THE EFFICACY OF SPECIAL CLASS PLACEMENT FOR THE EDUCABLE MENTALLY RETARDED AS INDICATED BY MEASURES OF ACADEMIC ACHIEVEMENT AND SOCIAL ADJUSTMENT

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ABSTRACT

The primary purpose of this study was to investigate the present effectiveness of special class placement for the educable mentally retarded children in Urban Newfoundland as indicated by measures of academic achievement and social adjustment.

The study was carried out among educable mentally retarded children attending ten different schools under the jurisdiction of the Avalon Consolidated School Board, St. John's. Twenty-four children between the ages of eleven and thirteen who had attended special classes for at least a period of two years were selected for the study. Twenty-two children from the regular classes were selected with the same chronological age and the same WISC IQ range as the sample from special classes. The arithmetic and reading subtests of the Wide Range Achievement Test and the Vineland Social Maturity Scale were administered to all students in the total group.

Although the mean score on each achievement subtest was higher for the regular class group, no significant statistical difference was found between the mean arithmetic and reading scores of both groups when a t-test for independent samples was applied at the .05 level of significance.

No significance difference was found to exist between the two groups with respect to the mean social quotient scores of the Vineland Social Maturity Scale at the .05 level of significance.

A significant positive correlation was found to exist between performance IQ and full scale IQ and performance IQ and social maturity for the educable mentally retarded in special classes. A significant negative correlation was found between performance IQ and reading for the

same group.

In the regular class group a significant positive correlation was found between verbal IQ and all other variables in the study except performance IQ, namely: full scale IQ, social maturity, arithmetic and reading. Other significant positive correlations were found between performance IQ and full scale IQ, full scale IQ and arithmetic, social maturity and arithmetic, and arithmetic and reading. A significant negative correlation was found between performance IQ and social maturity.

Although there exists a possibility that selection factors in placing the children in special education classes might have had some influence; the main implication of the findings of the study indicates that special classes, as presently constituted, do not seem to be producing any positive gains for the educable mentally retarded in academic achievement or social adjustment. Indeed, on the basis of the data collected one might wonder if special classes are having an adverse effect. It seems possible at present that appropriate goals are not identified for the educable mentally retarded and a lack of appropriate structuring and programing may exist within the special education program.

The investigator suggests, on the basis of the data presented, that special class placement may not be the best or most complete answer but that some integrative scheme with the "normal" children would perhaps produce better academic and social results.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

> One of the largest controversies, historically, and one which has generated more heat than light in the field of special education, is the argument over the most efficacious school placement of educable mentally retarded children. Since the early days of Itard's valiant efforts to teach Victor, the "Wild Boy of Aveyron," physicians, psychologists, and educators alike have been concerned about the prevention, management and education of those labelled mentally retarded. Although most would agree generally on the long-range objectives to strive toward with the retarded, many divergent opinions appear when specific procedures, techniques, and particular administrative organizations are advocated[1].

It is generally agreed that one of the primary issues yet to be resolved in the area of special education is whether or not the provision of special classes for the educable mentally retarded is the right approach to the problem. The question which has received much consideration is whether the retarded are better placed in a regular class in competition with normal peers or whether they should be segregated in special classes.

There have been many divergent views and opinions on the matter but little empirical data has been made available to substantiate conclusively which of the procedures is most effective. The arguments, both pro and con, for special classes line up rather quickly with some evidence conceded to both viewpoints[2].

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[1] W.J. Cegelka, and J.L. Tyler, "The Efficacy of Special Class Placement for the Mentally Retarded in Proper Perspective, The Training School Bulletin, LXVII (May, 1970), p. 33.

[2] Ibid.

It appears, from the research made available to date, that few have advocated the benefit of total segregation. The interest seems to have focused on either placement in a special class located in a public school or placement in the regular classroom itself. Should educators continue to advocate special classes in the full light of the inconclusiveness of research and the accompanying costs of maintaining such classes? Do they provide for the optimal development and adjustment of the educable mentally retarded? To some extent these questions have been partially answered if we are to consider the attention given to special classes in Newfoundland since 1967. In 1967, the Government of Newfoundland and Labrador passed legislation stating the conditions under which a special salary unit would be paid to a teacher assigned solely to teaching students classified as educable mentally retarded. Since that time a number of school boards have established special classes for these children. However, the critical question still remains, where should the educable mentally retarded be placed for the most effective education and training? Dunn[3], Kirk[4], Goldstein[5], Brabner[6] and Blackman and Goldberg[7] have all pointed out the consistent lack of evidence needed for decision

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[3]L.M. Dunn, Exceptional Children in the Schools (New York: Holt, Rinehart and Winston, Inc., 1963), p. 80.

[4]S.A. Kirk, Exceptional Children (Boston: Houghten Mifflin Co., 1962), p. 126.

[5]H. Goldstein, The Educable Mentally Retarded Child in the Elementary School (Washington, D.C.: National Education Association, 1962), p. 16.

[6]G. Brabner, "Integration and the Special Class Administrator," Journal of Education, CXLVII (1964), pp. 105-110.

[7]L.S. Blackman and I.I. Goldberg, "The Special Class - Parasitic, Endophytic, or Symbiotic Cell in the Body Pedogogic", Mental Retardation, III (1965), pp. 30-31.

making with respect to the placement question.

There remains little doubt that this question of placement is indeed a very serious one and it is hoped that the findings of this study will help to shed a greater light on the issue and provide a segment of local evidence which will be of value and assistance to those upon whom will rest the responsibility for adequate decision making.

I. PURPOSE OF THE STUDY

The purpose of this study is to investigate the present effectiveness of special class placement of the educable mentally retarded children in Urban Newfoundland. A comparison will be made of the educable mentally retarded in special classes with the educable mentally retarded in regular classes with respect to their academic achievement and social adjustment.

II. MAJOR HYPOTHESES

The following null hypotheses will be investigated in this study:

(1) In urban Newfoundland school systems there will be no significant difference between the mean arithmetic scores earned by the educable mentally retarded in special classes and the mean arithmetic scores earned by the educable mentally retarded in regular classes.

(2) In urban Newfoundland school systems there will be no significant difference between the mean reading scores earned by the educable mentally retarded in special classes and the mean reading scores earned by the educable mentally retarded in regular classes.

(3) In urban Newfoundland school systems there will be no significant difference between the mean social quotient scores earned by the educable mentally retarded in special classes and the mean social quotient scores earned by the educable mentally retarded in regular classes

III. DEFINITIONS

Educable Mentally Retarded. An educable mentally retarded child is considered to be an individual of minimum mental ability who is capable of developing skills through which the ability to maintain himself independently in the community, and in gainful employment can be realized. Sucn individuals are those considered eligible for admission to special education classes. Classified on the scale of mental ability such an individual usually rates between 50 and 75.

Social Adjustment. The condition of fitting into one's community or social milieu, and satisfying its conditions and requirements.

Achievement. Achievement in this study refers to scholastic or academic progress of the educable mentally retarded in the areas of reading (word recognition and pronunciation), and arithmetic (computation). It is the measure of the child's skills in these two academic areas.

Intelligence. Intelligence is the aggregate of global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment.

Special Class. The special class (or opportunity class as it is called locally) is the term officially used in Newfoundland to refer to special classes for the educable mentally retarded. Although such classes are distinct from regular classes, they are established in the regular public schools of the province.

Regular Class. Regular classes are those organized in the public schools of the province for the normal, routine education and training of

our children and youth. These classes accommodate all children who can benefit from group instruction. It is compulsory for all children who are mentally and physically fit to attend these classes until they reach the age of sixteen years.

Urban Newfoundland. Urban Newfoundland, for the purpose of this study, refers to all classes operated under the jurisdiction of the Avalon Consolidated School Board, St. John's.

IV. LIMITATIONS

In interpreting the data of this study the following limitations should be borne in mind:

(1) This study is limited to the investigation of two specific variables - namely, achievement and social adjustment as they relate to the education of the educable mentally retarded, and as measured by the instruments chosen for the study.

(2) The study is limited to an investigation of the educable mentally retarded between the ages of eleven and thirteen as of December 31, 1970, and who are attending schools under the jurisdiction of the Avalon Consolidated School Board. Generalization of the results of the study to areas outside of St. John's must be dependent on similarities between the school systems involved.

(3) The study is limited by the fact that teachers involved with special education classes vary with respect to academic and personality qualifications. Teachers are selected for special education classes mainly on the basis of being "good" teachers; that is, those who are considered capable of working with such children. A survey course in the

study of exceptional children is the only academic prerequisite. But this is secondary to being rated a "good" teacher. No effort has been made to match teacher qualifications or personalities in special and regular classes. It is assumed that teacher effects were randomized since subjects were selected from all possible classrooms in the school systems.

V. SIGNIFICANCE

The significance of this study will be summarized under the headings: historical basis, opinions about special class placement, empirical studies of special class placement, present trends in education and the present Newfoundland situation.

Historical Basis

It was indicated in the introduction that one of the largest controversies, historically, in the field of special education is the argument over the most efficacious school placement of educable mentally retarded children. The issue has proven to be a very serious one, both academically and economically, since governments, school boards, and administrators have wrestled with the problem of finances, special equipment, program development and the employment of specially trained teachers, and the need to have the best data available to make wise and prudent decisions. "If special class placement is demonstrated to be less effective than standard school provisions, the educable mentally retarded are receiving sub-standard education[8].

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[8] H. Goldstein, J.W. Moss, and L. Jordan, "Early School Development of Low IQ Children: A Study of Special Class Placement," Interim Report July, 1959 to June, 1961 (Urbana: University of Illinois, 1962), p. 2, cited by W.J. Cegelka and J.L. Tyler, "The Efficacy of Special Class Placement for the Educable Mentally Retarded in Proper Perspective," The Training School Bulletin, LXVII (May, 1970), p. 34.

Opinion about Special Class Placement

Johnson agreed with the view taken by Goldstein when he stated that although more money (per capita) was spend on special education, the educable mentally retarded were accomplishing the objectives of their education at the same or at a lower level than similar mentally handicapped children who remained in regular grades[9]. Reger et al. referred to the grouping of educable mentally retarded in special classes as nothing more than a refusal to accept responsibility for making education decisions. He called it educational laziness[10].

Lloyd M. Dunn, who was president of the Council for Exceptional Children and loyally supported and promoted special education classes for the mentally retarded for over twenty years, unleashed in 1968 a scathing criticism of current practices in special education, especially for the high level retardate. He concluded:

> In my view, much of our past and present practices are morally and educationally wrong. We are living at the mercy of general educators who have referred their problem children to us. And we have been generally ill prepared and ineffective in educating these children. Let us stop being pressured into continuing and expanding a special education program that we know now to be undesirable for many of the children we are dedicated to serve[11].

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[9] G.O. Johnson, "Special Education for the Mentally Retarded - a paradox," Exceptional Children, XXIX (1962), pp. 62-69.

[10] R. Reger, W. Schroeder and D. Uschold, Special Education: Children with Learning Problems (New York: Oxford University Press, 1968), p. 19.

[11] LM. Dun, "Special Education for the Mildly Retarded - Is much of it Justifiable?" Exceptional Children, XXXV (1968), p. 5.

Dunn further continued that "a better education than Special Class Placement is needed by these children because Special Classes are no more than a method of transferring these 'misfits' out of regular grades."[12]

Johnson in 1969 pointed out that special education was a part of the arrangment for culling out students; it merely permitted the relief of institutional guilt and humiliation stemming from the failure to achieve competence and effectiveness in the task given to it by society. "Special Education is helping the regular school maintain its spoiled identity."[13]

A report of the Royal Commission on Education and Youth, appointed by the Provincial Government, supported the view that special classes should be set up in the regular schools where the retarded children could mix with the normal children. The Commission believed that it would be disastrous to place retarded children in regular schools that offered a rigid curriculum. They felt that a special program should be developed to serve these children.[14]

The opinion of some key people in the area of special education seems to be that special classes for the educable mentally retarded, as presently constituted, are not serving their purpose effectively. They feel that better arrangements could possibly be made and better programs developed that would help these youngsters to learn and to become better adjusted. This question will be investigated in some detail in the review of Literature in Chapter II.

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[12] Ibid.

[13] J.L. Johnson, "Special Education for the Inner City: A Challenge for the Future or another means for Culling the Mark Out?" The Journal of Special Education, 111 (1969), pp. 241-251.

[14] Report of the Royal Commission on Education and Youth, Vol. Two, 1968, p. 12.

Should the educable mentally retarded be separated into homogeneous groups or retained in special classes? Generally, educators have looked toward research to help them resolve such questions. However, several studies have researched this question with inconclusive results. Sparks and Blackman, after reviewing much of the research to 1965, concluded that:

> In view of the inconclusiveness of the research, the critical issue of whether we should continue to schedule special classes, with the accompanying increased costs as a result of reduced class size, special equipment and materials, special salary increments and the additional training required of teachers, remains unresolvable.[15]

The authors also seem to indicate that because colleges and universities continue to prepare special teachers, schools have been given a license to create special classes in the assumption that special preparation results in special teaching.

Blatt wrote in 1960 that in view of the valid criticisms of studies comparing special versus regular class placement; "it has yet to be demonstrated that the special class offers a better school experience for retarded children than does regular class placement."[16]

Christapolos and Renz supported the above authors by stating that there has been no reliable evidence produced, either social or academic, to indicate any benefit derived from either the exclusion or inclusion of exceptional students in regular classes. It seemed to them that the rapid growth of special classes, in the face of the lack of supporting evidence, had but limited justification.[17]

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[15] H.L. Sparks and L.S. Blackman, "What is Special about Special Education Revisited: The Mentally Retarded," Exceptional Children, XXXI (1965), pp. 242-247.

