than the average mental age of the group he started with. If he were in a special class for retarded children, on the other hand, his rate of mental growth would much more nearly match that of the others in the group he was with. This is one of the principal reasons for special classes. This observation probably holds even more significance for the severely retarded.

However, most of the studies indicate that, at any given moment and over a very brief timespan, retarded children learn about as efficiently as other children of the same mental age. A large part of the educational problem with the severely retarded, therefore, is the very low mental ages they show.

Minimum mental age for learning a given task.—McPherson (39, 40), in reviewing the learning studies in mental retardation, pointed out another aspect of learning which is sometimes overlooked, namely, that a minimum mental age may be necessary for successful learning of a particular task. Thus the teacher may often have to wait for a certain degree of maturation before presenting some tasks to the children. For example, Pascal and his group (48) found results which suggest that at lower mental ages, delay between assignment and performance of the task by the child makes for inefficient learning.

Variability of performance.—McPherson (39, 40) also summarizes evidence that seems to point in the direction of greater variability and inconsistency in the learning process of the retarded than in that of the normal. The teacher of the severely retarded may well expect to find a considerable amount of variability of this type in these children's performance.

Transfer of training.—The ability to transfer the results of learning from one situation to another has often been considered to require a fairly high level of mental age. It has, therefore, sometimes been assumed that the retarded would show little or no transfer and, as a result, must be taught everything quite specifically. Hollingworth (20) was among the first to report evidence of transfer of training in the retarded, but her findings have been confirmed by others. Barnett and Cantor (2), for example, have demonstrated transfer in a simple discrimination task in a group whose mean Stanford Binet IQ was 42. The transfer occurred at levels both above and below an MA of

6-3. Cruickshank and Blake (8) have also studied the problem of transfer with positive results.

It would seem, therefore, that the existence of transfer, at least at simple levels, has been demonstrated in the learning of the retarded. The chief question at the present time appears to be, rather, the mental ages and level of complexity at which transfer is possible. Practically, it would appear that the teacher may assume transfer at simple learning levels, but should watch carefully for the possibility of its breaking down at more complex levels. When transfer appears to break down the teacher should supplement the learning situation with more specific teaching.

Attention.—Woodrow (66) early presented data indicating deficiency in the power of sustained attention in the retarded. Others also concluded that the retarded were inferior to normal children in this respect. It is quite possible, however, that power of attention is not a simple ability, but is dependent to a considerable extent on many contributing factors such as motivation and interest of the material, distractions in the environment, and so on. Evidence from studies of the severely retarded, such as those of Gordon, O'Connor, and Tizard (16), suggest that, under favorable circumstances, the severely retarded can sustain attention for fairly lengthy periods.

Self-criticism.—Since the time of Binet, inability to judge the quality of one's own product has been considered a characteristic of the retarded. Some experimental evidence supporting this view has been reported in several studies. It appears that inability to judge quality of product may be a deterrent to learning in this group (19). This could well be an objective which the teacher of the retarded should keep in mind.

Reasoning, insights, and understanding of relationships.—Also since the time of Binet, lowered reasoning ability has been frequently mentioned as a special defect of the retarded. Data supporting this view have been presented by more recent workers such as Fox (12). Again, the problem is not simple because much may depend on the complexity and abstractness of the reasoning required.

General comments.—Ingram (27) has summarized the course of learning in terms of need or purpose, recurrence, and success. As she states it, the individual must first realize a need for adjustment to the environment, or elements of it. This need guides him as he makes responses. As he progresses, consciousness of success or recognition of the right response makes him more aware of his goal and guides him on toward it. But there must also be recurrence of situations so that the learner can become thoroughly "at ease" in the new form of behavior.

It is generally agreed that back of all learning is motivation. When the severely retarded children come to the teacher, there are certain primary motives that can be appealed to: the urge to activity, the

need for security, the desire to be accepted and to belong, the desire for self-direction, and so on. The skillful teacher will foster and encourage growth toward more complex motives, to be like the others, to be neat and orderly, and so on. The experimental results also suggest that such complex factors as knowledge of results may function to some extent.

A positive identification with the teacher and the group is desirable. For a long time, some of these children may engage in learning activity because "they like the teacher and want to please her." Through this relationship with the teacher an identification with the group, a desire to belong with and be like the others may develop. The need for pleasant personal relations, established early through the provision of "interesting things to do with others," may be a prime requisite for a successful class. The earlier this is established the better. The better established it is, the better the foundation for learning.

Effective learning is goal-oriented. Through a positive identification with the teacher and the group, certain goals may be established in the severely retarded child's mind. A child learns better when he has some purpose or goal, which is clearly identified, understood, and accepted by him. The goal may be very simple; learning how to button a coat by himself or how to assemble a cut-out puzzle. The important thing for the teacher to keep in mind is that the child must have some idea of the goal to be accomplished and have the wish to reach it, as well as the means by which the goal may be realized.

Especially in the beginning stages, the goals may be highly personal and not particularly socialized on the part of the child. The teacher must be alert to these and accept these whenever possible, and thus, gradually bring the child toward more nearly socialized and group-oriented goals.

Goals will also tend to be rather immediate, as far as these children are concerned. The long-range goals will be primarily in the mind of the teacher. Keeping more long-range goals always in mind, the teacher may be able to bring each child gradually from one immediate goal to another related one which will, in turn, present a new challenge to him. "Now you have learned to wash your hands so nicely; wouldn't you like to learn how to wash your face, too?"

Effective learning requires some understanding on the part of the child. Perhaps the most common cause of failure to learn is the fact that the child had no real comprehension of what he was trying to do. A smile and a nod of the head does not necessarily mean that the child understands. The teacher will want to check comprehension carefully, in addition to motivation and goal-orientation.

Some undesirable behaviors may need to be eliminated. This is the process sometimes called extinction in educational psychology. In general, the stronger the old drives and habits, the slower the extinc-

tion process. A child, for example, who has had a long history of dependence will take longer to learn independence. Praise and reward hasten the process, and practice without reinforcement will lead to extinction of the old undesirable habits. In other words, if a child who has been too dependent puts on his overshoes alone a number of times, without someone being instantly ready to jump up and help him, a step has been taken toward extinction of his habit of dependency.

Practice is also necessary for retention. It must be active; the child should actually do the act he is learning. However, practice periods should not be too long, and the longer the interval between practices, the less efficient the learning generally is.

Often, especially with the severely retarded, it may be helpful to break down complex skills into simpler units for effective learning. There will also be learnings so complex that the teacher would be wise not to attempt them with these children. To attempt such learnings will lead only to frustration on the part of teacher and child. In general, the MA and IQ are useful guidelines to the level of difficulty the child is ready for.

The general characteristics of this group also may be expected to affect their learning in school in various ways. Typically, these children will enter school later than average children and may have become, therefore, more fixed in particular ways of doing things that they have been taught in their own home. Some may have been trained quite firmly in matters of discipline and conduct, while others may have been overprotected. This creates an especial need for the teacher to know and understand the family's attitude toward and methods of dealing with the child. The teacher should watch especially for emotional blocks to learning due to such factors.

Typically also, these children have quite varied etiologies, which loom up larger in this group than in most other groups. There may be mongoloid children, children with brain damage of various types, cerebral palsy, microcephaly, disorders of perception or attention, and other neurological conditions, in which reduced capacity for learning, or specialized learning needs are only two of several symptoms of deviation. The teacher should, therefore, be especially alert to these possibilities and should expect to receive more diagnostic professional help with these varied problems.

The children in this group may also have quite different readi-nesses. Some will be young, without previous school experience; others will be older in chronological age, with previous school experiences; some will be in the adolescent age range, nearing the end of the school age period. Another aspect of readiness is the fact that, as a group, they will probably not have had the usual full range of contacts with the community that most children have had. The teacher will need to bear this in mind particularly in curriculum planning as well as in introducing the child to group experiences.

In addition, it should be borne in mind that there are many factors which make continuous study of each child desirable. There may be inaccuracies in the first test, so that later testing may be desirable. After being graded on intelligence, the children must be evaluated on other criteria such as social adjustment, motor development, and so on. There will be many gradations on each criterion of development.

Also a particular child may develop in such a way that he fails to adjust on his initial placement or shows faster growth than was predicted. Where the child's major complicating factor is instability, his general efficiency level may change as he becomes more stable.

Many school systems anticipate these changes and provide for them through a regular trial placement period of each child, and a more permanent placement after his adjustment in the school situation has been observed for a period of time.

One might summarize the data available on the learning characteristics at present of this group as follows:

1. There appears to be a minimum mental age and IQ for successful adjustment and learning in a group situation, of the kinds of tasks implied by "school" work.
2. At any given moment the retarded seem to learn in a manner generally similar to the learning of normal children, but with two important exceptions: (a) because of differential growth rates they will not maintain this pace for more than a brief time and (b) they will show certain qualitative deficiencies in learning. Among these deficiencies to which the teacher should be alert are the following:
 - a. Many of the children may show a reduced power in sustained attention.
 - b. They will nearly all show special disability in language and communication skills.
 - c. There may be specialized disabilities in some of the children in such functions as perception.
 - d. Their power of self-criticism may be reduced.
 - e. They will quite probably show reduced ability in reasoning and understanding of relationships.
 - f. Their performance may be more variable than that of normal children.

If one can venture any generalization at present regarding the learning of the severely retarded, it would be that they differ from other children more in the level of difficulty or complexity of the tasks which are possible, or at least feasible, for them to learn. Moreover, this seems to correspond roughly to their mental age at any given time. This does not imply, however, that they will be best taught by the same methods as normal children, for these methods often involve a "telescoping" of the learning process not appropriate for this group. A reduced capacity to transfer, for example, means that less can be left to incidental learning or nonspecific teaching; a specialized disability in language, may mean increased care in dealing with verbal methods and abstractions.

SECTION II
Classroom Programs

Curriculum Planning: Principles and Objectives

Harold M. Williams

TO PROVIDE a ready-made curriculum guide is not within the scope of this report. Indeed, this would violate one of the basic principles of curriculum making, which requires local staff participation. This discussion will deal, therefore, with some of the principles involved, together with selected illustrations of how the problem has been approached by groups who have worked with the severely retarded.

Principles of curriculum development

The curriculum is the sum total of the experiences offered the child under the guidance of the school. It includes experiences offered in the classroom, the playground, the lunchroom, and in going to and from school. It includes also experiences in the home as they are worked out in cooperation with the child's family if he is living at home, or with the staff if he is in a residential school.

The experiences that are offered the child are based on the study of the nature of the child and of the society in which he lives. In the case of the severely retarded child, both are especially important. His nature and limitations are such that many curricular experiences will probably be of limited profit to him. At the same time he may get from such experiences some things of value at his own level, but these may be quite different from what other children derive from the same experiences. Similarly, his relationship to the society in which he lives or will live must be a consideration constantly in the mind of the curriculum builder. In particular, it is unlikely that he will ever assume more than a dependent or semidependent role in society. In many instances he may not have access to many experiences as easily and regularly as other children, so that more than ordinary care must be taken to see that he has such experiences as are feasible and appropriate.

The accounting of the sum total of experiences offered the child in preparation for his taking a role in society is often referred to as the scope of the curriculum. One of the most difficult aspects of curriculum building consists of appraising the experiences of the severely retarded accurately, because it is difficult to predict just what activi-

ties these children might engage in later. The statement of the objectives of the curriculum is the principal guideline for studying the scope. Self-care, for example, at the basic level of dressing is obviously an objective. But whether this should be carried through to the child's choosing, buying, and caring for his own clothes out of an allowance or an income, may be questioned. Such curriculum guides as have appeared to date, and reports from those who have worked with the severely retarded, indicate that the scope of curricular offerings has tended to be quite limited.

In considering the scope of the curriculum, however, both the long-range and the short-range view of the child's total development should be taken into consideration. The long-range view is sometimes expressed in Stratemeyer's (56) phrase "persistent life situations." Those in charge of the education of these children need to think not only in terms of the current needs and goals but in terms of long-time goals as well. To the extent that these children will be limited in their freedom of choice in, and full responsibility for, the use of money, experiences in budgeting and saving may be rather unrealistic for them. Thus, many of the objectives for the severely retarded may be strongly conditioned by the ultimate place they will assume in society.

Curriculum experiences.—Among the experiences offered the child at any given time, those that meet his needs of the moment must be included. These should also be kept in line, however, with longer-range needs. For example, knowing how to dress himself and how to recognize street signs have immediate values, but they may also have lifelong values. Other experiences, such as play, while they may have immediate values, may lack significant long-range values, except in a substantially modified form.

The curriculum should also take into account the sequence of experiences offered. This depends, in the first place, on the readiness of the child. On the whole, it is expected that these children will follow slowly some of the normal sequences of development. Nevertheless, it may more often be necessary to break down a complex activity into its elements and teach these serially. In the camping unit, described later on, this method was used. The children were given practice on some of the necessary skills at school until they showed a proficiency in them. Thus, one of the most frequent deviations from ordinary procedures in teaching will be the breaking down of learning experiences into smaller units.

Another closely related principle is contained in Havighurst's (18) concept of "developmental tasks." "A developmental task is a task which arises at or about a certain period in the life of an individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society and difficulty with later tasks." Develop-

mental tasks help keep the teacher very close to reality in his day-to-day contact with the children. This concept, teamed with the concept of the "persistent life" situation offer a helpful basis for setting up objectives in the evolution of suitable curriculum materials for the severely retarded.

Today it is customary for teachers to participate in group work in curriculum development. Also, the final translation of the curriculum guide into actual experiences for the children is the responsibility of the teacher. In the case of severely retarded children, moreover, since the classes are so few and scattered, the burden of curriculum making probably rests more heavily on the individual teacher than is usually the case. In general, also, the special teacher will have the children under his guidance for a longer period than is customary in the regular schools, so that the problems of scope and sequence will depend even more heavily on this individual teacher.

Since objectives are often expressed too generally to be usable directly, the elements or basic units of the curriculum are usually experiences or activities. The objective of good health must be broken down into some such elements as attitudes, habits, and understanding of health with respect to infection, food, cleanliness, and so on. Even such a specific as cleanliness will probably need to be broken down farther into such habits as "washing hands before eating" and such a simple understanding as "how disease germs are spread."

Teaching materials.—Most activities will require teaching or resource materials. Perhaps the simplest illustration of this principle may be found in arts and crafts, where teaching would be nearly impossible without materials. Nevertheless, the need for carefully planned materials exists in practically all teaching situations. Teaching safety at street corners, for example, can be done verbally, in which case the materials are spoken words. But if recognition of "stop," "wait," and "go" symbols is desired, than materials illustrating the colors and perhaps the printed words will be needed. It may even be well to use a model signal post or even a real street corner for maximum teaching of safety.

Lists of teaching materials have little significance apart from the context in which these materials will be used. Such lists, therefore, should usually appear as part of a curriculum guide. Any learning unit, for example, that is set up should include a working list of materials to implement that particular unit.

Goals.—In teaching, however, the teacher constantly asks, "Why am I teaching this?" In teaching the severely retarded the teacher asks, "Why am I teaching this to these children?" Goals and activities are always interchangeable to some extent. Sometimes it is more convenient to think of a goal and to choose activities that will work toward that goal. On the other hand, nearly all activities provide opportunities for learning that contribute to more than one goal.

A further consideration has to do with the way in which goals function in the education of the severely retarded. In general, it would appear that the goals or objectives of education for these children are primarily things which the teacher should keep constantly in mind in all his relationships with them. Communication skills, for example, as an objective, cannot be confined entirely to a conversation or language arts period. The competent teacher will think "communication skills" in all situations, all day long, and will be alert to all opportunities for developing communication skills, no matter what the immediate context is.

Finally, to be most effective, the teacher will individualize the goals, both immediate and long range, for each child. As the preceding sections have shown, this is a very heterogeneous group of children, so that individualization of objectives may be especially important with them.

Objectives of the curriculum

In developing objectives, it would appear that the basic philosophy should be that these children are children, and that the general aim should be to help each realize his maximum potential, just as for every child. This, of course, calls for careful appraisal of their actual potentialities, and for continuing reappraisal as new evidence comes in.

In working toward adequate objectives, many aspects need to be considered. It is quite unrealistic for the teacher to offer these children experiences merely because such experiences have always been offered to other children, or because these are the procedures the teacher, from his past experiences, knows. The teacher should have as a goal making these handicapped children as well-adjusted as they can be, especially in such matters as social relations or taking independent responsibilities in simple situations.

It must be pointed out that, in a field where there are so many new concepts, appropriate teaching objectives are not too clear as yet. Much more needs to be known about these children and their potential, about the best ways of teaching them, and about opportunities that might later be open to them, before specific objectives can be adequately stated.

Closely related to the present and potential ability of the severely retarded is their role in society, considered both from the immediate and the long-range point of view. As has been pointed out, it seems most likely that few of them will achieve full independence. Yet, within the limits of dependence, or semidependence, it seems clear that there are many skills and achievements which these children can learn that will be genuinely helpful in their adjustment in the home and community, as well as in a residential school or institution. It must always be remembered, however, that they will come to school

with quite different readiesses for these learning tasks, and may differ widely in the extent to which they will achieve them.

Connor and Goldberg (7) gave, as the goals the teachers had set up, the following:

Goal	Frequency of mention
Personal development.....	88
Emotional.....	54
Physical.....	24
Moral and spiritual.....	10
Socialization.....	55
Self-care.....	47
Economic usefulness.....	38
Academic skills.....	20
Communication.....	17
Useful home living.....	13
Aid for parents.....	4

A few studies have been made of parents' expectations of school programs for these children. Goldberg (15) reported the following replies from teachers on parental expectations of the child: to be trained to the maximum; to learn correct habits and adjust to environment; to read; to prepare children to be self-supporting; to learn arts and crafts; to develop good work and behavior habits; to grow in happiness and physical well being; to attend school regardless of physical or mental disability. The teachers thought that some of these were quite unrealistic and too frequently based on accomplishments of the upper-range group.

In the Illinois (25) study, the chief objectives desired by the parents were reported as follows: speech, socialization, academic work, combination of above, and self-care.

In the Minnesota (49) study, the parents of the children attending the special classes in St. Paul gave statements regarding the most important objectives for the children. In order of frequency of mention, these were understanding of academic subjects, self-reliance, socialization, adjustment, and speech.

In line with the above considerations, the following objectives are among those most frequently mentioned in the various discussion and reports which have appeared. It is understood, of course, that there will be an overlap between the areas listed, and that some have been singled out for the purpose of emphasis.

Suggested objectives for the severely retarded

1. *Self-care.*—Included in self-care are such achievements as washing hands and face, combing hair, brushing teeth, other items of grooming and personal neatness, skills at table, dressing, and undressing. In addition to learning the specific skills, this objective should include development of adequate attitudes toward self-help and reduction of as many as possible of the skills to habits. In

addition to saving time for the parent, teacher, or attendant, the child's development of self-care skills may do much to help develop his sense of personal worth and responsibility.

2. *Economic usefulness.*—While self-care is in itself a contribution to economic usefulness, it has been generally agreed that this group of children can learn other skills which may be genuinely helpful in the world of work. Learning to do simple household tasks well, such as setting the table, making his own bed, cleaning, picking up and putting away, performing simple errands, and acting as helper, can all be a contribution to the child's economic usefulness. Again, the development of proper attitudes toward such tasks and the habit of taking responsibility is as important as learning the skills themselves. Self-care plus economic usefulness make up a large part of what is often called social competence.

3. *Safety.*—The objective in safety education includes knowledge and understandings, such as recognition of potentially dangerous situations and concepts of how to avoid them, as well as development of such habits as those of alertness when crossing streets and carefulness on stairways and on the playground. Improvement of motor coordination also contributes to safety.

4. *Health.*—Health education will probably consist largely of developing simple attitudes toward healthful living, simple understandings, such as concepts of the value of drinking milk or how disease is spread, and basic habits such as those of covering the mouth and nose when sneezing, brushing the teeth, and other forms of cleanliness.

5. *Motor coordination.*—Since the mentally retarded have been shown to be deficient in motor coordination, special attention might well be given to the development of these functions, both in large muscle coordination as well as in finer coordinations. In addition to its inherent values, good motor coordination functions in many activities and increases social acceptability.

6. *Communication skills.*—Communication skills include both speech and language. With the severely retarded, oral language is likely to be by far the most important aspect to be stressed in the classroom. It includes both the ability to understand spoken language and the ability to use it understandably and acceptably. In view of the extreme importance of skill in communication, both for work in school and for social adjustment, this should no doubt be one of the objectives to be most emphasized.

Acquiring some simple reading skills so that the child can recognize his own name, and important signs and symbols, such as "Danger," "Exit," and the like, can add a great deal to his social competence. It can also be expected, from what is known about the minimum mental age for reading, that many in this group of children can learn to read simple materials at the first or second grade level.

7. *Social adjustment.*—Social adjustment is one of the most complex objectives of all to translate into specific classroom activities. It involves attitudes, knowledges, and skills. It must be remembered that many of these children may come to school with less than the usual number of contacts with other children and that the attitudes necessary for participation in group activities may need to be carefully built up. Since they lack general social experiences, there may be a need for building up various knowledges regarding how one relates to others in becoming an acceptable member of a group. Thus, habits of politeness and consideration for others form another segment of social adjustment. Similarly, some children may have to learn acceptable reactions to frustration and acceptable ways of settling differences with others. Since the child may need to relate acceptably to others in a variety of situations and with a variety of groups, in the home, in the special class, or in the neighborhood or the residential school, it seems obvious that communication skills are also very important in social adjustment.

In planning experiences around the objective of social adjustment the long-range view should also be in the teacher's thinking. It is quite generally agreed that the terminal role of these children in society will be largely of the dependent or semidependent type, and this will undoubtedly have some effect on the type of social role the teacher will stress in classroom experiences.

8. *Knowledge of the world about him.*—Since basic knowledges and concepts of the world about us fall to a large extent within the "academic" category, they have been rather generally neglected as objectives of education for the severely retarded. While the capacity of these children to absorb and use this kind of material may be very limited, much further experimentation along this line will be needed before these limitations can be accurately delineated.

Such quantitative concepts as counting should be experimented with. Making change and other concrete quantitative operations are also possibilities. Orientation in space and time involves many important relationships. North, South, up, down, before, after, near, far, early, late, fast, slow, all have obvious significance for daily living. Ability to use such concepts as these in a functional way should be very helpful to the child in his geographical orientation in the neighborhood and in his adjustment to routines in which time is an important factor.

In the area of the "content subjects" there are also many experiences which may be helpful in the development of these children. Examples are simple knowledge about policemen, the flag, elections, and holidays and what they celebrate. Each of these can be made the basis for a series of discussion and activity periods for the group.

Science experiences, such as studying nature, recognizing some of the common birds, knowing how to care for house plants and how to

care properly for pets, also offer opportunities for the development of activity programs and the enrichment of experiences for these children.

All of these experiences also offer opportunities for development of vocabulary and communication skills.

9. *Recreational and diversional activities.*—The development of suitable recreational and diversional activities has been rather generally suggested as an objective for this group. These include activities of self-occupation, as well as the ability to make suitable use of recreational opportunities. This group's relatively dependent or semidependent role is likely to leave them with much free time which may be best used through this type of activity.

10. *Aesthetic appreciation.* The appreciation and enjoyment of music, art, and literature are also experiences which may be offered these children. They should be provided at the children's own level of readiness, of course, and may well include both watching and listening, as well as active participation in such activities as rhythm, singing, and coloring.

11. *Self-concept.*—The term self-concept, as used here, deals with relationships between the child, as an individual, and his environment. In this group of children it involves especially their adjustment to a dependent or semidependent role in society, and to their limitations as compared with others, without the loss of a sense of "belonging." It involves a fairly realistic understanding and acceptance of what they can and cannot do, and especially what they can and should do for themselves. The development of this sort of adjustment to themselves and their environment is one of the truly difficult tasks for the parent and teacher, particularly since it deals throughout with emotional, as well as other types of, adjustment.

12. *Spiritual development.*—The teaching of acceptance and simple understandings of faith is rather generally accepted as an objective for these children.

13. *Emotional adjustment.*—Among the important goals in emotional adjustment for this group of children is that of helping each child to find acceptable ways of expressing emotion. The children must learn, for example, that temper tantrums are an unacceptable type of reaction to frustration. Training in emotional responses may also involve inhibiting certain native or learned responses and substituting others that are more socially acceptable.

In summary, the educational objectives for these children are quite modest and tend to emphasize adjustment in the practical, self-help, social, and communicative aspects of development. They include primarily activities which have been demonstrated to be feasible for these children, and which relate to a dependent or semidependent role in society. It must be borne in mind that modifications may be necessary as new information appears. At present, each teacher

should feel free to try out a range of activities experimentally in the search for a program adapted to their needs and capabilities.

Within each of these goals, a systematically designed developmental sequence is needed. This development may need at times to take the form of filling in gaps in the observed behavior.