[16] B. Blatt, "Some Persistently Recurring Assumption Concerning the Mentally Subnormal," Training School Bulletin, LVII (1960), pp. 48-59.

[17] F. Christapolos and P. Renz, "A Critical Examination of Special Education Programs," The Journal of Special Education, III (1969), pp. 471-379.

Cegelka and Tyler stated that "even today, despite a reasonable amount of research, there is a lack of empirical data available to substantiate conclusively a particular approach."[18]

Present Trends

The placement issue is still very much in the open with many writers aligning themselves with particular philosophical camps, each calling for further research to look into the placement problem in an attempt to determine the various conditions within each type of class structure which lend themselves to proper learning and maximum performance.

In the 1970's we may have less reason to justify the existence of special classes when the regular school programs are better able to deal with individual differences in pupils. The choice may no longer be between special education and regular classes since continuous progress, attention to individual differences, team teaching, and open spacing may provide possible alternatives to special classes. Besides this, more specialists such as psychologists, guidance workers, physical education instructors plus teaching aides, technicians and many more technical teaching aids are becoming available.

Newfoundland Situation

We can hardly refute the fact that Newfoundland is on the verge of expansion and is beginning to implement some of the innovations listed above. However, in the full light of the lack of evidence over the past decade for the effectiveness or benefit of special class placement, either

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[18] Cegelka and Tyler, op. cit., p. 35.

academically or socially, we are nevertheless demanding more special education classes as a remedy for our educable mentally retarded children.

We in Newfoundland should take a more serious look at what is being accomplished in the special class setup, both academically and socially, in order to justify the present efforts being taken by the government and school boards to provide this service to the educable mentally retarded. We should seek to know what benefits, if any, are presently accruing from our special class placement in order to help make more reasonable decisions about the expansion of special classes, or the integration of the educable mentally retarded into remedial or regular classes. This study is but a small segment of the vast amount of work that needs to be done in this area in order to justify the existence of special education classes as presently constituted.

VI. THE EXPERIMENTAL SETTING

The following is an overview of the experimental design. A more detailed account is reported in Chapter III.

The population from which the sample was drawn consisted of the total of educable mentally retarded children in special classes who have been there for at least two years and who were within the age range eleven to thirteen as of December 31, 1970; and all such children in regular grades who fell within the same age range. The total population was selected from the schools under the jurisdiction of the Avalon Consolidated School Board. The subjects consisted of twenty-four students from special classes and twenty-two students from regular grades.

The Wechsler Intelligence Test for Children was administered to

all students in the total group who had not been administered one within a one-year period. This was to insure that everyone fell within the IQ range 50 - 75. Two sub-tests of the Wide Ranger Achievement Test, namely, reading and arithmetic, were administered individually to all students. Finally, the Vineland Social Maturity scale was administered.

The main analysis consisted of making a comparison between the two groups in order to determine whether or not there was any significant difference in achievement or social adjustment.

VII. OUTLINE OF REPORT

A review of the relevant literature is presented in Chapter II. Chapter III contains a detailed account of experimental design, testing procedures, and the research procedures used to test the hypotheses. The results of the data analysis are contained in Chapter IV. The final chapter, Chapter V, includes a summary and discussion of the findings and contains some implications for education and further research.

CHAPTER II

REVIEW OF RELATED LITERATURE

It is presently estimated that from two and one-half to three per cent of all school-aged children fall under the category of "educable retarded" and are still most inadequately cared for. In recent years there has been increased emphasis put upon research in this area in order to develop a program for these children so that they would become more personally and socially adjusted. It has become the contention of many educators that these children, the educable mentally retarded, would be more adequately cared for if placed in an atmosphere where their basic needs would be met, and where they could develop healthy attitudes and become emotionally healthy individuals. It has further been implied in literature that since the educable mentally retarded were never completely accepted in their regular class group it was extremely difficult, and in many instances impossible, for them to satisfy their basic needs in this situation. Thus a much greater emphasis has been placed upon providing special education classes and special education programs.

The special class, it is speculated, where educable mentally retarded are grouped with their peers, provides educational experiences and instruction at their own developmental level and level of understanding. These two factors reduce frustrations and feelings of inadequacy thus aiding emotional and social adjustment. However, to be most effective, great care must be taken to have special classes housed within the regular elementary and secondary high schools where children can interact with

other children. Thus placement in a special class does not mean isolation but merely placement in an educational environment designed in terms of the child's particular needs and characteristics.

What happens to the educable mentally retarded when they are placed in special classes? This question has led to many controversies and, as a result, many studies have been done to investigate the effectiveness of the placement of these children in special classes.

Classification of Mentally Retarded Children

Nearly all the research relating to the efficacy of special classes for the mentally retarded during the past decade raised serious questions as to the desirability of maintaining or continuing them in their present form. The fact that a classification often becomes a label which in turn can become a stigma or even an emotional barrier to learning has led many school psychologists and many special educators to object to any system which classifies children. "However, there seems to be no workable system, other than complete individualization, that allows special instruction without some kind of grouping for the mentally retarded."[1]

Who are the "educable" retarded? On what basis are they educable? Are they classified merely on the basis of their ability to do academic school work or on some other criteria? It seems, to date, that one talks in terms of scholastic achievement without too much reference to the world of work. There is also some discrepancy or variability from country to country of IQ limits for special education of the educable mentally retarded. The general range is from 50 to 85 depending on the culture.

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[1] R.B. Porter, "Needed: A More Realistic Classification of Mentally Retarded Children," The Training School Bulletin, LXVII (May, 1970), pp. 30-32.

"Generally the higher the culture's emphasis on academic excellence in regular grades, the higher the IQ limits for special school and class placement."[2]

It is conceivable that students who have higher IQ's, say in the 70's, could be better prospects for both academic responsibilities and for employment than those of a lower quotient. According to Porter, "at a point, approximately mid 60's in quotient, an area of diminishing returns is reached and it becomes obvious that most retarded persons below this point have limited potential."[3] On this basis it might be more logical to give thought to reclassifying the mentally retarded in terms of this future or potential rather than in terms of school academic goals.[4]. It is becoming more and more evident that a classification involving labeling should be avoided whenever possible because of the stigma attached; yet, because of the enormous size of the problem, a more realistic means of grouping is essential.

Selection to Special Education Classes

Great care must be taken to admit only those children for whom special classes were intended. Most of the studies in the field of selection have advocated a procedure similar to that suggested by Kelly and Stevens (1950). These authors have suggested that the teacher should make the initial evaluation in terms of group standards. The second step would include a group IQ test which would be carefully selected and

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[2] L.M. Dunn (Ed.), Exceptional Children in the Schools, (New York: Holt, Rinehart and Winston, 1963), p. 73.

[3] Porter, loc. cit.

[4] Ibid.

administered. The classroom teacher would need assistance in the selection of tests and the integration of results. The educational and cumulative records should provide information concerning the child's past performance. A case history of pertinent data in the child's background would also be of value in making a diagnosis. If the findings on the tests corroborated the school record of educational maladjustment, an individual examination by a qualified psychologist or diagnostician is advised. The psychologist, with the help of all available data, should be the one to make the diagnosis and recommend the program that would best fit the needs of the child. Most programs should also make use of screening committees composed of special school personnel, nurse, curriculum consultant, principal and teacher.[5] This is basically the procedure taken by the major school boards of this province.

Programs for the Educable Mentally Retarded

Although several programs have been tried, there seems to be no conclusive evidence at present that any one in particular is best for the mentally retarded. Most of the programs described in literature have fallen into three types of organization: the special class, the consultant service and the regular grade. Some authors have claimed that the program which seems most adequate for the larger school system is that of the homogeneous special class, while for the smaller system the regular grade would be more efficient. Where special classes are initiated they should be located in a regular school where pupils are given many opportunities

[5] E. Kelley and H. Stevens, "Special Education for the Mentally Handicapped," 49th. Yearbook of the National Society for the Study of Education: The Education of Exceptional Children (The University of Chicago Press, 1950), pp. 237-257.

to participate in the various school activities.[6]

The organization of a complete program as suggested by Kirk and Johnson and recorded by Margary and Eichorn should include the following groups:

(a) The pre-school class for children under six with mental age between 2 and 4. The purpose of the pre-school class is to develop mental and social abilities during the formative years.

(b) The primary class for children whose ages 6 to 9 or 10 with mental ages of 6 to 6½. The purpose of the primary group is to continue the social and mental development and to provide readiness activities.

(c) The intermediate class should consist of ages 10, 11, 12, and 13 depending on mental and social abilities. Mental ages will range from 6 to 8 or 9 years. In this group emphasis is placed upon social growth and the development of skills.

(d) The secondary class should consist of ages 13 through 16 to 18 with mental ages of 8 to 12 years. The program is to teach social living with emphasis on home, vocational and social efficiency.

(e) The post-school period is to provide the guidance and supervision necessary to the individual's adjustment to society.[7]

Dawe also pointed out the significance of having a junior high school program to improve the students' basic skills and provide practical situations for their use. She stressed the importance of providing pre-vocational information at this level to prepare the students for the more definite instruction they would receive in high school.[8]

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[6]J.F. Magary and J.R. Eichorn, The Exceptional Child, (Toronto: Holt, Rinehart and Winston, 1966), p. 87.

[7]Ibid.

[8]A. Dawe, "Trends Toward the Extension of Special Services for the Educable Mentally Handicapped at the Junior High School Level," American Journal of Mental Deficiency, LXI (April, 1957), pp. 692-697.

Academic Achievement

Many investigators have offered evidence which purports to show better academic performance for the educable mentally retarded child in the regular class (Bennett,[9] Elenbogen,[10] Cassidy and Stanton,[11] Thurstone,[12] Mullen and Itkin[13]). One of the earliest studies was done by Bennett who compared fifty mentally retarded and dull normal children in special classes with fifty in regular classes. She found that the regular class children were significantly better than the special class children in reading, arithmetic and spelling. Additional factors investigated which did not show significance were mechanical ability and the fact that the length of time in attendance in a special class neither accelerated nor retarded one's reading ability.[14] Pertsch followed Bennett's study by comparing two groups matched on chronological age, mental age and intelligence quotient and found that the regular grade

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[9]A. Bennett, A Comparative Study of Subnormal Children in the Elementary Grades (New York: Teachers College, Columbia University, 1932), p. 33.

[10]M. L. Elenbogen, "A Comparative Study of Some Aspects of Academic and Social Adjustment of two Groups of Mentally Retarded Children in Special Classes and in Regular Grades," Dissertation Abstracts, 17: 2496, 1957.

[11]V.M. Cassidy and J.E. Stanton, An Investigation of Factors Involved in the Educational Placement of Mentally Retarded Children, (Columbus, Ohio: Ohio State University Press, 1959), p. 42.

[12]T.G. Thurstone, An Evaluation of Educating Mentally Handicapped Children in Special Classes and in Regular Grades (Chapel Hill: University of North Carolina, 1959).

[13]F.A. Mullen and W. Itkin, Achievement and Adjustment of Educable Mentally Handicapped Children in Special Classes and in Regular Classes, (Chicago: Chicago Board of Education, 1961).

[14]Bennett, loc. cit.

children performed significantly better academically. In addition, he found that despite the "loading" to increase motor skills and manual skills among special class children, greater ability in these areas did not result. Personality development was higher among regular class boys but there was no difference of personality among girls, regardless of class placement.[15]

Despite the many heated arguments over special class placement in the 1940's, little research of a comparative nature was attempted. It was during the 1950's that efficacy studies took on momentum and were conducted in earnest. Elenbogen, in a somewhat smaller study than those mentioned above, compared two groups of retarded children on academic and social adjustment. One group received its final two years of schooling in special classes while the other group followed the regular curriculum. The two groups were matched on chronological age, sex, intelligence quotient and school district. He found better social adjustment, more realistic vocational goals, more friends and more after school jobs among the special class children. With regard to achievement the following is an abstract of Elenbogen's results:

> Test results of the standardized achievement tests in reading and arithmetic showed higher mean scores for the children without special class training over children in special classes in paragraph meaning, word meaning, arithmetic computation and arithmetic reasoning. Differences between mean scores of the two groups were statistically significant in paragraph meaning, word meaning and arithmetic computation.[16]

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[15] C.F. Pehtsch, A Comparative Study of the Progress of Subnormal Pupils in the Grades and in Special Classes (New York: Published Doctor's Dissertation, Teachers College, Columbia University, 1936).

[16] Elenbogen, loc. cit.

Elenbogen concluded that the difference between the two groups was probably due to an increased effort on the part of regular class students as a result of increased competition with normal peers.

Blatt, in an effort to ameliorate the selection problem encountered in earlier studies, decided to pair subjects from different countries. He chose seventy-five special class children and equated them with fifty educable mentally retardates from regular grades. The groups were matched on chronological age, mental age, intelligent quotient and sex. He found no significant difference in achievement between the two groups in reading, arithmetic and language development. He also found that there was a tendency for the special class children to improve academically more than the regular class children from one year to the next.[17]

In what is considered to be a more carefully controlled study, a stratified sampling of special class and regular class educables in Ohio were administered an exhaustive battery of psychological and educational tests as well as a questionnaire to compare performances of the two groups. Those selected had an IQ between 50 and 75 and ranged in age from twelve to fifteen years. After spending a minimum of two years in special classes the special class educables were inferior to the regular class in academic achievement but superior in personality and social adjustment. The authors concluded as follows:

> The significant differences obtained favouring the Regular Class Group indicate that in terms of academic materials they perform more adequately than do the members of the Special Class Group. Placement of the mentally retarded child in a regular

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[17] B. Blatt, "The Physical, Personality, and Academic Status of Children who are Mentally Retarded Attending Special Classes as compared with Children who are Mentally Retarded Attending Regular Classes, American Journal of Mental Deficiency, LXII (1958), pp. 810-818.

> classroom presumably means that greater emphasis is placed upon the individual's acquiring competency in reading, spelling and arithmetic. Differences in the two types of Academic Settings, as indicated by the results obtained from the various psychological instruments and other materials used, picture the special classroom as being more concerned with the overall personal development and growth of the child but lowest in the academic areas which are commonly developed within an educational framework.[18]

Walter J. Cegelka and James Tyler made a further analysis of the above study by IQ levels (50-59, 60-69, 70-75), which showed the regular class still superior at each level, although wide variations in achievement were found within the 50-59 IQ group of those in Special Classes.[19]

Thurstone, in a study of 1300 children, substantiated Cassidy and Stanton's results. She found that children enrolled in special classes were inferior in academic work, but again found them better adjusted than the regular class group.[20]

In 1959 a more complex study was done by Ainsworth who compared three administrative arrangements in terms of educational achievement and social adjustment. He selected children whose IQ ranged between 50 and 75, choosing forty-eight from special classes, seventy-eight from regular classes and sixty-seven from regular classes who were visited by specially trained itinerant teachers. The children were paired on chronological age, sex, intelligent quotient, and rural and urban distribution. The children were pretested by a complete battery of academic and social-emotional tests, and given a post-test one year later. The author concluded:

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[18]Cassidy and Stanton, op. cit., p. 42.

[19]Cegelka and Tyler, op.cit., p. 40.

[20]Thurstone, loc. cit.

> From an inspection of the obtained differences in mean improvement scores for total and sub-tests of the academic instruments, it is apparent that there is no systematic tendency for any group to improve more than the other two. This is further evidence that, when we look at these groups, the differences in improvement obtained could be due to chance alone.[21]

Mullen and Itkin have reported data from a research project conducted in the Chicago Public Schools. They matched more than 300 pairs based on chronological age, sex, intelligent quotient, socio-economic community ratings, history of school attendance, foreign language spoken in the home and reading achievement. They state their results as follows:

> On measures of achievement, the regular class group made a significantly larger gain in arithmetic over a one-year period than the special class group. No other significant differences between the two groups in academic progress over a one-year period was found. None of the two-year differences between the two groups on academic measures were significant, although the regular class group had an advantage in reading which approached significance.[22]

The authors state that selection factors in placing the children might have had some influence and they conclude:

> It may be concluded for these studies of selective factors in placement that the children who were placed during the course of the experiment, as a group, tended to be children who were more in need of placement than the children who remained unplaced. It may therefore be presumed that selective factors in placement may influence comparisons of progress of special class and regular class Educable Mentally Handicapped groups.[23]

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[21] S.H. Ainsworth, "An Exploratory Study of Educational, Social and Emotional Factors in the Education of Mentally Retarded Children in Georgia Public Schools" (Athens: The University of Georgia, 1959), pp. 130-131, cited by W.J. Cegelka and J.L. Tyler, "The Efficacy of Special Class Placement for the Mentally Retarded in Proper Perspective," The Training School Bulletin, LXVII (May, 1970), p. 41.

[22] F.A. Mullen and W. Itkin, Achievement and Adjustment of Educable Mentally Handicapped Children in Special Classes and in Regular Class (Chicago: Chicago Board of Education, 1961), p. 150.

[23] Ibid.

A four-year comprehensive study carried out by Goldstein, Moss and Jordan looked at the special-regular class issue in terms of intellectual gains, social adjustment and academic achievement. The results of the study failed to shed any light on the benefits of either special or regular classes. At the end of the fourth year there was no difference between the two groups.[24] Smith and Kennedy found similar results using children with IQ's ranging from 50 to 80. They concluded that no significant difference was found on the four criteria used.[25]

Studies by Welch,[26] Hoeltke,[27] and Carroll,[28] using the Wide Range Achievement Test, set out to measure the difference between special and regular class retardates. Welch and Hoeltke concluded that the educable mentally retarded children in regular classes scored significantly higher on each achievement sub-test than did the special class retardates. Carroll's study also showed that the retarded, who were partially integrated among their normal peers, did better than the totally segregated group.

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[24] L.J. Jordan, "Verbal Readiness Training for the Slow-Learning Children," Mental Retardation, 111 (1965), pp. 19-22.

[25] H.W. Smith and W.A. Kennedy, "Effects of Three Educational Programs on Mentally Retarded Children," Perceptual and Motor Skills, XXIV (1967), p. 174.

[26] E.A. Welch, "The Effects of Segregated and Partially Integrated School Programs on Self-Concept and Academic Achievement of Educable Mental Retardates," Dissertation Abstracts, 26: 5533-5534, 1966.

[27] G.M. Hoeltke, "Effectiveness of Special Class Placement for Educable Mentally Retarded Children" (unpublished Doctor's dissertation, Lincoln, Nebraska: University of Nebraska, 1966).

[28] A.W. Carroll, "The Effects of Segregatedand Partially Integrated School Programs on Self-Concept and Academic Achievement of Educable Mentally Retardates," Exceptional Children, XXXIV (1967), pp. 93-99.

Another study offering inconclusive evidence was that of Warren in 1962. An abstract of the results of his study states:

> The conclusions drawn from the study were that there was no significant difference between the groups with regard to achievement and IQ change. On the other hand, there were many indications that early EMR placement is superior to placement at a later date after the child has begun to recognize his tendency to be a failure. This evidence of early success was the only predictive feature found.[29]

The research to date on the special-regular class issue, with respect to academic achievement is still inconclusvie; though it seems to indicate that regular class placement of the educable mentally retarded children results in more favourable academic achievement.

Social Adjustment

Historically, administrators and special educators have heralded the definite advantage of special class placement over the regular class because it provided a less frustrating environment and gave the children a chance to compete with their intellectually comparable peers.[30] However a report by Jordan confounds even this tentative conclusion as a result of a study of 349 children in twenty-two secondary special classes. She found that the social relationship in special classes was much the same as in regular classes, with low intellect children maintaining low social positions.[31] This seems to indicate that educable mentally retarded children may have the same relative social position regardless

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[29] K. Warren, "An Investigation of the Effectiveness of Educational Placement of Mentally Retarded Children in a Special Class," Dissertation Abstracts, 23: 2211, 1962.

[30] Cegelka and Tyler, op. cit., p. 47.

[31] J.B. Jordan, "Intelligence as a Factor in Special Position - A Sociometric Study in Special Classes for the Mentally Handicapped," Dissertation Abstracts, 214: 2987-88, 1960-61.

of class placement. It is therefore questionable, according to the study, whether the special classes are accomplishing the goal of increased social and personal adjustment. Also, since the regular class may be more analogous to post-school life than the artificial environment of the special class, it is conceivable that optimal accommodation for mentally retarded children in school could result in post-school problems in adjustment.

The most widely quoted studies with regard to the advantages of special classes for social adjustment were done by Johnson[32] and Johnson and Kirk[33]. They indicated that as a rule retarded children are rejected and isolated in a regular class. These conclusions of the above authors gave a great deal of impetus to the proponents of special classes and have been widely used as a basis for their arguments. Johnson's aim in 1950 was to see if the degree of acceptance-rejection was a function of the level of intelligence. He found that the children with lowers IQ's were more often rejected; thus he concluded that isolation and rejection in regular grades must be related to a level of mental factors rather than other factors.[34] In 1961 he conducted yet another study on the social acceptance of retarded children using two scales, the Syracuse Scales of Social Relations and the California Test of Personality. On

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[32]G.O. Johnson, "A Study of the Social Position of Mentally Handicapped Children in Regular Grades," American Journal of Mental Deficiency LV (1950), pp. 60-89.

[33]G.O. Johnson and S.A. Kirk, "Are Mentally Handicapped Children Segregated in the Regular Grades?" Journal of Exceptional Children, XVII (1950), pp. 65-68, 87-88.

[34]Johnson, loc. cit.

the Syracuse Scale he found the social acceptance of special class retardates to be superior to that of retardates in regular classes; however, the California Test showed no difference between the two groups.[35]

Elenbogen, using sclaes and interview questions given by classroom teachers concluded in an abstract that:

> The greatest value of special classes seems to be in social adjustment. Children in special classes appeared to be better socially adjusted in school and out of school, despite the fact that they were segregated in school.[36]

In a study to determine the social position of mentally retarded children in regular public school classes, Baldwin found a low degree of social acceptance among mentally retarded children in regular classes.[37] This was substantiated in a study by Blatt done during the same year. He found more social maturity and better emotional stability among special class mentally retarded children than among regular class mentally retarded children. However, this finding was based on the New York Scales of Social Adjustment, whereas the use of the California Test of Personality showed no significant differences between the two groups.[38]

At least two of the studies quoted above have shown that no significant difference occurred when the California Test of Personality was used. However, this was not always the observed result as was revealed

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[35]G.O. Johnson, A Comparative Study of the Personal and Social Adjustment of Mentally Handicapped Children Placed in Special Classes with Mentally Handicapped Children Who Remained in Regular Grades, (Syracuse, New York: Syracuse University, 1961).

[36]Elenbogen, loc. cit.

[37]W.K. Baldwin, "The Educable Mentally Retarded in Regular Grades," Exceptional Children, XXV (1958), pp. 106-108, 112.

[38]Blatt, loc. cit.

in a study by Kern and Pfaeffle. These authors used the California Test of Personality to compare the social adjustment of thirty-one retarded children placed in special classes, special schools and regular classes. The writers concluded that, "...retarded children who are in special classes or special schools for retardates show much better school adjustment than do retardates who are in regular classes."[39]

Two very important studies with regard to the social adjustment of educable mental retardates were conducted by Meyerowitz, one in 1962 and the other in 1967. In 1962 Meyerowitz argued that the social adjustment issue could not be settled unless we first took a look at the effects of special placement on the retardate's self-concept. He selected one hundred twenty retardates ranging in IQ from 60 to 85 and randomly assigned one half to special classes and the other half to regular classes. An additional "criterion" group of sixty normal children were identified to match the retarded sample with respect to areas of residence, father's occupation and family income. The results showed that the educable mentally retarded group used significantly more derogatory statements in describing themselves than did their normal peers. Also the special class group were more self-derogatory than those in regular classes.[40] The evidence of this study seems to indicate that special class placement leads to a poorer self-concept among educable mentally retarded children.

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[39] W.H. Kern and H.A. Pfaeffle, "A Comparison of Social Adjustment of Mentally Retarded Children in various Educational Settings," American Journal of Mental Deficiency, LXVII (1963) pp. 407-413.

[40] J.H. Meyerowitz, "Self-Derogations in Young Retardates and Special Class Placement," Child Development, XXXIII (1962), pp. 443-451.

The study of 1967 hypothesized that special class children would be better accepted by their social peers than retardates remaining in regular class. Ninety students were randomly assigned to special and regular classrooms and a sociometric technique was used to collect measures on saliency, acceptance, rejection and derogation. The author concluded as follows:

> The results also indicate that the EMR child is an isolate in his neighborhood, regardless of whether he is in a regular classroom or a special classroom. This may be attributed not to active rejection by his peers, but simply to disregard. Special classroom placement seems to discourage the child's initiating contacts; regular classroom placement seems to make the EMR child's peers more relevant to him than he is to them. Both effects seem negative for the child ... it seems that the difference between the EMR groups had developed since the children began in the first grade of school, and that special class placement, instead of helping an EMR Child's adjustment to his peers, actually hindered it.[14]

The results of Meyerowitz's study was confirmed by Welch who found the number of self-derogatory statements to decrease as the educable mentally retarded were integrated more with normal children.[42]

As a result of these studies by Meyerowitz and Welch, Spicker and Bartel asserted:

> If this finding is substantiated by future research, it must be considered one of the most damaging indictments against special classes for the retarded. It appears that the stereotype of the special class in which the pupils are happy and satisfied because of minimal academic pressures has no actual basis in fact when objective measures are employed.[43]

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[41] J.H. Meyerowitz, "Peer Groups and Special Classes," Mental Retardation, V (1967), pp. 23-26.

[42] Welch, loc. cit.

[43] H.H. Spicker and N.R. Bartel, "The Mentally Retarded," cited by G.O. Johnson and H.D. Blank (Ed's) Exceptional Children Research Review (Washington, D.C.: Council for Exceptional Children, 1968), p. 58.

In summary, one may conclude that the issue of special class placement as a remedy of social and emotional adjustment for the educable mentally retarded remains unresolved. The studies quoted above indicate that special class placement may have an important contribution to make toward the social adjustment of the retarded although two or three studies have shown otherwise.

Research is needed in the areas described above to determine the types and degrees of handicaps for which the special class, semi-special class or regular grade program is more beneficial. Clearly, to date, research has not established any decisive rationale for placement of the educable mentally retarded in special classes.

Postschool Adjustment

Most studies of the graduates of special classes for the educable mentally retarded have shown that the majority of both males and females make successful social adjustment in the community. They tend to marry mates of higher ability and have offspring more average in IQ. Charles found that eighty percent of his retarded group were married, had an average of 2.03 children with an average IQ of 95.[44]

In terms of vocational adjustment, most studies, according to L. Dunn, show that approximately seventy-five to eight-five percent of the educable mentally retarded who attend special classes have been finding competitive employment in unskilled, semi-skilled, and service fields during eras of prosperity.[45]

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[44]D.C. Charles, "Ability and Accomplishments of Persons Earlier Judged Mentally Deficient," Genetic Psychology Monographs, XLVII (1953), pp. 3-17.