Organizing Curriculum Materials

WHILE the objectives of education for the severely retarded give the general areas of experience the child will receive at school, these must be translated into more specific activities before they can function in the classroom.

Curriculum guides are therefore usually organized around a more detailed listing of objectives and related procedures. The Illinois guide (3), for example, is organized as follows:

<i>Abilities Desired</i>	<i>Degree of Development</i>	<i>Suggested Illustrative Activities</i>
Walking upstairs	1. Goes upstairs in an erect position, but needs some assistance	Both feet on one step in climbing bar or ladder.
	2. Goes upstairs using alternate feet, but needs some assistance	Alternating one foot after the other on stair or climbing bar.

Johnson (29) divided each major area, such as self-care activities, into two columns as shown in the following example:

<i>Objectives</i>	<i>Activities</i>
1. To develop a routine of health habits.	1. Health a. Washing (1) Teach child how to wash and get clean—use soap, wash cloth, towel.

Cleverdon and Rosenzweig (6) divided their suggested program into two columns:

<i>Retarded Child Needs to Learn</i>	<i>Opportunity for Practice in a Work-Play Program</i>
A. Self-Care To put on and take off outdoor clothing	Arrival at school Preparation for and return from outdoor play. Preparatory to going home
To lace and tie bows on shoes Personal appearance	Lacing and tying bows on doll shoes Using play shoeshine kit in dramatic play

The San Francisco guide (52) lists Materials Needed and Procedures under the various activities. It is now rather generally believed that materials of instruction should be listed along with the activities in which they are to be used.

It may be helpful to make a rather complete inventory of the learning activities under a particular objective. For example, self-care might be broken down as follows:

General objective—Self-Care

Specific activities

Dressing Activity

Buttoning and unbuttoning

Using zipper

Fastening belt

Putting on shoes

Lacing and tying

Putting on and taking off outer garments.

Recognizing own clothing

Putting away clothes neatly in proper place.

Keeping clothes properly fastened when wearing.

Wearing clothes appropriate to weather or activity.

Using mirror

Developing pride in personal appearance.

Materials and Procedures

Child's own clothing, button board, or doll.

Child's own clothing or zipper board.

Child's own belt or prepared material.

Child's own shoes, doll's or training board.

Child's own shoes or training board.

Child's own clothing or doll's.

Have parents mark clothing with child's own name, provide marked clothespins for rubbers and galoshes.

Provide properly marked hooks or locker space for each child. Make this a part of daily routine at beginning and end of day.

Use of mirror, let teacher systematically remind child, have inspection period each day.

Have parents provide suitable outdoor clothing. Use aprons, etc., when working with paints, etc.

Use mirrors of suitable size and placement.

Develop group morale and cooperation of parents.

With regard to the sequence, the Illinois guide provided for variations in degree of development of skills by including a column which gives a suggested sequence of development in the various skills. Other guides have divided the sequence by making suggestions for the primary, intermediate, and older groups, respectively. The San Francisco guide, for example, divides the suggested activities in rhythm into four sequential groups: (1) for very young and immature children, (2) for the primary group, (3) for children with more experience and coordination and, (4) for older children (increasingly difficult tasks).

ACTIVITIES

The following list of activities is typical of those which have been successfully used in classes for the middle range retarded children. These and many other similar activities will suggest themselves to the alert teacher, according to the needs and readiesses of individual

children. They do not necessarily suggest the maximum achievement that can be attempted, but rather beginning points and minimum essentials. Appropriate teaching materials and facilities will be necessary for each.

I. Self-help

a. Personal grooming

1. Dressing

Putting on shoes correctly

Tying shoe laces

Buttoning

Zippering zipper

Fastening snaps

Fastening belt

Putting on and taking off clothing

Caring for clothing properly (using hangers and hooks, putting away shoes, overshoes and rubbers, keeping locker or closet neat, putting away soiled clothing)

2. Personal appearance

Washing hands and face, keeping lavatory neat and clean

Combing or brushing hair

Cleaning fingernails

Brushing clothes

Brushing teeth

Using handkerchief, napkin

Polishing shoes

II. Practical arts

Practical arts deal largely with home and housekeeping tasks in which the children can learn to be genuinely useful, and which contribute to their feeling of worthiness and belonging, in ways in which they can justifiably take pride.

1. Housekeeping

Setting table properly

Cleaning up after meals; putting away dishes

Sweeping or using vacuum cleaner

Making beds, arranging linen

Putting proper things in refrigerator

Dusting and polishing furniture

Preparing simple foods

2. Other activities

Caring for house plants

Weeding

Trimming borders

Washing blackboards and windows

Answering telephone and doorbell

Mailing letters; carrying messages

Doing simple shopping errands

Hanging up laundry

- Folding linen
- Keeping room neat
- Picking up and putting away materials

III. Language

Because of these children's language deficiency, special attention should be given to language development. All situations should be verbalized as far as possible. Communication through language should be encouraged, not only in teacher-pupil contacts but also in contacts between the children. Oral communication is an essential aspect of adjusting conflicts.

1. Increasing vocabulary

Learning names of persons and things, articles of clothing, familiar objects, foods, common animals

Learning action words

Listening to and following directions

Listening to stories

2. Improving speech. Based on individual analysis, and with the help of a person skilled in speech correction, such activities as the following may be introduced:

Learning to make correct sounds through imitating position of organs of speech, games, rhymes, etc.

Eliminating baby talk, omissions, substitutions, etc.

Learning a pleasing voice placement

3. Encouraging oral expression. (Have a morning conversation period.)

Telling experiences, etc.

Telling stories

Participating in dramatic plays

Learning rhymes

Playing games which emphasize oral communication.

IV. Socialization

The controlled group situation in the school provides opportunity for one of its major contributions to the development of these children. Since socialization is particularly dependent on learning by doing, every opportunity for social participation should be used.

1. Simple good manners and appreciation of others

Making appropriate use of "thank you," "please" and the like

Greeting and responding

Listening while others are talking

Using good table manners

Addressing others by the proper forms

2. Respect for the rights of others

Sharing, taking turns

Helping others in tasks

Respecting property rights

Taking responsibility for a social role

3. Group activities

Playing with others at as socialized a level as possible

Carrying on a conversation

Developing a desire to please others

Carrying one's share of responsibilities

V. Motor skills

Since these children typically show retardation in motor development, considerable emphasis should be put on development of coordination.

Playing rhythmic games

Walking, running, skipping, going up and down stairs, hopping, use of tricycles, jungle gym, etc.

Throwing, bouncing, catching a ball

Using balance boards

Doing simple folk dances

Stringing beads, weaving, pasting, cutting with scissors, doing simple woodwork, drawing, doing craft paper work

VI. Safety

Safety education involves recognition and proper behavior with respect to the many potentially dangerous situations that surround us. Among these are, proper behavior with respect to:

Hot or sharp objects

Stairways

Electrical outlets

Poisons and harmful chemicals

Street safety

Playground equipment

Safety in group situations; refraining from tripping, striking, and pushing others, throwing objects, etc.

VII. Health

Health education is primarily, for this group, development of simple understanding and habits.

Simple understanding of how disease is transmitted

Proper habits regarding use of handkerchief when coughing, sneezing

Habits of cleanliness, washing

Proper toilet routines

Reporting accidents, and getting help when skin is injured or when there is bleeding

Proper habits for care of the teeth

Avoiding medications in bottles, etc., except under direction

Simple understandings and habits regarding food, drinking fountains, etc.

Understanding need for rest

Daily inspection routines

Knowing the appropriate attire

VIII. Perception Training

Perception training means something similar to the old "sense training" but recognizes that the processes involved are more complex than are implied by that phrase. Much of the work in kindergarten and the early grades involves training in comparison, discrimination, and recognition.

Matching colors and forms; discrimination

Learning color names

Sorting beads or cards

Making letters and numbers

Finding colors and objects in pictures

Copying simple designs

Coloring

Playing imitation games

Matching pictures, numbers, words

Listening for changes in rhythm

Matching pitch of tones

IX. Concept development, mental growth

Learning simple concepts of quantity, such as bigger, smaller, heavier, etc.

Counting, recognizing numbers

Learning simple concepts of money and making change

Learning simple concepts of space, such as over, under, tall, short, etc.

Learning concepts of time, such as before, after, morning, afternoon, month, day, week

Knowing time to the hour

Repeating from memory

Developing imagination through games, dramatisation, drawing, make-believe

Problem solving—making choices, decisions, deciding when work is finished, finding out what is wrong with something, deciding where things should be put, working puzzles

Following directions.

X. Academic skills

The academic skill will necessarily be limited, but opportunity should be offered to learn as much along these lines as the individual children show capacity for.

1. Reading

Copying letters or words

Writing names

Labeling pictures

Making signs

Finding own name card

Recognizing names of children

Recognizing and interpreting signs

Passing out name cards to the children

Matching word cards

Reading days of week from calendar

Doing flannel board activities

Speaking in unison

Saluting the flag

Repeating nursery rhymes

Saying words of a song

Reading pictures

Giving names of objects in pictures

Looking at books and magazines

2. Science

Knowing about care of pets

Growing plants, including caring of house plants, growing things from seed

Knowing about farm animals, what they eat, how they are cared for

Talking about zoo animals after field trips

Recognizing some birds—keeping a bird feeder
 Studying bees and other insects, including harmful insects
 Observing and recording the weather

3. Social studies

Knowing about police and their duties
 Discussing community news
 Using simple geographical concepts; giving directions; knowing the neighborhood, transportation
 Knowing how we get our food and about the farm
 Looking at pictures of factories and what is made in them; going on field trips
 Knowing about the mayor and council, the city, the State, the National Government, the name of the President, etc.

XI. Expressive activities

1. Arts and crafts

Using crayons
 Coloring outline pictures
 Cutting and pasting
 Poster-painting
 Finger-painting
 Making collages
 Loop-weaving
 Lacing
 Using stencils, tracing patterns
 Folding paper
 Working at simple woodcraft, driving nails, glueing, sandpapering, assembling ready-cut materials, varnishing
 Doing simple serving

2. Music

Learning nursery and seasonal songs
 Singing games
 Listening to music
 Playing in a rhythm band, with blocks, triangle, or drum
 Marching to music
 Interpreting rhythms, walking, skipping, etc.

3. Dramatic play

Learning parts in a play
 Participating in free dramatization
 Acting out parts in stories

4. Manipulative skills

Playing games
 Using a marble board
 Using sand box
 Participating in free group play
 Doing exercises

Many other specific activities will be found in such references as Baumgartner (3), Johnson (29), Hudson (22), the San Francisco Guide (52).

Unit Organization.—Organization of the curriculum around “units of experience” has been quite generally used with the upper group or “educable” retarded children. The degree to which unit organization

is effective as a general practice with the severely retarded, however, has not as yet been established.

It is likely that much of the teaching, especially in basic self-help skills, such as dressing or personal grooming, will be individualized. Other activities may be more or less parallel, and have the appearance at least of units, for example, all of the children may be getting ready for lunch, with the teacher checking on each child and helping those who need it. Some of the activities might take the form of organized plays and games, rhythm work, and group singing. Other activities may be small units, such as decorating the room for Halloween, where group planning, division of labor, and other forms of truly cooperative activity can take place.

It is suggested that the teacher might do well to experiment freely with "units" and use this approach in situations where it proves to be feasible.

Wallin (63), in discussing the use of "integrative experience units," has stated that the most productive units are "oriented around vital areas of daily living." He pointed out that some of the values of unit teaching are:

1. Instruction is motivated, if it meets the children's felt needs.
2. Units provide opportunity for vitalized practice because the same elementary processes are used in many activities and phases of the project.
3. Units make for social participation.

Some cautions which may be needed in the use of units with severely retarded children are: 1. This method of teaching requires much careful planning by the teacher. 2. Long-range objectives and continuity must be constantly kept in mind. 3. Other methods may be more suitable for certain specific learning. 4. Much specific demonstration and practice should be incorporated into the unit as individuals or groups show the need for it.

Some examples of program analysis

I'

The following example may serve to illustrate how a daily program of activities and the teaching objectives interrelate. It is based on one morning's observation of an actual class. The sequence of events as observed is described in the left column, the teacher's interpretation in the right column.

¹ Contributed by Dr. Frances P. Connor, Teachers College, Columbia University, New York.

It emphasizes particularly the question which the teacher should ask persistently, "What am I doing and *why* am I doing it?"

Observed Activities

8:40-9:15

All the children did not arrive at the same time. Within 35 minutes the class gradually increased to its total for the day. Much of the activity during this period centered around pulling off boots and snow pants, hanging clothing in its designated place, folding scarves, and placing boots neatly in the wardrobe. Some children washed their hands and combed their hair. One child sat quietly and turned the pages of a well-used book.

The older, more capable children set up a work corner and folded paper napkins. They appeared to be proud of their accomplishment. By the time school was formally in session, seven children were engaged in this project. There was some quiet but serious discussion. Corrections were made by more experienced children. In general, the napkins were neatly arranged.

One little boy was struggling with exercises in lacing a large model shoe.

Some were receiving special help in unbuttoning and removing their boots, hats, and coats.

One child watered the plants; another dusted the windowsills and placed chalk on the boards.

The Teacher's Interpretation

This gave the teacher an opportunity to give the children considerable individual attention as they arrived and for much individual teaching in practical skills.

This class folds all the napkins for the cafeteria. A line on the wall indicates the daily quota of folded napkins. This helps to develop some arithmetic concepts and represents an attainable goal. Children are learning responsibility, the importance of work, good work habits of perseverance, neatness and dependability, and pleasure in a job well done. This, to some extent, simulates a sheltered workshop situation. When these older boys and girls have time during an activity period, they are free to work on the napkins.

Dressing skills are self-help activities. Children with poor coordination need assistance and considerable repetition. Visual, tactile, and kinesthetic perception are developing as the teacher works with the child in mastering dressing skills.

As teacher and child work on these activities the teacher verbalizes, "now, hold this hand on the coat and lift this one." Language concepts and vocabulary with meaning are being introduced and reinforced.

Children assume responsibility for various routine housekeeping chores. These duties are rotated and assigned on a chart through pictures and names of the children and symbols for the tasks.

Observed Activities

9:20-10:00

Opening exercises

The whole class sang *America* and saluted the flag. Following this, songs were chosen by the children. With teacher encouragement, they selected songs about the snowman and the winter winds.

Attention was directed to the calendar. The children as a group reported the month and counted the number of days from the first. The teacher moved the pointer to each date thus far placed on the calendar. Increasing hesitancy was noticeable as the counting continued beyond 10.

Somewhat irrelevant comments were offered, and accepted. A few children were able to name the days and months independently. A child who skipped June was reminded that this was "Walter's birthday month" and "We'd better not forget that one."

Health Check-up

Children lined up and, in turn, were "inspected" by the teacher who passed judgment on fingernails, hands, and possession of a handkerchief or kleenex. Efforts were made to stand erect and look attractive. Before joining the group, a boy smoothed his hair at the mirror, a girl tucked in her blouse.

Counting attendance

The boys and girls were counted separately. One child touched each youngster as the number was mentioned. The absentees were named. One child checked attendance on a chart.

The Teacher's Interpretation

Standing at attention for the opening exercises is a part of social adjustment in attending certain gatherings. In addition, articulation is encouraged in an unthreatening and repetitive situation.

The children had opportunity to select the songs. Songs were related to the children's current experiences.

No child is penalized for not knowing the numbers. Skill in counting, even by rote, gives the children and their families considerable satisfaction. Should a child be ready to associate the written symbol with its name, the opportunity for this experience is available.

Individual responses were volunteered and accepted at each child's level of competence. The teacher of another pupil helped a child when he showed signs of diminishing returns. No demand exceeded the child's capacity, yet all the children participated.

Children learn to wait their turns, to stand in line as required at theaters and trains, and to discriminate between attractiveness and unattractiveness. Important, too, is the development of a self-concept through approval by a respected adult.

Although health habits are stressed, this also offers opportunity to comment on appropriate clothing, colors, and appearance of each individual—a valuable personal moment for each child.

Teachers' objectives include differentiation of boys and girls, counting, checking, determining who is absent.

*Observed Activities**The Teacher's Interpretation*

10:00-10:30

Language arts

Several children were asked to state clearly their names, addresses, and telephone numbers. General discussion revolved around questions concerning what the child must do when lost. The role of the policeman quite naturally followed. Next, the discussion turned to the policeman's helping a child cross a snowy street.

A picture of a snowman stimulated some questions and personal statements of children's ideas and experiences. The snow was seen from the window. Children described their coming to school with cold winds blowing and snow falling on their faces.

During the discussion, a few lines of a winter song were sung.

10:30-10:45

Recess, toileting, and wash-up

The teacher directed the children's attention toward the large clock on the wall. "Peter, show us how the clock looks." Peter placed the hands of the training clock at 10:30. This was checked by the children by comparing his with the clock on the wall. Several children indicated approval. They concluded that it was time for gym.

Each child placed his chair under the table and then took his place in line at the door. Because of the weather, recess was held in the school gymnasium.

Order in leaving the classroom was emphasized and the children made obvious efforts to walk erect and to be proud of how they looked.

The teacher and children quietly sang a song including directions on how to go down the stairs.

Upon reaching the gym, several children asked the teacher for "follow-the-leader." The teacher agreed and sat at the piano. She said, "Listen now, what is this?" She played a few measures of marching music. The children stood quietly. Then one said "march".

Learning specific communication skills prepares children for emergencies, as well as providing them with opportunities for satisfactory interpersonal relationships.

Interest is high and attention span is increased when the topic for discussion is real, the children's names are mentioned, pictures and objects remind them of the experience, and descriptive body movements are used.

Vocabulary is increased and the flow of language is improved.

It is generally thought that these children need a structured program. Although telling exact time may be too complex for this group, it is important for them to associate certain activities with specific hours. Matching hand positions of clocks also contributes to development of visual discrimination.

Today's social living calls for self-discipline in waiting one's turn. Striving for self-respect, acceptable appearance, and gracefulness permeate the day's activities.

This activity is not one of regimentation, but rather it is intended to establish orderly procedure.

The children enjoy playing games they know well. New activities are introduced slowly and most effectively when related to learned skills and knowledge.

In the gym, the children choose their activities. The teacher may offer suggestions, however, if needed.

Observed Activities

Others started to march. A loud chord was played; then silence. The teacher put her finger to her lips, and with her eyes gained the children's attention and pointed to her ear as she said, "Listen again." This time she played music for running. The children responded.

At the teacher's suggestion, the children formed a wide circle. Help for the less capable was given by the older, more able members. Following the music and directions, the children ran, skipped, marched, walked, hopped, and imitated animals.

Upon completion of the game, the class dispersed to the separate wash rooms. Although most of the children were independent, the teacher assisted a few with top buttons on clothing.

Each child washed his hands with soap, dried them with a paper towel, disposed of the towel, and stood outside the door waiting for his classmates.

The children returned to their classroom in a line.

10:45-11:00

Planning activity

Upon entering the room, the children checked their responsibilities. The questions were referred to a "job chart." As the children looked at the chart, they saw Cathy's name opposite the picture of the table mat, Billy's at the juice pitcher, Carl's at the paper cups, Carol's at the cookies, and John's near the napkins. Each child went about his task. Billy needed some help with the pitcher

Juice and cookies were served, with some discussion of manners. A pleasant discussion evolved around a TV program of the evening before.

After the snack, children sponged the tables, washed the glasses, and the serving plates, dried them, and returned them to the cupboard.

The Teacher's Interpretation

"Follow-the-leader" is valuable since the children must listen, be ready for change of tempo, follow directions, and be part of the group.

Development of muscle coordination, and rhythm are among the important results of this activity. Of no lesser value is the satisfaction in accomplishment, and the fun of being part of group activity.

Listening and following directions are essential not only for school order and safety, but for life at home and in the community as well.

Here, too, is practice in following established routines.

Important, too, is self-direction evident when children know what is expected of them.

Self-care is a major aspect of the curriculum. Learning is accomplished best in an actual situation.

Each Monday morning tasks are assigned. At that time, the chart containing pictorial representations of work to be done is revised by inserting the names of children who will assume the various responsibilities. Some children can read all the names. Others remember only their own tasks for the week. Due to variations in competence, assignments are made only after careful consideration. Effort is directed toward job analysis and self-evaluation whenever possible.

Development of acceptable social behavior, conversational ability, and recall are emphasized during this period.

Homemaking skills will be useful to the child regardless of his future placement.

*Observed Activities**The Teacher's Interpretation*

11: 00-11: 30

Individual and small group work

The children arranged their own chairs for this period. They divided themselves into three groups to be seated at three different tables. An older girl asked if they might work for a few minutes on the napkins since the pile was very small. The teacher agreed. One boy was occupied washing two dish towels.

One group has given a number of old magazines from which pictures about cold weather were to be cut.

The teacher sat with a third group of the least mature children. For about 10 minutes they matched beads for color and shape. Each child and the teacher had a box of large beads, representing 2 colors and 2 shapes. First, children each selected a red bead—"one just like mine." Then, the group proceeded to put all the red ones together and then all the blues until they were all assorted as to color. One child required considerable help. Slowly, and with much discussion and direction, the beads were separated, by form and color. Toward the end of this period, each child had a long string on which to place the beads in the "prettiest way."

Individual responsibility and small-group activity are encouraged as soon as the children are capable of it.

Sense and perception training are also encouraged. Much individualized instruction may be offered in a small group situation.

A simple unit-type activity developed from this.

Aesthetic appreciation and expression were encouraged.

||²

The following are further examples of activities drawn from actual teaching situations:

<i>Learning Activity</i>	<i>Goals, Objectives</i>	<i>Implications</i>
Teacher directs the conversation to the picnic they are planning for the next day in the neighboring park.	Participation in conversation, listening.	
Teacher produces chart made of large sheet of manila paper with pictures of the food the children had planned for their picnic menu. The children had found the pictures in old magazines and cut them out the day before when they had planned their menu.	Develop powers of observation.	Many magazines and picture books should be made available to children.
Children choose the item they wish to bring and place their name card in pocket (or slit) on chart.	Learn how to carry out plans. Accept responsibility and carry through; recognize name on card.	Materials are chosen in relation to activities.

² Contributed by Jennie Brewer, State Department of Education, Richmond, Virginia.

Learning Activity

Children stand in circle in front of their chairs and play Farmer in the Dell which is one of the games they will play the next day at the picnic.

Goals, Objectives

Learning to play together.

Implications

Provisions for opportunities: to participate in play-ground activities, to belong to Cub Scout groups, to enjoy summer day camps. Provisions should be made for short attention span and necessity for moving about.

Teacher prepares materials, charts, etc., ahead of time and is ready for the day's activities.

Children seat themselves and teacher directs the conversation to the jobs which need to be done for that day. One section of the blackboard is reserved for the "Job Chart." Pictures have been drawn on the board of the various jobs, with space at the side of the picture for children to print their names. The pictures and their corresponding jobs were:

- Glass (serving at "juice time")
- Table (wiping off the table)
- Bird cage (caring for the bird)
- Chairs (arranging chairs in circle)
- Water faucet (putting away glasses)
- Flowers (watering flowers)
- Record player (playing records and returning to proper place)
- Door (hostess for the day, greeting visitors, etc.)

Interpretation of the job which the picture signifies.

Learning to do simple jobs as part of their contribution to good living in the classroom. Learning to make choices.

Parents should encourage child to do simple jobs at home. Family should show appreciation for jobs the children do.

III²

A teacher thinks over classroom experiences with middle-range mentally retarded children

A buttoning time presented itself naturally in the morning and afternoon as the children took off and put on their coats. We thought, why not make it functional by allowing unhurried time to unbutton coats and button them back at the beginning and the ending of the day? We immediately instituted this unhurried, almost play period for getting ready for home. The end of the day offered conversation time for considering things we will tell our mothers and dads.

Some objectives fulfilled

- Learning self-care.
- Learning independence in classroom
- The school day gained in significance.
- Conversations helped tie home and school experiences together.

* Contributed by Nellie Merten, Helston Heights School, Bristol, Virginia-Tennessee.

A teacher thinks over classroom experiences with middle-range mentally retarded children

But the most exciting time came in the middle of one morning when Judy rigged up a coat rack with boxes and a pole. The coats of the children became clothes to be sold in the store, and she was directing children to bring their "pretend" children to buy.

And there was a readymade plan through play itself. We asked the children to bring old clothing and told the mothers of our plan. The response brought shoes of all kinds, dresses, sweaters, hats, and coats. These created a real department store. The children took turns playing storekeeper and buying and selling. But the learning that they gained from one another far surpassed the drills and the teacher's instruction. The more skilled began to teach the unskilled, for how could they buy a coat until they had learned to button it. Or a new pair of shoes until they had at least partially learned to lace them.

We visited stores and as a result added to the classroom a grocery store with cans, boxes, and bread. We used real money, learning the simple denominations and painting signs for prices.