[45]Dunn, op, cit., p. 87.

Porter and Milazzo investigated the effectiveness of post school adjustment in the areas of social competence and economic efficiency. Twelve students from a special class were matched with twelve students from the regular grades. After interviewing each subject, his parents, friends and employers the authors concluded:

> ...examination of the several phases of data does seem to indicate a strong tendency toward an overall advantage for the persons who have attended a special class during their school years. The most important difference between the two groups seems to be in the greater frequency of employment of the persons in the special class group. Persons who have attended special class also seem to conform better to social standards as represented by fewer arrests, slightly more church attendance, and less drifting from one place to another.[46]

Carriker conducted a study similar to that of Porter and Milazzo but obtained opposite results. He found that the special class graduates did less well, or no better, adjusting than did the regular class group.[47]

Summary

Since the study of Bennett in 1932 there has been a great deal of disagreement over the most efficacious placement of educable mentally retarded children. Should they be separated into homogeneous groups or retained in regular class? To answer this question educators have looked toward research.

From the above review of research one can only conclude that the question of placement is unanswerable at the present time. Some writers

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[46] R.B. Porter and T.C. Milazzo, "A Comparison of Mentally Retarded Adults Who Attended a Special Class with Those who Attended Regular School Classes," Exceptional Children, XXIV (1958), pp. 410-412, 420.

[47] W.R. Carriker, "A Comparison of Postschool Adjustments of Regular and Special Class Retarded Individuals served in Lincoln and Omaha, Nebraska, Public Schools," Dissertation Abstracts 17:2206-2207, 1957.

have related the placement issue principally to academic expectancies while others have stressed the social and emotional factors. Still another group has advocated resolving the placement issue by looking at the development of self concepts. Whatever the strategy, it is important that we continue to investigate the various conditions within each type of class structure which contribute to proper learning and maximum classroom performance.

> It may eventuate that the reasons for various types of placement of the mentally retarded must be based on other than educative agruments and that the ends to be served are only incidentally of educational import. Or it may be that if education is to be an important goal, the best type of setting for these children is yet to be imagined and realized in our culture.[48]

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[48] J.E. Stanton and V.M. Cassidy, "Effectiveness of Special Classes for Educable Mentally Retarded," Mental Retardation, 11 (1964), p. 12.

CHAPTER III

DESIGN OF THE STUDY

I GENERAL PROCEDURE

This study employed a post hoc design. All students within the age range eleven to thirteen years as of December 31, 1970, who had spent at least two years in special education classes and all students within the same age range who were attending regular classes and classified as educable mentally retarded by the Avalon Consolidated School Board were surveyed to determine their achievement and social maturity. The population comprised a total of forty-six children.

II SAMPLING

Two groups of students were drawn for the study. Each group is described in detail in the following paragraphs.

Opportunity Class Group

This group was composed of eighteen boys and six girls who were between the ages of eleven and thirteen years and had attended special classes for at least a period of two years. The makeup was dependent upon the procedures used by the school board to select students to these classes. The following preliminary steps had been followed:

(a) Teachers were asked to consider the possible candidates from their classes, bearing in mind the following factors:

(i) Their own opinions about the child based on his

academic progress.

(ii) Results from group IQ tests and other standardized tests especially reading readiness.

(iii) Physical, emotional and social factors that might be affecting progress in school.

(iv) Any information from the child's cumulative record that might be helpful.

It should be borne in mind that these were only preliminary characteristics to be noted by the teacher so that the student could be referred for a more adequate diagnosis. This procedure by no means biased sampling because each child had to complete the following diagnostic steps:

(b) A referral form was completed for any child who showed signs of being a possible candidate.

(c) The class teacher, school principal and school counselor reviewed each child's position with respect to his IQ level, chronological age and any specific individual problems.

(d) Before placement into a special class, each child had to have an individual intelligence examination and, if possible, a medical examination. All students had to fall within the IQ range 50-75 as set down by the Provincial Department of Education to be classified as educable mentally retarded. The IQ's had to be determined by the Wechsler Intelligence Scale for Children (WISC) or the Stanford-Binet.

(e) Following the completion of the survey, the final assessing and recommendations for placement were made by a placement committee composed of the teacher, the school principal, the school counselor and the board supervisor. After a final decision had been

made, parents were contacted for permission to place their child into a special class. The investigator was assured by board personnel that parents were very cooperative and that there was no indication that parents ever denied permission.[1]

Regular Class Group

The group from regular classes was selected to have the same chronological age and the same IQ range as the group from special classes. During the last part of the school year 1970-71, preliminary steps were fulfilled as outlined in steps (a) and (b) above as part of the regular admissions procedure into opportunity or special classes. The investigator, with a psychologist hired by the school board, took these referral sheets and administered the Wechsler Intelligence Scale for Children to over one hundred applicants. By special permission of the school board, the investigator was to deal only with those children falling in the age range required for the study. After several weeks of testing a total of twenty-two students, six girls and sixteen boys, meeting the requirements for the study were found. These comprised the control group for the study. Each of the twenty-two children selected is presently being considered by the school board for special class placement in the school year 1971-72 should space and teaching personnel become available.

A Comparison of the Two Groups

The special class group was composed of students who had experienced failure several times in the regular grades before being placed in special classes. These students, along with the regular class group,

[1]Avalon Consolidated School Board, Special Class Placement Policy, (St. John's, 1970).

were recommended for special classes several times before being actually placed because of the shortage of space and qualified teaching personnel. The fact that the special class subjects were placed two years earlier than their peers in regular classes do not necessarily mean that they were achieving at a slower rate or were greater social problems. At least fifty per cent of the regular class group were recommended for special class placement at the same time as those who were placed two years ago, but were unable to be accommodated due to lack of space. No record of rationale was kept for assignment to special education classes but indications are mixed with some school personnel saying the assignment was random and others saying that when lack of space was a factor, severity of student problems were considered. In any case students were recommended for special class placement, as outlined above for admission to special class placement, and put on a waiting list to be placed as a vacancy arose or when extra classes were established. However, fifty per cent out of the regular class group were not identified for special class placement at the same time as their peers who were placed two years ago. Thus, there exists a possibility that selection to special education classes may have been biased but the effects are difficult to estimate.

Furthermore, the investigator was satisfied in his dealings with the students of both settings that there was no observable behavioral differences between the two groups that would suggest non-similarity. Also, both groups were comparable on the basis of IQ: however, there was no indication that both groups were comparable on the basis of emotional and other personal factors.

Assumption Regarding IQ's of both Samples

To test the hypotheses outlined in Chapter I, it was assumed that the intelligent quotients for both samples were not significantly different. Table 1 presents IQ data which revealed no significant difference at the .05 level of significance. The critical points of t for significance at the .05 level on a two-tailed test is ± 2.021. The value of t obtained was 1.11.

TABLE I

COMPARISON OF THE SPECIAL AND REGULAR CLASS RETARDATES ON IQ

Class	Range	Mean	S.D.	Difference of Means	t
Regular	53-75	69.55	6.87	2.01	1.11*
Special	54-75	67.54	5.34		

* not significant at the .05 level of confidence for a two-tailed test.

The independence of IQ and class placement was tested by applying a chi square test. The .05 level of significance was employed. The results are shown in Table II.

TABLE II

FREQUENCIES OF LOWER AND HIGHER IQ'S FOR SPECIAL AND REGULAR CLASS RETARDATES

Range of WISC Scores	Special Class	Regular Class
66 - 75	16	16
50 - 65	8	6

chi square was not significant at the .05 level of confidence.

A chi square of .016 indicated that there was no significant difference in the class placement of retardates and their IQ ratings; each is independent of the other. A value of 3.841 was required for significance at the .05 level.

Such variables as emotional disturbances and general discipline problems where discussed with class teachers and supervisory personnel with respect to special class placement; but there was no indication that the children used in this study were placed in special classes for reasons other than the fact that they were underachievers for their chronological age level and recommended for special academic help. The group selected from regular classes were recommended to special classes for the same basic reason. Thus, the investigator was satisfied that on the basis of IQ and academic ability, both groups were comparable for the purposes of this study.

III INSTRUMENTATION

Wechsler Intelligence Scale for Children

In this study it was thought necessary to administer an individual intelligence test to all members of the total sample who had not been administered one within a one-year period. It was felt by the investigator that too great a discrepancy might occur between the recorded IQ and the actual IQ of the special class group if tests were not administered within this time span. Thus, on the basis that all students in the sample had been administered the test within a one-year period, the assumption was made that both samples were drawn with similar IQ's as measured by the Wechsler Scale for Children.

The Wechsler Intelligence Scale for Children is an individual test designed to measure the "global" or general intelligence of all students between five and fifteen years of age. The Scale also compares each subject's test performance not with a composite age group but exclusively with the scores earned by individuals in a single (that is, his or her own) age group.[2] Each person is assigned an IQ which, at his age, represents his relative intelligence rating. This IQ, and all others similarly obtained, are deviation IQ's with a mean of 100 and a standard deviation of 15.[3]

The Wechsler Intelligence Scale for Children consists of twelve tests which are divided into two subgroups identified as Verbal and Performance. The tests in each subgroup may differ, but each taps other factors, among them perceptual ones, which cut across the groups to produce other classifications or categories that are equally important to consider in evaluating an individual's performance.[4] Some of these categories include general intelligence, verbal comprehension, perceptual organization, distractibility, relevance, memory and fluency. These help the testors to discover the major strenghts and weaknesses of the testee and aid one to diagnose more accurately those who may be mildly retarded or who may have other major problems.

The Welchsler Intelligence Scale for Children was standardized on a sample of 100 boys and 100 girls at each age level from five to fifteen years of age. Each child was tested within one and one-half months of his mid year. There were 1100 boys and 1100 girls in eleven age groups, a total of 2200 cases. Only white American children were examined.[5]

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[2] D. Wechsler, Wechsler Intelligence Scale for Children: Manual (The Psychological Corporation, New York, N.Y., 1949), p. 4.

[3] Ibid. [4] Ibid. [5] Ibid.

Some fifty-five feeble minded cases were examined as well as a few selected cases from "special classes" of two public schools. Psychologists in institutions aided in the selection of the required ages who were rated as having IQ under 70 but not below 50. In all, 2.5 per cent of the cases were known as feeble-minded. The fifty-five feeble minded from institutions were not reported as either rural or urban.[6]

The reliability coefficients of the individual tests and of the Verbal, Performance and Full Scale Scores for ages 7½, 10½, and 13½ were computed by the split-half technique, with appropriate corrections for full length of the test by the Spearman-Brown formula.[7] Table III gives the Verbal, Performance and Full Scale reliability for three age groups considered to be the most representative of the age range for which the WISC was designed. SEm is given in IQ units.

TABLE III

RELIABILITY AND STANDARD ERROR OF MEASUREMENT FOR THE WISC VERBAL, PERFORMANCE AND FULL SCALE SCORES (N = 200 for each age level)

	Age 7½		Age 10½		Age 13½	
	r	SEm	r	SEm	r	SEm
Verbal Score (without digit span)	.88	5.19	.96	3.00	.96	3.00
Performance Score (without Coding and Mazes)	.96	5.61	.89	4.98	.90	4.74
Full Scale Score (without Digit Span, Coding and Mazes)	.92	4.25	.95	3.36	.94	3.68

D. Wechsler, Wechsler Intelligence Scale for Children, Manual, (The Psychological Corporation, New York, N.Y., 1949), p. 13.

[6] Ibid. [7] Ibid.

It is clear that the Wechsler Scale for Children was never designed to test severly retarded individuals. The lowest possible full scale IQ in the manual for any age group is 46. This brings up the question of reliability of the instrument for use with retarded children. A survey in 1963 by Silverstein indicated that the WISC was surpassed only by the Stanford-Binet in use. Some suggestion made that the WISC may be employed even more frequently than the Stanford-Binet in Public Schools, when mental retardation is suspected.[8] This speaks well for the growing populatity of the Wechsler Scale. Indirect evidence of the great interest in the WISC is provided by the volume of research published in which this test has been employed with retardates. Baumeister reviewed fifty such studies noting that "where no extrapolation is involved the retarded individuals' WISC IQ's appear to be acceptable, stable and reliable.[9]

With respect to reliability and stability of the WISC for retardates, a study of Thorne, Schulman and Kasper using thirty-nine retarded boys between the ages of 11 and 15 provides evidence of satisfactory reliability. They report test-retest correlations (3 to 4 months) of .95, .92 and .89 for the Full Scale, Verbal Scale and Performance Scale respectively. The subtests ranged in reliability from .84 to .67.[10]

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[8] A.B. Silverstein, "WISC and WAIS IQ's for the Mentally Retarded," American Journal of Mental Deficiency, LXVII (1963b), pp. 617-618.

[9] A.A. Baumeister, "Use of WISC with Mental Retardates: A Review," American Journal of Mental Deficiency, LXIX (1964), pp. 183-194.

[10] Thorne et al., "Reliability and Stability of the Wechsler Intelligence Scale for Children for a Group of Mentally Retarded Boys," American Journal of Mental Deficiency, LXVII (1962), pp. 455-457.

These coefficients compare quite favourably with those in the manual although those in the manual were drived by the split-half technique. Throne et al. also reported that with respect to the stability of the scale they found no significant differences in means and standard deviations between the two test administrations.[11] This finding confirmed an earlier study by Whatley and Plant who administered the WISC twice over a 17 month interval to 70 retardates.[12]

No validity figures for the test are quoted in the manual. For information on this vital point and on the correlations between the WISC and other tests, the user must refer to investigations that have been reported in literature. On this point Elizabeth Fraser pointed out that "for testing children who are not outstandingly bright or markedly dull, the WISC is a convenient, reliable instrument which uses up to date material intrinsically interesting to the child.[13] Apparently it has face validity.