We purchased a toy cash registrar and a few learned to ring up proper prices. The store went on for weeks and weeks, until finally we needed to turn to another interest. We carefully packed the clothing and shoes in a large chest for some rainy day fun. But we never could wait for a rainy day. Off and on throughout the year, suddenly out of nowhere boxes were stacked, a pole produced, and there was the store again. But always we seemed to know we would have other interests so packing the clothing away in the chest at the end of the playtime became an accepted custom for all.

Some objectives fulfilled

Playing for sheer fun.
Group play and cooperation make for happiness.

The home and school working together.

Learning muscle coordination.

Learning basic skill of buttoning snapping, tying, hooking, in functional situations.

Cooperative play.

Imaginative and happy fun experiences.

Responsibility for others.

Care of one's clothes.

Better speech.

Increased knowledge of the world of buying and selling.

Developing initiative, and independence in play.

Learning good housekeeping practices.

IV⁴*Song game*

Song.—Ten Little Indians.

Ten children sit in a row. Sing song as follows:

One little (first child stands)

Two little (second child stands)

Three little Indians (third child stands)

Repeat until all 10 children are standing and the song is finished.

Use of Indian headdresses adds to the game.

Step game

Use flash cards. Start with numbers 1 through 5, and gradually increase to 20. Child picks a number from flash cards, advances that many steps from his own desk. Next child then picks a number. The aim is for each child to encircle the room and get back "home" to his own desk. First one home is winner and has the privilege of picking a card first next time.

V⁵**A sample long-range activity: camping**

In Virginia a camping project was undertaken under parent auspices. It was thought best to take as a group children who had been together throughout the year. A teacher acquainted with the particular children to be included also seemed necessary. This was a 3-week camp with the children away from home both day and night. The counselors were teachers of severely retarded children from all over the State. Some of the children in the classes were judged unready and did not go camping; usually the older children seemed the most ready for this experience.

Camping was thought of as a continuation of experiences carried on in the classroom. There were about 2 months' preparation for the camping experience. It was possible to use, as a beginning, the school ground facilities, picnic tables, etc., for experiences to make the children ready for camping.

Out of the camping experience came three generalizations. For the success of such activity, there is a need for:

1. Long-range planning
2. Planning a curriculum for a 24-hour day
3. Home-school relationships in curriculum development

All of these illustrate the need for continuity in curriculum planning.

There is a need for summer activities in order for carry over from one school year to another. In a good camp there could be such continuity. It should be noted, too, that there was elaborate advance preparation, as well as later followup in this project.

⁴ Contributed by Esther Felicechia, Allyn State School, Newark, N.J.

⁵ Contributed by Virginia State Department of Education.

CLASSROOM PROCEDURES

The school day.—The organization of the school day revolves to a large extent around the question of how closely the program should be structured or reduced to a regular routine. It has been urged that a closely structured daily routine gives additional security to this type of child. It has also been suggested that their probable future status of dependence or semidependence will tend to require them to follow imposed routines more closely than other children.

The following is a fairly representative sequence of activities. No specific time schedule is suggested since completion of an activity is generally considered to be preferred to too strict adherence to a time table.

<i>Activity</i>	<i>Comments</i>
Period I. Arrival greeting and morning routines.	This first period offers opportunity for oral communication, practicing social skills and habituating such routines as putting away outer wraps and personal grooming.
Period II. Group conversation and planning period.	A "good morning" song; name recognition, discussion of events of the previous day; discussion of weather and timely topics; assignment of routine duties, including appointment of children to be on the various committees to water the plants, set the table, and preview the days activities.
Period III. Routines, group activities such as music, rhythm, toilet, and snack.	Completion of planned routine activities, followed by toilet routines, group activity, and snacks. A brief rest period may also be inserted here, if needed.
Period IV. "Large muscle" activities, group games, rhythms, outdoor activities.	In this period, group games, socialization, and other physical activities may be arranged. The actual programing depends largely on the maturity and readiness of the group.
Period V. Individual or small-group work on projects or units.	This period may come closest to "academic" school work, as planned by the teacher in relation to the group's maturity.
Period VI. Quiet period, listening to music, singing, or stories.	This period is planned in part to precede lunch or dismissal.
Period VII. Lunch or dismissal.	A lunch period provides excellent opportunities for teaching social competencies and skills.
Period VIII. Individual or group work.	For those classes which continue after lunch, an additional activity period may be used.
Period IX. Quiet period preparation for dismissal.	This period may be comparable to Period VI in classes which dismiss before noon.

Teaching techniques.—No teaching techniques have been reported that are drastically different from those which have been used elsewhere, especially with younger children. Hudson (22) has studied the frequency with which certain techniques were used in her observational study already quoted. Among those used most often were:

Item	Teaching techniques	Number of Times used
1.	Guidance and reinforcement (developing a concept, explaining, reminding, identifying as right and wrong, asking questions).....	8402
2.	Involving children in lesson (calling on child, assigning work, asking for volunteers, etc.).....	5034
3.	Nonverbal teaching (using physical guidance, gesture, writing, visual aids, etc.).....	4085
4.	Motivation (praise, reward, challenge, appeal to interest, etc.).....	3431
5.	Teacher-centered activity (record keeping, conference with other adults, etc.).....	2364
6.	Structuring the teaching situation (getting children's attention, giving directions for an activity, introducing what comes next, etc.).....	2284
7.	Feeling-tone (building up feeling of acceptance, self-esteem, etc., not connected with lesson).....	2284
8.	Individual and group control (removing child from group, removing interfering stimuli, telling child to conform, using touch control, etc.)....	1266

Grouping and size of classes.—Most State regulations limit the maximum size of class to about 10 or 12 children. It appears to be generally accepted that the number in a group should be somewhat less than that usual for the "educable" group.

Grouping according to age and school readiness is usually practiced in larger communities where there are several classes. In any case, the age and readiness range of the group may be an important factor in class size. The length of experience of the children in a group situation may also affect the number who can be successfully taught in a group. Those who are younger or who have had no previous school experience will probably be best cared for in smaller groups. In a new program, it might be best to start with a limited enrollment and introduce the children a few at a time.

The mental age range in these groups will tend to be less than the chronological age range. For example, the mental age range for the chronological age span from 7-0 to 16-0, for children of 40 IQ, would be only about 3 years 2 months. Nevertheless, narrower age groupings are recommended whenever possible.

The experience and preparation of the teacher might also affect the range and variety of groupings. Teachers' assistants have also been quite frequently used, especially when a group is immature or large, or when there is a wide age range.

Individual versus Group Instruction.—The objectives and activities listed above suggest that there will be a considerable amount of individualized teaching in these classes, especially with the younger groups and with children recently entered in the class. There may be, of course, much individualized instruction in periods such as dismissal, when the whole group is getting ready to leave. During this time the teacher may circulate among the children as one or another appears to need help.

Hudson (22), in her observational study of actual classroom work, found that individualized instruction was used in about one-half of the lessons included in her observations. She also found that whole-group instruction was used in about 40 to 45 percent of the lessons. The remaining 5 to 10 percent of the lessons were given over to small-group instruction.

Hudson also found considerable variation in the amount of individualization of instruction in the various activities. Individualization was high in self-help activities and in learning number concepts and sensory training. More group instruction was used in motor development and language training. It was almost exclusively used in music.

The teachers observed by Hudson tended, therefore, to use primarily either individual or whole-group instruction, with comparatively little small-group instruction. The principal variation appeared to be associated with the various curricular areas. Further study of various groupings is needed. It is probable that the amount of small-group activity possible will depend a great deal on the general maturity and readiness of the group.

Guidance and reinforcement, nonverbal teaching, motivation and the involving of children in a situation, and structuring the situation or the group ranked high in frequency. Hudson also identified seven clusters as problem areas in the teaching of severely retarded children. These were: how to ensure that the children are (1) controlling themselves, (2) willing to work, (3) feeling secure, (4) learning how to learn, (5) getting along with others, (6) paying attention, and (7) contributing relevant ideas.

She summarized the "good" teacher of the severely retarded as follows:

... one who is skillful in developing independence, initiative, self-reliance, and a feeling of personal worth in the children; who has a class where motivation is good, interest is high, the children's attention is held during a lesson, and the children get a real feeling of success and confidence from their work; who encourages children to do things for themselves, and yet gives adequate guidance at each step in learning; and who sets the limits so the children know what to expect and how to carry on.

Group Control.—The question of group control has been a matter of concern to many persons. Some groups have started with rather rigid controls. Others have not found this degree of control necessary, even at first. Some have argued that these children will probably always be in rather "structured" situations, so that "discipline from within" is not so important for them. Experience with these children has shown some promising developments in "inner control," so that this might well be an objective for the teacher. Instances of control by the group itself have been found. Many or perhaps most of these children appear to have sufficient sensitivity to have shown evidence of a desire to conform.

Hudson (22), on the basis of five consecutive 20-minute observations during a single school day, found that the number of control contacts was about the same for the first four observation periods, but tended to rise toward the end of the total 100-minute observation period. The number of control contacts was also higher for primary than for older groups. The number of control contacts in the primary group dropped after the beginning observation period and then rose again during the fifth period. On the basis of these observations, the teacher may expect the number of necessary control contacts to be higher with younger children than with older children and to rise toward the end of a 100-minute teaching period for all groups (presumably because of such factors as fatigue).

In the order of frequency of use, the following control methods were observed by Hudson.

<i>Control method</i>	<i>Fre- quency of use</i>
Distracts, gives something else to do.....	43
Removes from group.....	42
Blames, scolds, threatens (nonsupportive).....	38
Removes interfering stimuli.....	37
Warns in a supportive way.....	33
Uses touch control.....	27
Tells child to conform.....	12

Records.—Record keeping is important, but it should be made as simple as is consistent with the types of information which are considered necessary. There are certain basic records which are required by the school system on all children. These will include such matters as identification data, enrollment and attendance data, health data, and other administrative materials.

In addition, the teacher should have access to certain data which will be helpful in establishing workable classroom procedures for each child. These will include psychometric reports and similar test data

as well as information regarding the child's previous educational experiences. Such material should be kept confidential, of course, and is best kept in a locked file in the classroom.

The keeping of emergency data may also be more than ordinarily important with these children. Such information might include the name of the family physician, medication instructions if needed, emergency provisions for returning a child to his home safely, and the like.

It will be helpful also for the teacher to maintain anecdotal records of important occurrences in the classroom, conferences with parents, and similar materials. Progress reports, based on an inventory of important learnings, periodically filled out, may also furnish valuable information, especially when important decisions are to be made regarding the child.

Parent-Teacher-Child Relationships

WHILE PARENT-TEACHER COOPERATION is considered indispensable in all school situations, it is especially important with this group of children. This relationship should begin as a friendly working one between parent and teacher in the nature of "getting together to do what's best for the child." This point of view would consider the parent and teacher as partners in a joint enterprise, with this friendly working relationship continuing throughout as most essential. A relationship such as this would involve working toward common goals on the part of both parent and teacher, and of developing means and techniques of working together toward these goals.

It seems generally agreed that the teacher's basic role should be that of a teacher, not that of the physician, social worker, psychologist, or rehabilitation worker. It is generally agreed, too, that as an educator, he has a unique role to play and a unique service to offer, even though it is important that he be aware of, and prepared to cooperate with, other services in a total program.

In the field of mental health, the contrasting roles of the teacher and other personnel have been described in the 54th Yearbook of the National Society for the Study of Education (45), as follows:

Although the clinical psychologist, the psychiatrist, and the teacher are working toward the same goal of helping young people achieve wholesome emotional adjustment, each has a different function to perform. We gain little if the teacher employs procedures that are peculiarly appropriate for a clinical worker or if the psychiatrist or psychologist dictates classroom practices which the teacher is expected to follow.

With appropriate changes in wording, this would seem to apply to the present situation as well.

Murray (44), writing as a parent, has recently summarized the needs of parents of retarded children. Certain of the needs she reports seem particularly relevant to the problem of teacher-parent-child relationships.

We need someone to give us guidance in the simple, basic processes of home training. We need someone who can put us in touch with the various community and state agencies that can help with constructive management of the child. . . . we need guidance from those who can help us decide upon and provide a training program for the child.

Teachers should also be sensitive to the fact that parents' attitudes and insights grow and change. They should endeavor to familiarize

themselves with the current readiness of the parents to discuss their child's problem and work with them at that level.

Boyd (4), for example, speaking as a parent, has described the three major stages through which he went in making an adjustment to this problem. The first was that stage of bewilderment, pain, frustration in which his concern was almost entirely with himself and the effect the circumstances had on him as a person. In the second stage he reported that he began to think less of himself and more about his child and what could be done for her. It was only at the third stage, he stated, that he arrived at the point where he could think more of what he could do for others than what others could do for him.

Much of the teacher's task may be to interpret, from the educational point of view, aspects of the child's growth, mental age rates of growth, spurts and plateaus in learning, and similar phenomena. The teacher should be prepared to explain such matters as the fact that growth is slow, and that much of the work with children is the building up of readiness, which sometimes includes a large element of waiting for a particular readiness to appear. He should be prepared to help the parent understand the child's readiness at any given time.

Schools visits by the parents can be a helpful form of parent-teacher cooperation. The parents' observation of the child's behavior in a group situation may be useful in helping them toward a more accurate and realistic understanding of their own child's development. It may help them toward a more objective appraisal of their child's rate of growth. They can, by this means, see for themselves many aspects of his development, such as social adjustment or maturity, in a new setting.

SECTION III

Teacher Selection and Preparation

Teacher Selection and Preparation

Frances P. Connor

IF CLASSROOM PROGRAMS for the severely retarded are to be as truly educational and as comprehensive as those described earlier, the selection and preparation of the teacher become very important considerations. Obtaining a suitable teacher means not only obtaining a certified teacher with specialized preparation in understanding and teaching the mentally retarded, but also a teacher with personal characteristics that make him particularly suited to the task of educating severely retarded children.

It may be helpful in this connection to refer also to Mackie, Williams, and Dunn (37). Although that report dealt primarily with the upper group of children, many of the competencies reported there are probably also applicable to teachers of the middle range of children.

Lack of qualified supervisory personnel in this area of special education points to some special teacher needs, particularly in the areas of organization, interdisciplinary action, and curriculum development. Also, except for a few large urban areas, the number of severely retarded children in any one community is small. Consequently, wide age range groups and isolated classes are common. Children's problems relative to learning and classroom management are diverse. Thus, the teacher with initiative, creativity, and numerous leadership qualities is required. The teacher as a person cannot be overlooked.

The teacher as a person.—All important in this program is a teacher who likes children, accepts them as they are, and who, with enthusiasm and satisfaction, works with them toward achieving objectives within their reach. The teacher's attraction to these children must be based on other than the usual classroom values. Respect for the individual and the sincere desire to help him attain his potential is essential for work with this group.

Teacher satisfaction in accomplishment is based on a realistic appreciation of the children's small gains and a clear picture of next steps toward more far-reaching objectives. In general, he needs an optimistic outlook and an enjoyment of working with young or immature children. He must be able to direct his teaching toward the accomplishment of goals within reach.

Being capable of following the children's reasoning and of understanding why the carefully planned lesson did not work is part of the

teacher's much needed empathy, flexibility, patience, and willingness to reteach the material once considered learned. Objectivity also helps the teacher appreciate that the lack of the usual educational results is not a reflection of the teacher's inadequacy.

A sense of humor, warmth, and appreciation of the children's jokes and stories are essential in this special classroom. Important too, is the instructor's ability to communicate with the children so that they understand and can follow his directions. Not only must the teacher be aware of his vocabulary level, but also his timing, succinctness, and forceful repetition. He needs to be honest in his approach to the children and avoid condescension and belittlement.

To stimulate community understanding of the children and of the program the teacher must command respect, personally and professionally, in a variety of social and professional situations. The teacher himself must be well-organized, have a clear philosophy of life and of education, and be able to present his point of view clearly and effectively.

Sensitivity to children needs.—For successful teaching, the instructor needs sensitivity to the needs of each child, an awareness of the significance of his reactions expressed through body movement, tension signs, and attempts to verbalize. He must be able also to anticipate behavior, and to determine whether the foreseen behavior should be averted, carried through to frustration or success, or be directed to other goals. Thus, focus is directed to the need for an understanding of how children grow and of the educational implications of deviation from the generally accepted norm.

Child growth and development.—Understanding children with severe mental retardation presupposes a working knowledge of children in general. Knowledge of how all children learn, and how these children learn in particular is essential. Necessary for the teacher is skill to fill in the child's gaps in the developmental sequence of experiences, especially sensory stimulation of various kinds.

Children in this group frequently show specific learning limitations associated with the etiology of the condition. Thus, the teacher needs preparation to serve as a resource in differentiating the children's learning problems, and as an educational diagnostician in checking a child's use of sensory equipment and his functioning level in the classroom, as well as in noting possible problems of perceptual development, associative learning, and concept formation. Often, the teacher finds clues to sensory impairment which are difficult for the physician in an examination session to identify in children with limited communication skills.

For productive classroom instruction, therefore, the teacher needs knowledge of the educational implications of the common diagnostic types, and the expected behavior and learning deviation. Teacher preparation should include specific information for understanding

such disabilities as visual and auditory handicaps, cerebral palsy, emotional disturbance, neurological impairment, and mongolism. Encouraged also for the prospective teacher is flexibility and adaptability in classroom operation since need for ready adjustment applies not only to daily plans but often to long range goals and procedures as well.

To educate these children, teachers need help in finding answers to basic questions of curriculum and program content which are still being sought. To devise the most effective ways of working with severely limited children, teachers will need to explore known educational and psychological data as they apply to the pupils. Preparation is required for conducting classroom experimentation, based on intensive child study.

Curriculum concepts.—For optimum classroom functioning, teachers require an understanding of basic curriculum concepts and skill in selecting appropriate content and procedures for the children. Teachers need skill in building a school program stemming from content familiar to the pupil and capable of translation into home activities and community experiences. Teachers need also to be ever aware of their pupil's future needs in a sheltered environment such as a workshop, or a more permanent placement in a residential school. The flexibility required of the teacher is related to observation and classroom experimentation. The alert teacher sees the pressing need for information concerning the children's learning, their general development, their interests and abilities.

High priority is placed on the teacher's organizational ability and skill in establishing routines for pupil satisfaction and participation in a learning situation. Providing opportunities for growth in self care and emotional maturation within a structured framework is necessary. To some extent, classroom activities similar to those used in nursery and kindergarten education may be helpful. At the same time, an understanding of the tempo and pattern of development in children with retarded mental development must be fostered.

Providing instructional materials.—The need for concrete teaching with these children is generally accepted. Consequently, teachers require skill in adapting available materials and in creating new materials. Effective use of various art media, ability to develop charts and illustrations for story sequences, visual and tactile and auditory discrimination, and body coordination will be among the essential skills. Ability to use craft materials will help the teacher to extend the child's learning experiences by the use of appropriate tridimensional objects. The program should not be limited to commercially available materials although teachers need skill in using available materials. Of considerable value is ability to produce meaningful facsimiles of objects for study.

Teachers have repeatedly reported the children's positive response to music and have spoken of its effectiveness as a vehicle for learning. Although competence in playing an instrument is no doubt desirable, skilled use of recorded music and sensitivity to rhythm, tone, and tempo can be substituted to some extent. Ability to initiate and conduct group games stressing rhythm, grace, and coordination should also be helpful. College personnel can do much to encourage prospective teachers to use their musical ability without fear and to focus on child response rather than teacher performance.

Working with others.—Because of the necessity for close association with parents, on both individual and group bases, and with other professional workers, prospective teachers need preparation to work with others effectively. Such interaction is based on an understanding and appreciation of the functions of other persons, as well as of group dynamics. Special skills are required for success in various other interpersonal relationships, too. For example, these teachers will need to establish good relations with other teachers for the purpose of developing mutual understanding and respect. By being sensitive to other faculty members' needs, and understanding children who differ, it is possible for the special teacher to offer aid to fellow educators seeking means of working with pupils with minor handicaps in regular grades.

An appreciation of the influences of the family, and of children's experiences in school, church, and in the community generally, is also important in developing a program. Knowledge of ways of working with, and securing assistance from, school and community resources will be helpful in many ways. Working effectively with, and directing the activities of, a volunteer staff may be a major responsibility of the teacher. Volunteers with whom teachers should be prepared to work include mothers, members of service organizations, and individual community members desirous of helping.

Not only do parents and lay groups need clarification of aims and school procedures but other members of the school staff must also be helped to understand their community's efforts on behalf of these young citizens. Consequently, it is desirable that this teacher be able to earn faculty status through sharing both the responsibilities and privileges of the school staff.

Using records and reports.—Facility in interpreting records and reports of other professional workers is required of teachers in special classes for children who are severely retarded. These reports will serve the effective teacher as a basis not only for program planning but for parent conferences as well. The need for personal maturity, professionalism in handling confidential material, as well as sensitivity and accuracy in using records and reports as the basis for evaluation of progress and interpretation to family and fellow-workers are to be especially emphasized.

To carry out duties such as those mentioned above, the teacher must be highly professional, courageous, and possess insight. He needs specialized preparation and confidence for the great amount of pathfinding that still needs to be done.

Certification standards.—Thus far, no general agreement has been reached concerning the optimum program of specialized preparation for teachers of severely retarded children. Some major clues are evident in the above description of the teacher at work. About five States have set up certification standards for teachers of this group of children that differ from standards for teachers of the upper range group. Other States issue a certificate valid for both groups, and still others have not set up any standards for the severely retarded.

The standards set up by Illinois (24), Kansas (32), Rhode Island (50), and California (5), may be taken as illustrative. While Illinois established the total semester-hour requirements in the special field (30 semester hours) at the same level as those for the upper group, Kansas and Rhode Island lowered this total somewhat. Illinois and Kansas specified that the methods course and student teaching should be undertaken with severely retarded children. Both omitted the vocational and occupational courses for these teachers.

California, while recommending a total of 24 semester hours, indicated that preparation of teachers of the severely retarded should emphasize study of brain injury, clinical types of retardation, music for the severely retarded, kindergarten and primary methods, field work with the severely retarded, and parent counseling.

SECTION IV

Some Administrative Considerations

Some Administrative Considerations

Jennie Brewer

THE ORGANIZATION of a public school program of special services for mentally retarded children involves many administrative provisions. Among these are establishing the need in a particular area, developing a philosophy and point of view, selecting children to be included, and preparing the community for such a class, with full utilization of other community resources and the many details of teacher procurement, housing, transportation, and so on.

Establishing a need

In order to determine the need for community special classes, several approaches may be used. In communities where parent associations for the mentally retarded have been organized, a need may already have been shown and some of the children identified. Referrals from diagnostic clinics may add to the number. The school census and person-to-person contacts may be other sources.

An integral part of establishing a need for these classes may well be the geographical distribution of the children. This is especially important in view of the very small percentage of this group in the general population and living in the community. As has already been pointed out, there is a wide geographical scatter of these children over an entire area.

A careful study of such distributions should be very helpful in locating centers and in planning transportation.

A comprehensive philosophy will provide a sound basis for the satisfactory development of special services and tend to prevent some of the problems which are usually associated with the extension of the program.

Administrative procedures

The following administrative steps are usually necessary when a special class is being established in a community. The services of qualified consultants and those who have had experience in organizing and working with special classes for retarded children may be solicited. It is usually helpful to survey the services which are available or which can be provided in relation to the need and the number of the classes to be organized. Many administrators have found it helpful to

acquaint the entire staff with the proposal and to solicit their acceptance and cooperation. It has also been found valuable to establish a common understanding between the school, parent, and community groups. Administratively, too, it will be necessary to select and provide adequate housing facilities, to select trained teachers, and to assign supervisory personnel. When State financial aids are involved, it will also be well to ascertain the State standards which must be met in order to obtain approved status for the special class.

Wherever special classes are maintained, adequate resource services should be taken into consideration. These might include adequate procedures for screening the children. The growth of the program should ordinarily, also, not exceed the resources for properly maintaining a high-grade functioning level. It would seem to be better to expand slowly than to develop beyond the limits of readiness and available resources.

For a successful program, the administrative head of the school must show a willingness to participate. In addition, it is understood that the school should accept full responsibility for supplying teachers with the necessary materials and equipment for classroom instruction. (This does not preclude gifts from interested groups, provided there is a wise choice in selection.)

Experience has proven that it is advisable to work closely with parents from the beginning of the diagnostic process to the special class placement. The parents should concur in the plan for special class instruction for their children, and placement should be made on a trial basis since some children in this range cannot make a satisfactory adjustment to group situations.

The administrator will do well, also, to consider the resources which are already available, such as clinical services, community agencies, and school personnel, which are necessary in the identification and placement of children who are eligible. He may also need to determine in advance the role which each will play in pupil selection. Usually, too, parent organizations and community agencies are informed, and certain mutual interests and understandings are developed in order to proceed harmoniously toward a cooperative undertaking.

In selecting a school building for housing the special class, there are several factors to be considered. The first of these should be the selection of the school where the principal has fully accepted the program. It is also generally agreed that the class should be assigned on the basis of other factors such as a convenient location for transportation, the size of the room, adequate space for storage, toilet facilities, lavatory basin with running water, and safety precautions.