Baumeister, who reviewed at least fifty studies in which the WISC was used with the mentally retarded, stated that "General studies support the validity of the WISC as a predictor of learning in retardates."[14]

A study by Rohrs and Haworth in 1962 further validates the use of the WISC with retarded children. They correlated the WISC with the 1960 Binet IQ of forty-six retarded children. The Full Scale, Verbal Scale and

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[11] Ibid.

[12] R. Whatley and W. Plant, "The Stability of WISC IQ's for Selected Children," Journal of Psychology, XLIV (1957), pp. 165-167.

[13] E.D. Fraser, Fifth Mental Measurement Yearbook, O.K. Buros (Editor), (The Gryphon Press, Highland Park, New Jersey, 1959).

[14] Baumeister, Loc. cit.

Performance Scale correlations with the Binet were .69, .72, and .50 respectively. The coefficients are well within the range of those reported by earlier investigators. "The WISC and the 1960 Binet appear to be measuring much the same thing."[15] Table IV shows the results of studies done on the mentally defective children, giving correlations between the WISC and the Stanford-Binet, form L.

TABLE IV

STUDIES REPORTING CORRELATIONS BETWEEN WISC AND STANFORD-BINET, FORM L

Author	N.		Age	Correlations		
	Boys	Girls		V	P	FS
Nate, 1951	54	50 (104)	-	-	-	.909
Sloan and Schneider, 1951	20	20 (40)	-	.751	.641	.493
Stacey and Levin, 1951		(72)	-	.69	-	.68
Shandercock and Butler, 1952	58	32 (90)	10-16	.80	.66	.76

W. M. Littell, "The Wechsler Intelligence Scale for Children; Review of a Decade of Research," Psychological Bulletin, LVII (1960), p. 136.

The Wechsler Intelligence Scale for Children was selected for this study because it is an individual test and deemed by the school board to be a much more reliable assessment of a student than that given by a group test. In fact, no child was to be placed into a special class without first being assessed by the WISC. The test not only gives an IQ

[15] R. W. Rohrs and M. Haworth, "The 1960 Stanford-Binet, WISC and Goodenough Tests with Mentally Retarded Children," American Journal of Mental Deficiency, LXVI (1962), pp. 853-859.

estimate of the child but also reveals patterns which may indicate the individual's main weaknesses and needs. Hence, from both the examiner's observation and the student pattern of scores an adequate appraisal of the student could be made in determining special class placement.

Wide Range Achievement Test (WRAT)

The 1965 edition of the WRAT contains three subtests. Each subtest is divided into two levels, I and II. Level I is designed for use with children between the ages of 5 years and 11 years 11 months. Level II is intended for persons from 12 years to adulthood. Altogether the three subtests take between twenty and thirty minutes to administer. The three subtests at both levels are:

> Reading: recognizing and naming letters and pronouncing words.
> Spelling: (this test was not used in the study).
> Arithmetic: counting, reading number symbols, solving oral problems and performing written computations.[16]

The authors, J.F. Jastak and S.R. Jastak list several uses of the test; the following were of interest to the investigator:

> The accurate diagnosis of reading, spelling and arithmetic disabilities in persons of all ages.
>
> The determination of instructional levels in school children.
>
> The establishment of degrees of literacy and arithmetic proficiency of mentally retarded persons.
>
> The comparison between school achievement and other abilities in all individuals, especially those who are disturbed or maladjusted.[17]

The test yields three types of scores used in reporting results:

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[16] J.F. Jastak and S.R. Jastak, The Wide Range Achievement Test Manual, (Guidance Associates, Wilmington, Delaware, 1965), P. 12

[17] Ibid.

(1) grade ratings, (2) percentiles, and (3) standard scores or deviation quotients based on grade ratings. Grade norms were derived from the actual mean grade levels of the children in each age group. The standard scores have a mean of 100 and a standard deviation of 15 and are statistically comparable to IQ's obtained from the Wechsler Scales (WAIS and WISC).[18] This comparability is an important feature facilitating the accurate determination of the nature and degree of reading, spelling and arithmetic disabilities by reference to criteria from other tests. Percentile ranks are considered convenient because they make ranks (not scores) from different standard scales comparable. However, they are not recommended to be used in research.[19]

The 1965 revision of the WRAT was administered to school children and adults in a number of states of the United States. The groups of children were selected from schools of known socio-economic levels. The IQ's of the children were also known from group tests and many of the cases in the standardization group had been given individual tests such as the Stanford-Binet, WISC and others.[20] In each age bracket, probability samplings based on IQ's were studied to develop WRAT norms that would correspond to the achievement of mentally average groups. The standardization groups for level I consisted of 3,074 males and 2,794 females for a total sample of 5,868. Level II used 2,970 males and 2,963 females for a total sample of 5,933.

The split-half reliability coefficients and standard errors of measurement (SEM) are listed in Tables VI and VII for each group used in the standardization of the same age as the sample used in this study.

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[18] Ibid.; [19] Ibid.; [20] Ibid.

TABLE V

SPLIT-HALF RELIABILITIES (r) AND STANDARD ERRORS OF MEASUREMENT (SEM) OF THE RAW SCORES OF THE READING AND ARITHMETIC SUBTESTS

Age in years	READING			Age in years	ARITHMETIC		
	N	r	SEM		N	r	SEM
8	200	.991	1.16	8	200	.948	1.07
9	200	.989	1.31	9	200	.942	1.05
10	200	.990	1.21	10	200	.948	1.40
11	200	.987	1.39	11	200	.945	1.42
12	200	.979	1.27	12	200	.940	1.33
13	200	.982	1.23	13	200	.957	1.27

J. F. Jastak and S. R. Jastak, The Wide Range Achievement Test Manual, (Guidance Associates, Delaware, 1965), pp. 13-14.

TABLE VI

CORRELATION COEFFICIENTS BETWEEN THE TWO FORMS-
LEVEL I AND II ADMINISTERED SIMULTANEOUSLY

Age in years and months	READING		ARITHMETIC	
	N	r	N	r
9-0 to 9- 5	81	.896	78	.884
9-6 to 9-11	165	.913	160	.790
10-0 to 10- 5	207	.901	190	.836
10-6 to 10-11	214	.929	195	.894
11-0 to 11- 5	197	.909	191	.819
11-6 to 11-11	252	.914	225	.850
12-0 to 12- 5	179	.922	164	.861
12-6 to 12-11	180	.936	165	.854
13-0 to 13-11	224	.896	194	.866

J. F. Jastak and S. R. Jastak, The Wide Range Achievement Test Manual, (Guidance Associates, Delaware, 1965), pp. 13-14.

As can be readily detected from the above tables, the WRAT satisfies the statistical conditions of reliability most adequately. However, the authors of the test did not rely completely on statistical data but report also on the clinical reliability of the scores as follows: "On the basis of clinical experience and some validity calculations made in the past the most reasonable guess concerning the clinical reliability of the WRAT is that the coefficients vary from .90 to .95 for each subtest

with an average reliability of .93."[21]

With respect to the retarded, A.R. DeLong studied intensively the changes in test scores from administration to administration of educable mentally retarded children to determine (a) the extent of such variations for individuals on various tests and (b) if such variations can be ascribed, at least in part, to individuals rather than entirely to the tests. A group of 77 retarded persons ranging in age from 15 to 17 years were given five successive administrations of five standardized tests within a three week period. Among these five tests was the Wide Range Achievement Test. In analysing the average differences between the high and low scores of the individuals who took all five administrations, the WRAT showed the smallest variations of all tests. These differences for the total group as well as for the two subgroups were found to be statistically significant for all scales except the WRAT. On a comparison of mid scores and low scores for each individual the WRAT differences were the only ones not significant. This speaks well for the stability of the WRAT when used with mentally retarded children. Seventy three of the 77 subjects were found to vary less than 10 per cent from one WRAT administration to another.[22]

The manual reports J.B. Foster of the Louisiana Polytechnic Institution Special Education Centre as having studied 75 children, ages 6 - 16, to determine the merits of a battery of individual tests for

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[21] J.F. Jastak and S.R. Jastak, The Wide Range Achievement Test Manual, (Guidance Associates, Wilmington, Delaware, 1965), p. 15.

[22] A.R. DeLong, "The Limits of Accuracy of the Test Scores of Educable Mentally Retarded Individuals," Journal of the Association for Research in Growth Relationships, III (1962) p. 26-44, cited by J.S. Jastak, Wide Range Achievement Test Manual, 1965, p. 15.

diagnostic and research purposes in the area of special education. Foster inter-correlated the individual WISC subtests with the WRAT and found all of them significantly positive;[23] this indicates that the WISC should be a good predictor of the WRAT scores of special class retardates.

Since the Wide Range Achievement Test was not standardized in Canada, the investigator deemed it necessary to check on its accuracy with respect to grade placement in the local area. Meetings were held with the Director of Special Services for the Avalon School Board and upon his suggestion further meetings were held with "key" teachers in the system. Some of these teachers were engaged in teaching regular classes, others with special class students and others were involved with remedial classes. Upon examination of the reading and arithmetic subtests as compared to the academic level at which the various groups of students were operating, it was unanimously agreed that the grade placement scale was adequate for the local area. There was no indication that the WRAT subtests placed students at a different grade level from that in which they had already been, or were waiting to be, placed. Thus the investigator was satisfied that the instrument could be used for the purpose of comparison.

The fact that the WRAT was an individual test, a major concern in working with retardates, and has been reported in several studies by Baumeister[24] to be effective for use in a retarded setting influenced the investigator to use this instrument. Also the studies by Welch,[25]

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[23]Manual, op. cit., p. 19.

[24]Baumeister, loc. cit.

[25]E.A. Welch, "The Effects of Segregated and Partially Integrated School Programs on Self-Concept and Academic Achievement of Educable Mental Retardates," Dissertation Abstracts, 26: 5533-5534, 1966.

Carroll[26] and Hoeltke[27] as reviewed in literature used the WRAT test in dealing with the educable mentally retarded.

The WRAT can be administered in approximately fifteen minutes which assured that the students would not be overtested or become exceptionally tired during the testing period. The test also rated very highly on validity and reliability coefficients.

The Vineland Social Maturity Test

The Vineland Social Maturity Test is an individual check list designed to measure successive stages of social competence from infancy to adulthood. It ranges from birth to maturity and requires from twenty to thirty minutes to administer. The test is based on twenty years of research, including ten years of use on thousands of varied cases. It outlines performances in which the individuals show progressive capacity for looking after themselves and for participating in those activities which lead toward ultimate adult independence and civic usefulness. The items are arranged, like the Binet-type scale, in order of increasing average difficulty in six categories: Self Help (General, Eating, Dressing); Self-Direction; Occupation; Communication: Locomotion; Socialization.

Standardization data were obtained from "ten normal subjects of each sex at each year from birth to thirty years of age, or a total of

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[26] A.W. Carrol, "The Effects of Segregated and Partially Integrated School Programs on Self-Concept and Academic Achievement of Educable Mentally Retardates," Exceptional Children, XXXIV (1967), pp. 93-99.

[27] G.M. Hoeltke, "Effectiveness of Special Class Placement for Educable Mentally Retarded Children," (unpublished Doctor's dissertation, Lincoln, Nebraska: University of Nebraska, 1966).

620 subjects.[28] Each subject was carefully chosen as to social, cultural, economic and educational characteristics. Extensive research has been done with the scale, the manual itself reporting 59 studies selected as being "representative".[29]

The data on validity and reliability reveal the efficacy of the procedures used. The test-retest range is given as .99 to .94 with a median reliability of .97, based on an average of 1.35 years between tests. The validity of the test is shown by the fact that "when the range of infomants about a child is increased beyond parent or guardian to educational and psychological personnel, agreement of evaluation is an average rank order correlation of .92.[30] This indeed indicates that the instrument is measuring what it sets out to measure, which speaks well for the validity of the test.

William M. Cruickshank, who was Director of Education for Exceptional Children, reports in the Fourth Mental Measurements Yearbook that:

> Although there are no direct measurements of the influence of interpersonal contacts, most of the items of the scale indirectly bear an impact of the developing organism's response to the socialization process. He states that the categories of adequacy which the author has set up to facilitate evaluation reflect very well the process involved in the maturation of social competence. Also the scale has demonstrated its ability to differentiate between true mental defectives who are socially inadequate and people who are merely of subnormal intellect but who are quite competent in managing their personal and social lives.[31]

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[28] E.A. Doll, Vineland Social Maturity Scale, Manual (American Guidance Services, Inc., Minnesota, 1965).

[29] Ibid. [30] Ibid.

[31] W.M. Cruickshank, "Review of the Vineland Social Maturity Scale", Fourth Mental Measurement Yearbook, O.K. Buros (Editor), (The Gryphon Press, Highland Park, New Jersey, 1954), pp. 94-95.

It was because of this point of differentiation that the investigator wished to use the scale. Cruickshank further stated that mentally deficient children in superior homes often display amazingly high social quotients, whereas children with very high IQ's may be socially less developed than we would expect.[32] Of particular interest to the investigator was to find the social age or competence of the educable mentally retarded, thus indicating social adjustment.

IV DATA COLLECTION PROCEDURES

Administration Schedule and Policy

WISC. The Wechsler Scale for Children was individually administered to all students in the total sample who had not completed one within a year prior to the study. This test was administered before any other instrument was given in order to identify the educable mentally retarded IQ range. Persons administering the WISC were graduate students adequately trained in administration and scoring procedure techniques.

WRAT. Each of the two subtests used on the WRAT was administered individually by the investigator in a private room in the school. Subjects were first acquainted with the investigator and when the necessary rapport was established the investigator asked the student if he would like to perform on a couple of tests. In every instance the answer was yes. The directions for administration and scoring as stated in the manual were strictly adhered to as well as accurate timing on all items. Both subtests, reading and arithmetic, were given at one sitting approximately one week after the WISC had been administered. Testing time for both

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[32] Ibid.

tests did not exceed fifteen minutes, hence no student was tired by a lengthy test.

Vineland Social Maturity Scale. Two graduate students with clinical experience were hired by the investigator to administer the Social Maturity Scale. Since this test could have been given a subjective rating by the investigator, the chance of bias was eliminated by having others administer it. Both testers administered the scale to both groups. This test was graded by the response given by individual students and spot checks were made with the classroom teachers when it was deemed necessary by the investigator. This instrument was the last of the three to be administered.

V ANALYSIS

A t-test was used to test the null hypotheses of no difference between the mean arithmetic, reading and social maturity scores for the two groups. The null hypothesis was rejected at the .05 level for the two-tailed test.

Additional analysis included a study of score distributions using the chi square test and graphic methods. Correlations were used to determine the relationship between the major variables used in the study.

CHAPTER IV

RESULTS OF THE INVESTIGATION

This chapter presents the analysis of the data to test the hypotheses of the study as established in Chapter I. The first two sections deal with the instruments used in the study and diagrams showing the distribution of scores on each instrument for each group are included. Part III deals with the testing of the major hypotheses and Part IV gives an analysis of other tests carried out on the data.

The analysis which tested the major hypotheses, and the computation of correlations between the major variables, was carried out on the IBM 360/40 computer using a Cooley and Lohnes program as revised by Dr. William Spain of Memorial University of Newfoundland.

I. ACHIEVEMENT TESTS

The distribution of the achievement scores as shown in Figures 1 and 2 are derived scores. They represent the standard scores into which the raw scores were converted. The standard scores on the two achievement subtests have a normal mean of 100 and a standard deviation of 15. The educable mentally retarded in special classes obtained a mean of 71.50 in arithmetic with a standard deviation of 6.11; and a mean of 68.42 in reading with a standard deviation of 7.15. The educable mentally retarded in regular classes obtained a mean of 73.32 in arithmetic with a standard deviation of 6.26; and a mean of 72.36 in reading with a standard deviation of 9.73. The distribution of scores revealed that the mean scores of the

educable mentally retarded in both the special and regular class placements fell considerably below the mean of those students who comprised the norming group for the tests. However, the regular class group earned better mean scores on reading and arithmetic than the special class group, especially in reading. This is evident from ther percentage of students scoring in the middle and upper range scores.

II. SOCIAL MATURITY SCALE

The Vineland Social Maturity Scale was administered individually to the 46 subjects in the study. As indicated in Figure 3, the educable mentally retarded in regular classes did better on the middle and upper range quotients than did the educable mentally retarded from special classes. The social quotient scores shown in Figure 3 were derived on the basis of their age equivalent and their actual chronological age. Age equivalent was derived from the raw score obtained by the student.

III. RESULTS OF TESTING THE HYPOTHESES

The hypotheses were tested by using a t-test on independent samples. A two-tailed t-test was used for all hypotheses because no significant difference was predicted. Correlations and significant probabilities are presented in Tables XII - XIV. The results of testing the hypotheses are reported in the order in which the hypotheses were stated in Chapter I.

Results of Hypothesis One

There is no significant difference between the mean arithmetic scores earned by the educable mentally retarded in special classes and

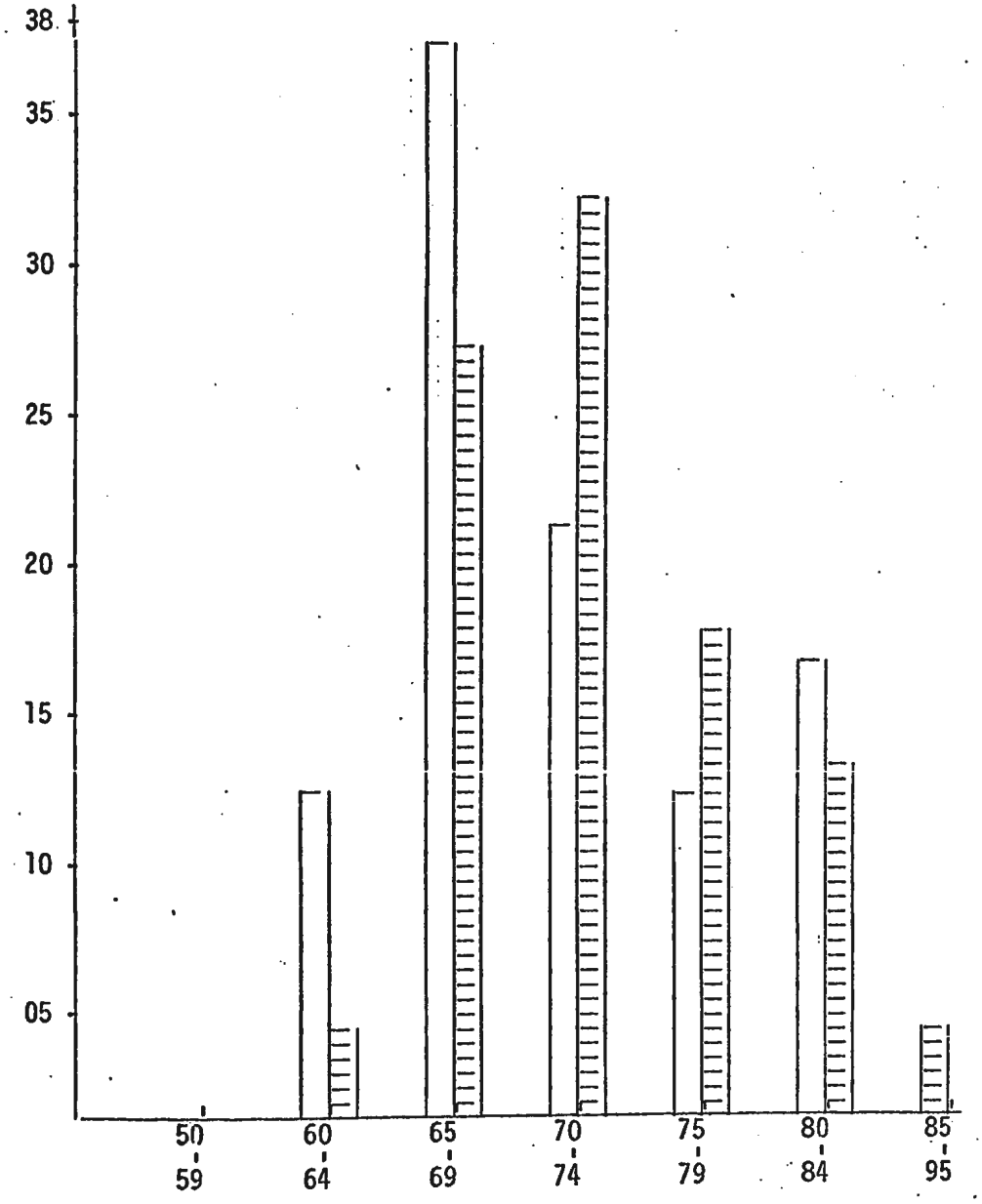

Figure 1

Arithmetic Test Scores

Distribution of Standard Scores on Arithmetic Achievement Tests.

Special Class
(N = 24)

Regular Class
(N = 22)

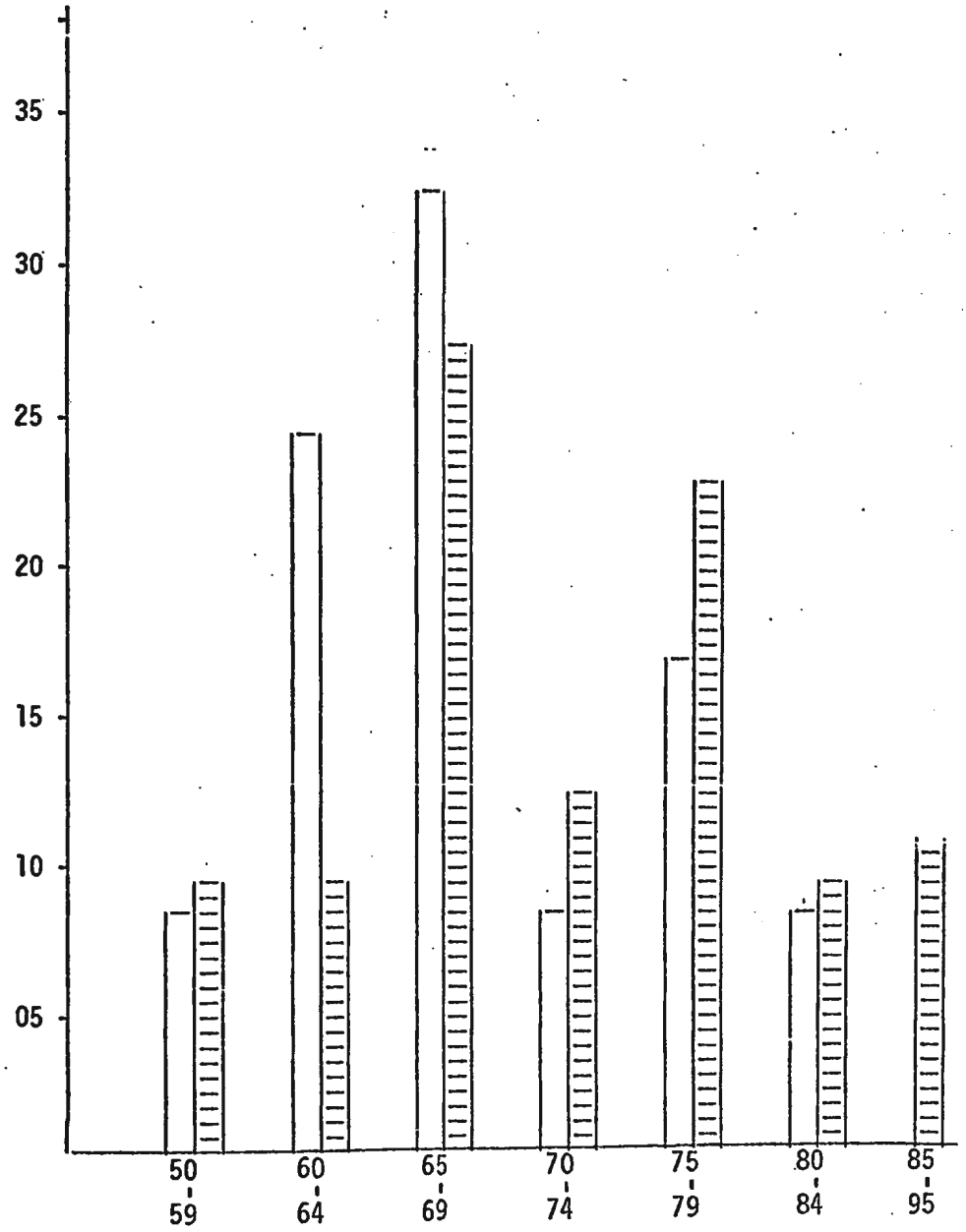

Figure 2

Reading Test Scores

Distribution of Standard Scores on Reading Achievement Test.

Special Class
(N = 24)

Regular Class
(N = 22)

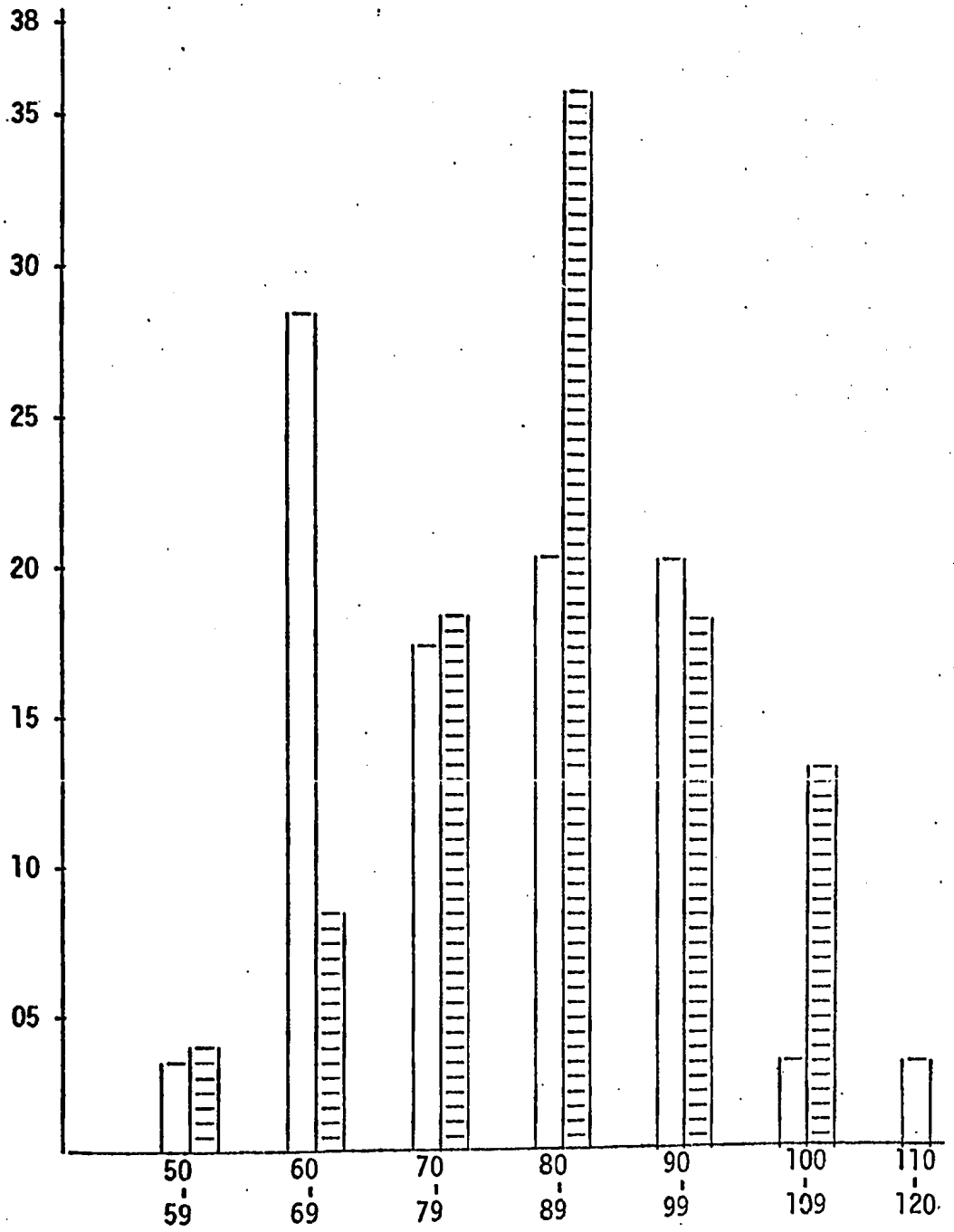

Figure 3

Social Quotient Scores

Distribution of Social Quotient Scores on Vineland S. M. Scale.