Whenever possible, teachers should be selected on the basis of their training, experience, and personal qualifications for work with children in the retarded classification. Having the right kind of teacher in the program is essential from the point of view of public relations.

Determining the eligibility of children.—If the program for the severely retarded is to develop satisfactorily, adequate screening procedures must be followed. Criteria of eligibility are usually set up. Ordinarily, too, these are in accord with State standards, although local supplementary standards are sometimes adopted. Appointing an admissions committee, composed of professional workers qualified to evaluate the technical information, is a procedure used by many school systems. The progress and general adjustment of the child are usually checked at regular intervals, since most school placements are on a trial basis. If it should be determined after a trial period in school that the child is unable to adjust to the school situation, alternative possibilities may be discussed with the parents.

Classroom space.—The question of housing must be solved locally. Many classes have been successfully located in the regular elementary school where the principal and teachers welcome the group. The retarded group can profit by being a part of a public school program, provided there is an atmosphere of acceptance, security, and freedom in the school.

Some classes are maintained in separate buildings on the school grounds. Still others are housed in community houses, recreation centers, or other conveniently located buildings in the area.

Permanent equipment.—The Illinois State Department of Public Instruction has given a helpful description of desirable classroom standards (55).

The nature of the training program for trainable mentally handicapped children and the fact that it is largely a self-contained classroom situation requires the room to be a large one even though the enrollment will not exceed ten children. Nine hundred square feet of floor space is recommended for a room in a school building. Should a house be used, the total space must be at least as large as a classroom in a school, with one room large enough to provide space for physical activities.

The arrangement should be flexible enough to provide for a variety of arrangements of furniture for such activities as playing games, cooking, washing dishes, serving meals, doing simple housekeeping tasks, practicing social and self-care skills, and resting. Since the rest period for young children is an important teaching situation, provisions should be made for darkening the room during this period.

Ample and convenient storage is necessary as learning to take care of belongings, equipment, and materials is a vital part of the training program. Wardrobes for wraps should be in the room so that the supervision of dressing and undressing is convenient for the teacher. Cots, blankets, toys, dishes, hot plates, simple housekeeping equipment, iron, ironing board, tools, audio-visual equipment, craft and other instructional materials are among the items that need a place to be kept.

A sink and counter are "musts" in a classroom for trainable mentally handicapped children because of the wealth of teaching situations that can be developed through the lunch period activities. The fact that older children cook as well as prepare the table, serve, and wash dishes, makes it necessary to have a

classroom for older children that can accommodate a stove and perhaps a refrigerator.

A toilet and lavatory should be a part of every unit for trainable mentally handicapped children because of the importance of helping them develop good health habits, to attend to their personal needs, and to learn to groom themselves properly.

Transportation services.—Transportation may be a major problem if many of the children need supervision in traveling from their homes to school. As they grow older, some may be trained to use public transportation. Station wagons are also sometimes used. The importance of selecting a responsible driver who is skillful with children is quite obvious. Sometimes some mature student on the school bus helps with the children. In other situations, the parents have assumed responsibility for transportation.

Length of the school day.—In general, the length of the school day for the middle-range retarded child is shorter than the normal school day for children of the same age. Lunch and rest periods are frequently included. For some children with physical handicaps, and others who are socially and chronologically less mature, a shorter day may be justifiable. Children who are transported may require early dismissal or late arrival.

A representative program

A survey from California (10) of 153 classes, with a total enrollment of 1,707 children, yielded the following findings regarding the classes for the middle-range group, which may be taken as representative of current programs.

Classes were housed in a variety of ways: more than half the classes were in buildings located away from elementary schools, about one-fourth were in separate buildings located on the campus of an elementary school, 12 percent were in classrooms located in elementary schools, 6 percent were housed in churches and community halls, and 3 percent in "one-family" private dwelling houses.¹

The school day for pupils varied in length from 130 minutes to 390 minutes; the median was in the 240-minute range.

Seventy-one percent of the classes had the services of a matron; about half of these shared the matron with from one to four other classes.

A hot lunch was served in 58 percent of the classes and in almost every case the pupils participated in the cleanup period following lunch. In 16 percent of the classes the pupils helped to prepare and serve the lunch as well.

¹ Connor and Goldberg (7) reported that in a sample of about 1,300 children in about 90 classes, more than one-half were housed in regular elementary school buildings. One-fourth were housed in isolated structures. Others were housed in community buildings, churches, libraries, and civic centers.

A midmorning snack was served in 44 percent of the classes. The matron or teacher usually prepared this snack but the serving and cleanup was generally done by the children themselves.

About 75 percent of the classes scheduled a rest period during the school day.

Eighty-one percent of the classes had the benefit of a nursing service; this was provided by the county health department in one-quarter of the classes and in the remainder, by the school district or the office of the county superintendent of schools.

A speech specialist worked directly with children in 25 percent of the classes; in about half of these cases the service was on a scheduled weekly basis for a period of time ranging from 15 to 45 minutes.

An organized program of parent education was reported from 75 percent of the classes, with two-thirds of these parent groups meeting once a month during the school year. Programs included films, speakers, demonstrations, discussion, and social get-togethers. Leadership for the parent education program rested with the teacher of the class, the parents themselves, the school psychologist, and the supervisor or administrator of the class, depending on the nature of the local school organization and the interest and professional training of the people involved.

Local community resources most frequently mentioned as being available to the severely mentally retarded children included medical clinics, recreation and camping programs, and church programs. Approximately 33 percent of the classes appeared to have ties with these community resources.

More than one-third of the classes were located in communities with sheltered workshop facilities; 12 of these classes were within walking distance of a workshop. Only one class was reported as having contact with a sheltered workshop on a regularly scheduled basis.

The California summary also reported data on job satisfaction on the part of the teachers.

Teachers of these classes stated that the items listed below, among others, would contribute appreciably to their job satisfaction. These items are listed in descending order of frequency of mention.

1. A better organized and more comprehensive program of parent education so that parents understand the aims and objectives of the program and the academic limitations of their children. The psychologist was mentioned as a key person in guiding the development of such an activity.
2. A roomy well-lighted classroom "of my own" with adequate storage space, appropriate equipment, a sink and running water, an area for "messy" work, and an outdoor patio area.
3. Access to a well-equipped kitchen, a garden plot where vegetables and flowers can be raised, a one-car garage where cars can be washed and polished, facilities which permit the teaching of "home usefulness by doing," e.g. cooking, serving, cleaning, washing, ironing, care of pets, care of lawn, raising flowers and vegetables.

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APPENDIX

DEFINITIONS

It should be noted that some recent systems of classification, primarily medically oriented, differ somewhat from the position taken on page 4. The American Psychiatric Association, for example, also has three groupings, which cover a somewhat different range.¹ This group uses the term mild, which is essentially the equivalent of dull normal, moderate (applying generally to the group in the range 50 to 80 IQ), and severe (including essentially all children below 50 IQ). The most recent British report² discards the classifications of idiot, imbecile, and mentally defective, but includes feeble-minded psychopaths, or those cases where the psychopathological picture also includes mental retardation. It defines "severely sub-normal patients" as those incapable of leading an independent life. It is inferred that this group would include basically the two lowest levels of the three-way classification, plus a few from the upper level. In principle, therefore, it substituted a two-way classification (approximately above and below 50 IQ).

Heber³ has proposed recently a five-way classification based on measured intelligence and adaptive behavior. The primary basis for the classification is the standard deviation of the normal curve of intelligence: more specifically, theoretical ranges derived from the empirical approximate average IQ on the Revised Stanford-Binet of 16 IQ points. In IQ terms the ranges are:

Level	Standard Deviation Units	Revised Stanford- Binet IQ Scores
V.....	-1.01 to -2.00	83-68
IV.....	-2.01 to -3.00	67-52
III.....	-3.01 to -4.00	51-36
II.....	-4.01 to -5.00	35-20
I.....	-5.0	20

Comparable IQ figures are given for other tests. Group V of the report, therefore, covers roughly the group formerly known as borderline. Group IV, the upper range or the "educable", Group III, the "trainable." The upper part of Group II would be considered as being in the middle range by some States and local school systems, and the remainder of Group II and the whole of Group I would be, in the three-way classification, "custodial" or "totally dependent." In view of the known deviation from the normal curve at the lower end of the distribution, some question may be raised regarding the detailed accuracy of Heber's classification.

Prevalence

Penrose⁴ has pointed out that the prevalence of the mentally retarded is somewhat higher than would be predicted from the normal curve. Perhaps the most definitive data on the distribution of intelligence at this lower end have been

¹ American Psychiatric Association. *Diagnostic and Statistical Manual, Mental Disorders*. Washington: American Psychiatric Association Mental Hospital Service, 1952, 130 p.

² *British Royal Commission Report on the Law Relating to Mental Illness and Mental Deficiency, 1964-67*. Command Report No. 160. London: Her Majesty's Stationery Office, 328 p.

³ Heber, Rick. A Manual on Terminology and Classification in Mental Retardation, *American Journal of Mental Deficiency*, 64, No. 2. Monograph Supplement, September 1969, 111 p.

⁴ Penrose, Lionel S. *The Biology of Mental Defect*. New York, Grune and Stratton, Inc., 1949.

reported by Fraser-Roberts⁵ and his group. On as nearly complete a sample as possible of a geographical area, he compared the actual frequencies found in the third and lower standard deviations below the mean with the theoretically expected frequencies on the normal distribution hypothesis. He found an excess in the actual number of cases over the theoretical expectancy, beginning at an IQ of about 50 and increasing as one goes down the IQ scale.

Other studies of prevalence have been based on actual empirical counts of all the severely retarded children in a specific geographical area (including those in residential schools). These have been well summarized by Kirk.⁶ He gives, as an average prevalence estimate, a mean of 1.4 and a median of 1.7 per 1,000 school children residing in the communities, including those not in special classes. This estimate would be consistent with Fraser-Roberts' findings of an increase over the value expected from the normal curve.

Bienenstock and Coxe⁷ reported a prevalence of about 1.7 severely retarded children per 1,000 of the general school population as living in State residential schools, although they report 3.3 per 1,000 living in communities. A reasonable estimate of the prevalence of the middle group is, therefore, of the order of 3 per 1,000 in the school age population.

Prevalence of Pathological Conditions.—The empirical data from the Public Health Service⁸ (see table 1) also point out a higher prevalence of pathological conditions in the lower ranges. Their data suggest, however, a gradually increasing percentage of diagnosed pathology as one goes down the IQ scale, with no clear-cut or single breaking point.

The percentages of definitely diagnosed pathology were computed for the accompanying table by excluding the categories Familial, Undifferentiated and Unknown.

Data regarding the prevalence of pathological conditions in public day school classes for the severely retarded have been reported by several authors. The percentages given in tables 1 and 2 were computed from the original tables.

GAINS IN SPECIAL CLASSES

There have been a number of studies primarily concerned with the measurement of absolute or relative gains in the classroom. Dunn and Hottel⁹ compared the gains in mental age and social age over one year of a group of severely retarded children in a day school program as compared with a matched group which remained at home. Two of the criteria were the Revised Stanford-Binet and the Vineland Social Maturity Scale. No significant difference was found in changes in social age. The upper IQ group which was in school, however, made significantly greater gains than either of the lower IQ groups, or the higher IQ group which remained at home. No significant changes were found on a Behavior Rating Scale nor on a modification of the Fels Scale of Parent Behavior. They concluded, therefore, that though the study was too limited in scope to be con-

⁵ Fraser-Roberts, J. A., Norman, R. M., and Griffiths, Ruth. Studies on a child Population. IV: The Form of the Lower End of the Frequency Distribution of Stanford-Binet Intelligence Quotients and the Fall of Low Intelligence with Advancing Age. *Annals of Eugenics*, 8, 319-336, August 1938.

⁶ Kirk, Samuel A. *Public School Provisions for Severely Retarded Children*. Albany, N.Y.: New York State Interdepartmental Health Resources Board, July 1957, 87 p.

⁷ Bienenstock, Theodore and Coxe, Warren W. *Census of Severely Retarded Children in New York State*. Albany, N.Y.: New York Interdepartmental Health Resources Board, 1954, 61 p.

⁸ U.S. Public Health Service. *Patients in Mental Institutions, Public Institutions for Mental Defectives and Epileptics, 1953*. (Public Health Service Publication, No. 493, Part 1.) Washington: U.S. Government Printing Office, 1956, 48 p.

⁹ Dunn, Lloyd M. and Hottel, John V. *The Effectiveness of Special Day Class Training Programs for Severely (Trainable) Mentally Retarded Children*. Peabody College Research Series in Mental Retardation, Nashville, Tenn.; George Peabody College for Teachers, June 1958.