Special Class
(N = 24)

Regular Class
(N = 22)

the mean arithmetic scores earned by the educable mentally retarded in regular classes.

Results. Table VII indicates that, using a two-tailed t-test for independent samples after F-tests had revealed homogenity of variance, it was found that the mean scores on arithmetic for the educable mentally retarded in special classes were not significantly different from the mean scores on arithmetic for the regular class group at the .05 level of confidence.

TABLE VII

A COMPARISON OF MEANS AND STANDARD DEVIATIONS OF ACHIEVEMENT TESTS SCORES FOR EDUCABLE MENTALLY RETARDED CHILDREN IN SPECIAL AND REGULAR CLASSES

	X			S.D.		
	Special Class (N=24)	Regular Class (N=22)	t	Special Class (N=24)	Regular Class (N=22)	F
Arithmetic	71.50	73.32	1.00	6.11	6.26	1.05
Reading	68.42	72.36	1.57	7.15	9.73	1.85

t of 1.00 and 1.57 for difference between means was not significant at the .05 level of confidence.

The relationship between arithmetic and class placement was tested for significance by testing a two by two contingency table for independence, using the chi square test of independence. The investigator wished to establish whether or not the students' achievement in arithmetic was independent of their placement in special classes. Table VIII presents the data.

TABLE VIII

FREQUENCY OF LOWER AND HIGHER ARITHMETIC SCORES FOR SPECIAL AND REGULAR CLASS RETARDATES

Range	Special Class	Regular Class
70 - 82	12	16
60 - 69	12	6

Chi square not significant at the .05 level of significance.

The test value of .078 indicated that there was no significant relationship between class placement and the scores obtained on the arithmetic test. A chi square value of 3.84 was required for significance at the .05 level. The table does suggest, however, that regular class retardates tended to have higher arithmetic scores.

Results of Hypothesis Two

There is no significant difference between the mean reading scores earned by the educable mentally retarded in special classes and the mean reading scores earned by the educable mentally retarded in regular classes.

Results. As is evident from Table VII, a two-tailed t-test revealed that the mean reading score for the educable mentally retarded in regular classes was not significantly higher than the mean reading score obtained by the educable mentally retarded in special classes at the .05 level of confidence. A value of 1.57 was obtained while a value of ± 2.021 was required for significance. Again, to test the relationship between reading scores and class placement a chi square test was applied. Table IX presents the data.

TABLE IX

FREQUENCY OF LOWER AND HIGHER READING SCORES FOR SPECIAL AND REGULAR CLASS RETARDATES

Range	Special Class	Regular Class
70 - 83	8	12
50 - 69	16	10

Chi square not significant at the .05 level of significance.

The test value of 1.372 indicated that there was no significant relationship between class placement and the scores obtained on reading. A test value of 3.84 was required for significance at the .05 level of confidence. Nonetheless, the table does indicate a tendency for lower reading scores among special class retardates.

Results of Hypothesis Three.

There is no significant difference between the mean social quotient scores earned by the educable mentally retarded in special classes and the mean social quotient scores earned by the educable mentally retarded children in regular classes.

Results. The data in Table X indicate that by using a two-tailed t-test for independent samples, it was found that the social quotient scores for the special class retardates were not significantly different from the social quotient scores for the regular class retardates at the .05 level of confidence.

TABLE X

A COMPARISON OF MEANS AND STANDARD DEVIATIONS OF THE VINELAND SOCIAL MATURITY SCALE FOR SPECIAL AND REGULAR CLASS RETARDATES

Group	Range	Mean	SD
Special	61 - 113	80.51	14.21
Regular	51 - 104	84.19	15.06

t of 0.91 for difference between means was not significant at the .05 level of confidence.

Table XII presents the data indicating that there is no significant relationship between class placement and the social quotient scores received by the special and regular class retardates.

TABLE XI

FREQUENCIES OF HIGHER AND LOWER SOCIAL QUOTIENT SCORES FOR SPECIAL AND REGULAR CLASS RETARDATES

Range	Special Class	Regular Class
80 - 113	12	15
51 - 79	12	7

The test value of 0.91 indicates that there is no significant relationship between class placement and the social quotient scores obtained by the students. A value of 3.841 was required for significance at the .05 level of confidence.

IV. OTHER TESTS CARRIED OUT ON THE DATA

The correlations investigated the significant relationships, should they exist, between the variables used in the study including the Intelligence Quotient Scores.

The data presented in Tables XII - XIV indicate significant positive and negative correlations. In the special class sample significant positive correlations were found between Verbal and Full Scale IQ scores, Performance and Full Scale IQ scores, as well as Performance IQ and social maturity. A significant negative correlation was found to exist between Performance IQ and reading. Significant levels are stated at the foot of Table XII.

In the regular class sample significant positive correlations were found between Verbal IQ and all other variables except Performance IQ. Also significant positive correlations were found between Performance and Full Scale IQ, Full Scale IQ and arithmetic, social maturity and arithmetic and arithmetic and reading. A significant negative correlation was found to exist between Performance IQ and social maturity. Significance levels are indicated at the foot of Table XIII.

The correlations among variables for the combined special and regular class retardates revealed no significant negative correlations. In fact all correlations reported are positive. Significant positive correlations exist between Intelligence Quotient and arithmetic, social maturity and arithmetic, social maturity and reading, reading and arithmetic. Significant levels are indicated at the foot of Table XIV.

TABLE XII

INTERCORRELATIONS AMONG MAJOR VARIABLES
FOR SPECIAL CLASS RETARDATES (N=24)

Variable	1	2	3	4	5	6
1. Verbal IQ	1.000					
2. Performance IQ	0.260	1.000				
3. Full Scale IQ	0.411*	0.886***	1.000			
4. Social Maturity	0.123	0.452*	0.142	1.000		
5. Arithmetic	0.040	-0.044	0.026	0.163	1.000	
6. Reading	-0.154	-0.489**	-0.131	0.258	0.171	1.000

* Significant at .05 level
** Significant at .02 level
*** Significant beyond the .01 level.

TABLE XIII

INTERCORRELATIONS AMONG MAJOR VARIABLES
FOR REGULAR CLASS RETARDATES (N=22)

Variable	1	2	3	4	5	6
1. Verbal IQ	1.000					
2. Performance IQ	-0.101	1.000				
3. Full Scale IQ	0.667****	0.523***	1.000			
4. Social Maturity	0.443**	-0.442**	-0.032	1.000		
5. Arithmetic	0.658****	0.045	0.470**	0.455**	1.000	
6. Reading	0.612****	-0.242	0.175	0.213	0.406*	1.000

* Significant at .10 level
** Significant at .05 level
*** Significant at .02 level
**** Significant beyond the .01 level.

TABLE XIV

INTERCORRELATIONS AMONG MAJOR VARIABLES FOR BOTH THE SPECIAL AND REGULAR CLASS RETARDATES (N=46)

Variable	1	2	3	4
1. Intelligence Quotient	1.000			
2. Social Maturity	0.072	1.000		
3. Arithmetic	0.285*	0.312**	1.000	
4. Reading	0.093	0.253*	0.322**	1.000

* Significant at the .10 level
** Significant at the .05 level

The significance of the difference between the correlation coefficients for both samples were tested using Fisher's Z transformation. The results are presented in Table XV.

The difference between correlations among the variables for the two samples in the study interested the investigator to the extent that the relationship between Verbal and Performance IQ's and class placement was tested using the Chi Square test.

Table XVI indicates the lower and higher Verbal IQ scores and presents a finding of no significant relationship between Verbal IQ scores and class placement at the .20 level of significance.

The test value of 0.017 indicates that there is no significant difference between class placement and the frequency of lower and higher Verbal IQ scores. A value of 3.841 was required for significance at the .05 level of confidence.

TABLE XV

COMPARISON OF CORRELATIONS BETWEEN THE VARIABLES FOR THE SPECIAL AND REGULAR CLASS RETARDATES

Variables	Special class correlation	Regular class correlation	Fisher's Z-test	p
1. Verbal and Performance IQ	.260	.101	1.16	N.S.
2. Verbal and Full Scale IQ	.411	.667	-1.16	N.S.
3. Verbal IQ and Social Maturity	.123	.443	-1.11	N.S.
4. Verbal IQ and Arithmetic	.040	.658	-2.36	.05
5. Verbal IQ and Reading	-.154	.612	-2.42	.05
6. Performance and Full Scale IQ	.886	.532	2.58	.01
7. Performance IQ & Social Maturity	.452	-.442	3.03	.01
8. Performance IQ and Arithmetic	-.044	.045	-0.28	N.S.
9. Performance IQ and Reading	-.489	-.242	-0.91	N.S.
10. Full Scale IQ & Social Maturity	.142	-.032	0.55	N.S.
11. Full Scale IQ and Arithmetic	.026	.470	-1.52	N.S.
12. Full Scale IQ and Reading	-.131	.175	-0.97	N.S.
13. Social Maturity and Arithmetic	.163	.455	-1.03	N.S.
14. Social Maturity and Reading	.258	.213	0.15	N.S.
15. Arithmetic and Reading	.171	.406	-0.81	N.S.

TABLE XVI

FREQUENCY OF LOWER AND HIGHER VERBAL IQ SCORES
FOR SPECIAL AND REGULAR CLASS RETARDATES

Verbal IQ	Special Class	Regular Class
65 - 75	20	19
50 - 64	4	3

Table XVII presents the frequency of scores for performance IQ and indicates that there is no significant relationship between performance IQ scores and class placement.

TABLE XVII

FREQUENCY OF LOWER AND HIGHER PERFORMANCE IQ SCORES
FOR SPECIAL AND REGULAR CLASS RETARDATES

Range	Special Class	Regular Class
65 - 75	19	18
50 - 64	5	4

The test value of 0.021 indicates that there is no significant difference between class placement and the frequency of lower and higher performance IQ scores. A value of 3.841 was required for significance at the .05 level of confidence.

VI. SUMMARY

This chapter contains an analysis of the score distributions found in the study, and the results of testing three hypotheses which

were associated with the major purpose of the study as outlined in Chapter I.

The major purpose of the study was to compare the achievement of both the special and regular class educable mentally retarded children and to determine their social competence or adjustment. It was found that the regular class retardates scored significantly higher on the reading achievement subtest which seems to indicate that in terms of word recognition and pronunciation ability the regular class retardates were significantly better. However, on the arithmetic achievement subtest and on the Vineland Social Maturity Scale, no significant difference was found between the two groups.

In addition the relationship among the major variables was studied for both the special and regular class samples and for both samples considered together. Some significant relationships were found as expressed in Tables XII - XIV inclusive.

Implications arising from these finding will be discussed in the next chapter.

CHAPTER V

SUMMARY, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

I. SUMMARY OF THE INVESTIGATION

The present study was designed to investigate the effectiveness of special class placement for the educable mentally retarded. Attention was focused on reading achievement, arithmetic achievement and social maturity. These areas were chosen because: (1) reading and arithmetic are considered to be core academic subjects in both the regular and special classes; and, (2) social competence or adjustment has been a question of controversy with respect to placement of educable mentally retarded children for several decades.

The Wide Range Achievement Test and the Social Maturity Scale were chosen because they have been used extensively with retarded children and have proven their ability to produce gain scores with these children.

In order to gather the necessary data two groups of educable mentally retarded children were chosen; one from special classes and one from regular classes.

Population

The population of forty-six mentally retarded children were selected from special and regular classes. Twenty-four of these were from the special class placement and twenty-two were from regular class placement. The selection was comprised of the total group of eleven to thirteen year olds in both class placements under the jurisdiction of the Avalon

Consolidated School Board. The ages of these children ranged from 11.1 years to 13.9 years. The intelligence quotients, as measured by the Wechsler Intelligence Scale for Children, ranged from 50 to 75. It was thus assumed that both samples of children were comparable for the purpose of this study.