Table 1.—Number and percent of first admissions to mental institutions, by diagnosis and degree of defect, 1953, U.S. Totals ¹

Clinical Diagnosis	Number			Percent		
	Idiot	Imbecile	Moron	Idiot	Imbecile	Moron
TOTAL.....	1740	2862	2610	100.0	100.0	100.0
Familial.....	150	499	971	8.6	17.4	37.2
Mongolism.....	175	548	66	10.0	19.1	2.5
With developmental cranial anomalies.....	258	172	45	14.8	6.0	1.7
With congenital cerebral spastic infantile paralysis.....	191	88	38	11.0	3.0	1.5
Post infectious.....	169	178	85	9.7	6.2	3.3
Post traumatic.....	252	272	123	14.5	9.5	4.7
With epilepsy.....	60	84	44	3.4	2.9	1.7
With endocrine disorder.....	20	29	30	1.1	1.0	1.1
With familial amaurosis.....	8	3	-----	.5	.1	0.0
With tuberous sclerosis.....	6	4	-----	.5	.1	0.0
With other organic nervous disease.....	23	43	55	1.3	1.5	2.1
Other forms.....	33	77	148	1.9	2.7	5.7
Undifferentiated.....	332	725	825	19.1	25.3	31.6
Unknown.....	63	140	180	3.6	4.9	6.9

¹ Percentages were computed from the original table.

Table 2.—Percentage of children in four studies of public school classes for the severely retarded showing diagnosed pathology

Clinical Classification	Percent of total showing diagnosed pathology			
	Connor and Goldberg ¹	Hottel ²	Johnson and Capobianco ³	Kissler ⁴
Number of children.....	1300	275	80	100
Percent of total showing diagnosed pathology.....	52.0	71.4	72.4	90.0
Brain injured, neurologically impaired, endocrine, etc.....	14.0	29.3	16.2	31.0
Cerebral Palsied.....	7.0	2.5	6.2	5.0
Epileptic.....	4.0	6.5	-----	4.0
Emotionally Disturbed.....	-----	-----	-----	12.0

¹ Connor, Francis P. and Goldberg, I. Igacy. Opinions of Some Teachers regarding their Work with Trainable Children, Implications for Teacher Education, *American Journal of Mental Deficiency*, 64, 668-670, January 1959.

² Hottel, John V. *Tennessee Experimental Program of Day Classes for Severely Mentally Retarded (Trainable) Children*, 1957, 43 p. (mimeo.) George Peabody College for Teachers, Nashville, Tenn.

³ Johnson, G. Orville and Capobianco, Randolph J. *Research Project on Severely Retarded Children*. Albany, N. Y.; State Interdepartmental Health Resources Board, 1957, 230 p. (mimeo.)

⁴ Kissler, Ralph E. *Developing a Program for Trainable Mentally Retarded Children*. In the Yearbook of the Associated Public School Systems. New York; 1957.

clusive, serious consideration should be given to the criteria for selection of children to these classes, with those of 39 or 40 IQ and above being probably the better prospects. They also recommended that emphasis on academic instruction should be discouraged.

Kolstoe¹⁰ studied the language learning of a group of residential school mongoloid children with an average IQ of 25 and an average MA of 2-2, in comparison with a control group having an average IQ of 23 and an average MA of 2-2. This group, therefore, averaged a level somewhat below the group usually found in classes for the middle range. He found, after intensive individual instruction, some gains (not statistically significant) in the experimental group. He pointed out, however, that the gains were concentrated in the higher group. It would appear, therefore, that the timing of learning tasks, especially in terms of mental age, is an important aspect of teaching these children.

Johnson and Capobianco¹¹ found that the mean social quotients of both their public day school and residential school children increased somewhat from the fall of 1954 to the spring of 1956. A majority of the curves showed a fairly high initial gain, followed by a plateau or slight decrease after the first school year. They reported a slightly larger increase in social quotient in the higher IQ group.

The study by Johnson and Capobianco emphasized the measurement quantitative gains by an experimental group as compared with a control group. On a one-year language training program they reported no difference between the amount of improvement by an experimental and a control group.¹² On a measure of academic knowledge, the largest gains were reported on the highest IQ group, and were progressively less for lower IQ classifications. On the Fels Scale both a public school and an institutional group showed changes in a positive direction over the duration of the study. On the Behavior Check List fairly constant gains were reported except in the group under 25 IQ. They concluded that the improvements that take place under a training program will parallel the growth pattern as indicated by the IQ. They interpreted this to mean that the quotient changes they found in some areas of growth would imply little effect on the long-range programs for the individual in personal, social, and economic adjustment. They concluded also that children with IQ's below 30 derived little gain from a program such as was used in their study. They reported, therefore, that, in their judgment, the problem of the severely retarded remains one of training for self-care and socialization to the maximum extent possible, and a total solution to their problem must involve life planning. It was their belief, as a result of the study, that the learning characteristics of the severely retarded are in marked contrast to those of the less severely retarded.

Cantor and Hottel¹³ in a study of discrimination learning also found a higher IQ group (above 50 IQ) showing a performance superior to that of a lower IQ group (below 50).

Johnson, Capobianco and Miller¹⁴ reported that severely retarded children scored more than a year below their mental ages in language achievement on a test of language ability, in both public day school and residential school groups. A year of an intensive language development program failed to show any greater gain in experimental groups than in individually matched control groups.

¹⁰ Kolstoe, Oliver P. Language Training of Low-Grade Mongoloid Children, *American Journal of Mental Deficiency*, 63, 17-30, July 1958.

¹¹ Johnson, G. Orville and Capobianco, Rudolph J. *Research Project on Severely Retarded Children*. Albany, N.Y.: New York State Interdepartmental Resources Board, 1957. 230 p. (mimeo.)

¹² See also Johnson, Capobianco, and Miller (14) for a more extensive discussion of this problem.

¹³ Cantor, Gordon N. and Hottel, J. V. Discrimination Learning in Mental Defectives as a Function of Magnitude of Food Reward and Intelligence Level, *American Journal of Mental Deficiency*, 68, 300-384, October 1955.

¹⁴ Johnson, G. Orville, Capobianco, Rudolph, and Miller, Donald Y. Speech and Language Development of a Group of Mentally Deficient Children Enrolled in Training Programs, *Exceptional Children*, 27, 72-77, October 1960.

On an articulation test of 11 speech sounds, the initial position of a sound appeared to be most frequently correct, the medial position next most frequently correct, and the final position of the sound least often correct. Omission of a sound was the most common error, followed by substitutions and distortions. On the whole, fewest errors were made by children within the group with the highest IQ range. The average mental age of the groups was about $4\frac{1}{2}$ years at the beginning of the study.

A study such as this points out several matters for the teacher to keep in mind. It shows the marked language retardation in these children as a group.

In the Illinois study¹⁶ it was found that IQ's went up slightly over a year of special class teaching. It was felt, however, that factors such as familiarity of the children with teachers and examiners might have had an effect. Teachers' rating on the Behavior Check List indicated noticeable or marked gains on the part of two-thirds of the children. Gains were greatest in the simpler activities, least in the complex activities. It was pointed out, however, that one year was probably too short a time to lead to definite conclusions.

Goldstein¹⁶ also reported, on the basis of the Illinois study, that the IQ and SQ remained relatively constant over the 2-year period of the study. On the Behavior Check List the teachers reported considerable progress during the first year, and no progress during the second year.

Johnson, Capobianco, and Blake¹⁷ reported significant increases in score on the Vineland Social Maturity Scale, the Fels Child Behavior Scale, and a Behavior Check List for a group of severely retarded children in day and residential schools once over a two-year period. Gain was primarily during the first year, however.

In some instances, therefore, the relative measures showed initial gains, followed by a leveling off, so that the absolute gains are more nearly those that might have been predicted by some such relative measure as the IQ. Here some caution may be necessary in drawing conclusions. Failure to maintain relative gains, such as increasing intelligence quotient, social quotient, or educational quotient, has sometimes been interpreted to mean that special education of the severely retarded is useless on the basis that the children would have done just as well if they had not attended a special class. Few, if any, educational situations, however, can consistently meet this rigorous criterion. Perhaps the demonstration of absolute gains is a more reasonable criterion. For several reasons, the present studies cannot be considered as being conclusive. The samplings of children have been small, and the duration of the studies has been too brief for the findings to be definitive over a long period of time. Especially with a slow-developing group, the studies need to be continued for a sufficient length of time to show quite definite evidence of terminal status as well. A third difficulty is the fact that the studies have all been based on the methods of instruction in use at the time the study was made. Nevertheless, the results of the studies have been sufficiently clear to indicate that some of the more exaggerated hopes and claims that have been expressed are probably too optimistic.

In summary, practically all the studies have shown some absolute gains, the greater gains, on the whole, having been made by the more able children; the least gains, by the least able. Some of the studies also suggest that there may be quite rapid initial gains, followed by a period of less rapid gain. The gains

¹⁶ Illinois State Department of Public Instruction. *Report on Study Projects for Trainable Mentally Handicapped Children*. Springfield, Ill.: the Department, November 1964, 43 p.

¹⁶ Goldstein, Herbert. *Report Number Two on Study Projects for Trainable Mentally Handicapped Children*. Springfield, Ill.: Illinois State Department of Public Instruction, January 1966. 42 p.

¹⁷ Johnson G. Orville, Capobianco, Rudolph J., and Blake, Kathryn A. An Evaluation of Behavioral Changes in Trainable Mentally Deficient Children, *American Journal of Mental Deficiency*, 64, 881-873. March 1960.

during this later period seem to be most nearly in line with expectancy based on the IQ.

Other Studies of Learning—Other isolated but relevant experimental findings include the following.

Gordon, O'Connor, and Tizard¹⁸ found that individuals in the middle range were capable of sustained work for more than an hour, and that they responded better to knowledge of results than to competition or the general instruction to do their best. Findings such as these have genuine significance for teaching.

Cantor and Stacey¹⁹ found a relatively sharp break at the IQ level from 42 to 59, this group performing in a much inferior way on the Purdue Peg Board, as a criterion of motor dexterity, when compared with individuals of higher IQ.

Zeaman²⁰ has recently summarized a series of studies on discrimination learning in this group of children (mental ages 2 to 6). He concluded that they are particularly slow in forming new visual habits, even slower than might be predicted from their mental ages. He reported that his findings were consistent with a theory of attention which holds that these children are more specifically retarded in ability to direct and maintain attention than in learning ability as such. He suggested, therefore, that the attention of these children might be aroused through novel-looking stimuli and that a sequence of tasks going from easy to difficult might be helpful in teaching them.

At least one carefully controlled experimental study²¹ has shown that children in the "trainable" group do not perceive and recognize geometrical figures in brief exposures as well as children in the "educable" group. This again suggests, perhaps, that the teacher should give the severely retarded child ample time to "see" objects in a learning situation.

Reducing the problem to its most practical terms, Goldstein²² evaluated it in terms of the success of the children in adjusting to the group learning situation. He reported the following percents of children excluded from the program after trial:

IQ	Percent Excluded
Below 25	94
25 to 34	11
Above 35	2

On the basis of these data, the chances of success in the special class were good for children with IQ's above 35. Of those with IQ's between 25 and 34, a small percentage survived, while of those with an IQ below 25 practically none survived. Goldstein concluded, therefore, that the critical zone is between 25 and 34 IQ.

His report on minimum mental ages showed the following: 71 percent of children with mental ages below 2 years were excluded; 21 percent of those with 2-3 mental ages and 13 percent those with 3-4 year levels were dropped; only 3 percent of the children with mental ages over 4 were excluded. This suggests a critical minimum mental age at the 2- to 4-year mental level.

¹⁸ Gordon, S. O'Connor, N., and Tizard, J. Some Effects of Incentives on the Performance of Imbeciles on a Repetitive Task, *American Journal of Mental Deficiency*, 60, 371-377, October 1955.

¹⁹ Cantor, Gordon N. and Stacey, C. L. Manipulative dexterity in Mental Defectives, *American Journal of Mental Deficiency*, 56, 401-410, October 1951.

²⁰ Zeaman, David. Discrimination Learning in Retardates, *Training School Bulletin*, 56, 62-67, August 1959.

²¹ Griffith, Ann H. The Effects of Retention Interval, Exposure-Time and IQ on Recognition in a Mentally Retarded Group, *American Journal of Mental Deficiency*, 64, 1000-1003, May 1960.

²² Goldstein, Herbert. Lower Limits of Eligibility for Classes for Trainable Children. *Exceptional Children*, 22, 226-227, March 1956.