Instruments

The Wechsler Intelligence Scale for Children was used to match the two samples with respect to IQ. This was necessary for the study because the Provincial Department of Education has set the IQ range of 50 - 75 as the educable mentally retarded range. This instrument is a battery of twelve subtests designed to be administered individually and has been established as effective in identifying the educable mentally retarded. This instrument has been widely used in the previous studies surveyed in Chapters II and III.

The achievement tests were two subtests of the Wide Range Achievement Test, administered individually to each student in the total population. The arithmetic test was designed to test basic number and computational skills as well as simple problems. The reading test was designed to test ability in word recognition and pronunciation skills. Both subtests also measure levels of achievement. The Wide Range Achievement Test has also been used extensively with children classified as educable mentally retarded.

The Vineland Social Maturity Scale is an individual check list designed to measure successive stages of social competence from infancy to adulthood. The test is based on twenty years of research, including ten years of use on thousands of varied cases. It measures performances

in which the individuals show progressive capacity for individual maintenance and for participating in those activities which lead toward ultimate adult independence and civic responsibility and usefulness. The investigator was particularly interested to find the social age or competence of the educable mentally retarded in both special and regular class settings which would be an indication of social adjustment.

The analysis of the data was done by a computer program supplied by the Educational Foundations Department of Memorial University of Newfoundland, St. John's.

Conclusions

A summary of the findings will be presented on the basis of testing the hypotheses and other correlational tests done on the data.

The Hypotheses. It was found that there was no significant difference between the mean arithmetic scores obtained by the educable mentally retarded in special classes and the mean arithmetic scores obtained by the educable mentally retarded in regular classes at the .05 level of confidence. Also, no significant difference was found between the mean reading scores for the two groups of educable mentally retarded children at the .05 level of confidence. However the mean arithmetic and reading scores for the regular class group were somewhat higher than the mean scores for the special class group, although not statistically significant.

On the basis of the above findings Hypothesis One and Hypothesis Two were accepted.

No significant difference was found between the two groups on the mean social quotient scores at the .05 level of confidence. Hypothesis

three was, therefore, accepted.

Intercorrelation Among Major Variables. Other tests on the data revealed significant positive and negative correlations among the major variables. For the special class sample significant positive correlations were found between verbal and full scale IQ, performance and full scale IQ, and performance IQ and social maturity. A significant negative correlation was found between performance IQ and reading.

In the regular class sample, significant positive correlations were found between verbal IQ and all other variables with the exception of performance IQ. Also a significant positive correlation was found between performance and full scale IQ, full scale IQ and arithmetic, social maturity and arithmetic, and arithmetic and reading. A significant negative correlation was found to exist between performance IQ and social maturity.

The correlations among variables for both the special and regular class retardates reveal no significant negative correlations. Significant positive correlations were found between intelligence quotient and arithmetic, social maturity and arithmetic, social maturity and reading, and reading and arithmetic.

Using the Fisher's Z-transformation it was found that a significant difference existed between the correlations of verbal IQ and arithmetic, verbal IQ and reading, performance and full scale IQ, and social maturity and performance IQ, between the two groups.

II. DISCUSSION AND IMPLICATIONS OF THE FINDINGS

Academic Achievement

The findings indicated that the educable mentally retarded in

special classes did not achieve more than the regular class group in the basic academic subjects of arithmetic and reading. Results indicate that regular class placement of the educable mentally retarded is somewhat more beneficial in these specific academic areas. A review of the data also indicates that the educable mentally retarded in regular classes scored a higher mean average on social maturity than did the educable mentally retarded in special classes although the difference was not statistically significant. The data suggest that in the urban area of St. John's the educable mentally retarded in special classes scored lower on arithmetic and reading than did the educable mentally retarded in regular classes, although the findings were not significantly different.

The fact that the scores for the special class group were not higher is significant because special class placement should have made them higher and because sampling would, if anything, have tended to lower the scores of the regular class group. These differences in favour of the regular class group may be attributed to the lack of a sound academic program for the special class group, especially in reading. The fact that there is no pressure of competition in the special classes might also be an intervening variable affecting academic performance. It would also appear from the data available and from the investigator's observations that the educable mentally retarded in regular grades spend a great deal more time with reading because of the overlap of this skill with many other academic areas, whereas the educable mentally retarded in special classes were not subjected to such academic challenges. The special class group tended to spend more time learning perceptual and motor skills, hence may lag somewhat behind the regular class group in verbal ability. This may also suggest a failure to specify adequate objectives for the

educable mentally retarded in special classes.

Although a t-test revealed no significant statistical difference between special and regular class groups, and a chi square test on both arithmetic and reading lower and higher frequency scores indicated an independent relationship between achievement scores and class placement, the regular class group did obtain a higher mean on each achievement subtest.

It was concluded that the selection procedures did not favour placement of the lower achievers in special classes, primarily because a large proportion of the regular class sample had been identified for placement two or more years before the study. However, since the findings indicated a somewhat lower achievement for the special class group, achievement could possibly have had an effect on placement. If this were true then the IQ ranges and factors other than achievement and social maturity should have been fairly equivalent. Also, if true, it points out that special class placement still isn't doing its job because there is something else wrong with these children, preventing them from benefiting from the special class.

The finding of no significant difference between the mean achievement scores for the educable mentally retarded in special and regular classes was not consistent with previous studies by Bennett,[1] Pertsch,[2]

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[1]A.A. Bennett, A Comparative Study of Subnormal Children in the Elementary Grades, (New York: Teachers College, Columbia University, 1932).

[2]C.F. Pertsch, A Comparative Study of the Progress of Subnormal Pupils in the Grades and in Special Classes (New York: Published Doctor's Dissertation, Teachers College, Columbia University, 1936).

Elenbogen,[3] and Cassidy and Stanton.[4] Cassidy and Stanton concluded:

> The significant differences obtained favoring the Regular Class Group indicate that in terms of academic materials they perform more adequately than do the members of the Special Class Group. Placement of the mentally retarded child in a regular classroom presumably means that greater emphasis is placed upon the individual's acquiring competency in reading, spelling and arithmetic.[5]

Although the investigator's finding with respect to achievement differed from the findings mentioned in the above studies, it should be noted that his finding was consistent with the inconclusiveness reported in literature from efficacy studies done with the educable mentally retarded.

Social Adjustment

No significant difference was found between social adjustment for the educable mentally retarded in special and regular class placements. The finding was consistent with those of Meyerowitz[6] and Welch[7] who found that educable mentally retarded children were not better socially adjusted in special classes - in fact the opposite situation may exist. The present study revealed that although the regular class group scored a

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[3] M.L. Elenbogen, "A Comparative Study of Some Aspects of Academic and Social Adjustment of Two Groups of Mentally Retarded Children in Special Classes and in Regular Grades," Dissertation Abstracts, 17, 2496, 1957.

[4] V.M. Cassidy, and J.E. Stanton, "An Investigation of Factors Involved in the Educational Placement of Mentally Retarded Children (Columbus, Ohio: Ohio State University Press, 1959), p. 42.

[5] Ibid.

[6] J.H. Meyerowtiz, "Peer Groups and Special Classes," Mental Retardation, V, 1967, pp. 23-26.

[7] E.A. Welch, "The Effects of Segregated and Partially Integrated School Programs on Self Concept and Academic Achievement of Educable Mental Retardates," Dissertation Abstracts, 26: 5533-5534, 1966.

higher social quotient mean, this difference was not statistically significant. A check on the social age equivalent for both groups (Appendix B) revealed that the regular class group had an average social age of 11.1 years while the special class group had an average social age equivalent of 10.2 years. This tends to indicate that socially the regular class group is more homogenously mixed with their normal peers than are educable mentally retarded in special classes. This may be due to the separation of the special class group from the normal classroom where they don't have the same opportunity to compete with their normal peers as do the educable mentally retarded in regular classes. This finding, although in agreement with the two studies mentioned above, is not in accord with what seems to be the general conclusion from the review of literature which reported generally better social adjustment for the special class group.

The studies reviewed in literature have also indicated that special class educators have been more concerned with the overall personal development and growth of the child and have stressed social interaction more than academic achievement. This approach does not seem to be applicable to the special education teachers in the Newfoundland setup. Theoretically, in the local area, the emphasis in the special class is on academic work, not on socialization factors. This may explain why the educable mentally retarded in special classes, in the local area, are not better socially adjusted than their peers in regular classes.

The investigator's observation of the special class group seemed to indicate that they were much more dependent upon the teacher for general instructions and approval than were the regular class group. However, the study indicated that this dependence did not generalize

outside the classroom.

Intercorrelation Among Major Variables

Other tests carried out on the data revealed some interesting correlations. The verbal IQ for the educable mentally retarded in special classes did not appear to be a predictor of either academic achievement or social maturity. This was evidenced by the finding that verbal IQ did not correlate significantly with either of these variables.

The fact that verbal skills do not tend to be emphasized a great deal in special classes may account for the low correlation between verbal IQ and the other variables. Also, the fact that the verbal IQ of the Wechsler Intelligence Test for Children emphasizes general information and verbal comprehension which were not emphasized by the arithmetic and reading subtests of the Wide Range Achievement Test may further account for a low positive or negative correlation. However, the performance IQ did correlate highly with the full scale IQ and with social maturity. The fact that the performance IQ for the special class group correlated more significantly with the full scale IQ than did the verbal score tends to indicate that the performance part of the scale had more influence on the full scale rating or IQ. This was an expected result.

The significant positive correlation between performance IQ and social maturity was also an expected outcome for the special class group since the performance score correlated so significantly with the full scale score, and because the Vineland Social Maturity Scale has predicted a significant correlation between IQ scores and social quotient scores.[8]

[8]E.A. Doll, Vineland Social Maturity Scale Manual, (American Guidance Service, Inc., Minnesota, 1965), p. 2.

The significant negative correlation between performance IQ and reading was difficult to explain. The lack of emphasis on verbal skills with the main emphasis being on perceptual and motor skills for the educable mentally retarded in special classes should have produced at least a zero or low positive correlation since good reading is positively related to good perceptual organization. Hence, the finding of a significant negative correlation is either spurious or, if not, requires further study since no explanation for it can be offered at this time.

The lack of a significant correlation between the IQ scores and the achievement scores or between the achievement scores themselves for the educable mentally retarded in special classes should provoke thoughtful consideration. It may do well to reflect on the teachers' expectancy of the educable mentally retarded in special classes and what effect it might have on academic performance. In a study by Rosenthal and Jacobson, it was found that the teachers' expectancy of the slow learners directly influenced their academic performance.[9] The investigator's impression of special class placement as viewed by many special education teachers indicated that they expected little or no academic achievement from these youngsters. Such low expectations of the educable mentally retarded in special classes may well explain the low correlations found between the achievement variables and IQ. The fact that local special education teachers are not highly or specially trained to work with the educable mentally retarded may also be an intervening variable affecting academic achievement and social adjustment.

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[9] R. Rosenthal and L. Jacobson, Pygmalion in the Classroom, (Holt, Rinehart and Winston, Inc., New York: 1968), p. 67.

The educable mentally retarded in regular classes differed greatly from their peers in special classes with regard to the significant correlations found between IQ and achievement and between the achievement variables themselves.

The finding that verbal IQ scores correlated so highly with all other variables with the exception of performance IQ indicates that the educable mentally retarded in regular classes were in a more stimulating academic environment where verbal skills were emphasized more than perceptual or motor skills. This may also account for the higher correlation found between verbal and full scale IQ for the regular class group over the special class group. Also, the finding that verbal IQ correlated highly with the full scale score explained why there was a significant positive correlation between verbal IQ and social maturity. This was an expected outcome based on the prediction of the Vineland Social Maturity Scale that social quotients are significantly correlated with IQ scores.[10]

The significant positive correlations found between verbal IQ and academic achievement again seem to be indicative of the emphasis placed upon general information and verbal comprehension skills in the regular classroom, which is what the verbal part of the Wechsler Scale measures. Also, in the regular class setting teacher expectancy tended to be more pronounced because of the structure of the academic program. All students within a regular class were expected to complete the courses as outlined in the program and the educable mentally retarded were to compete as best they could. Although they were usually, if not always, failures they did participate in a more stimulating atmosphere than did their special class

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[10] E.A. Doll, loc. cit.

peers. This may also explain the significant correlation between verbal IQ and reading for the regular class group. They were more involved with the pronunciation skills than were their special class peers.

The significant negative correlation between performance IQ and social maturity for the regular class group was directly opposite to the significant positive correlation found between the same two variables for the special class group. The finding, as already expressed, revealed that social maturity correlated highly with performance IQ for the special class group, but highly with the verbal IQ for the regular class group. Also the finding that verbal and performance IQ were not positively correlated for the educable mentally retarded in regular classes would tend to indicate a negative relationship between performance IQ and social maturity for the regular class group. In other words, it seems that the difference in the emphasis on verbal (that is, general information and verbal comprehension) for the regular class group and performance (that is, perceptual organizational skills) for the special class group result in their social adjustment being influenced by these different skills. It would be very interesting to investigate if the same pattern would result from the use of other instruments with the educable mentally retarded in both placements of different age levels or indeed the same age level. It would also be of interest to investigate whether or not those designated to special classes had more serious perceptual difficulties which would retard their academic growth.

Although the negative correlation between performance IQ and reading for the regular class was not significant, it presents a problem not too readily explainable and, as is the case for the special class, requires further study.

The significant positive relationship between reading and

arithmetic for the regular class group was expected on the basis that verbal IQ correlated highly with each of them.

Concluding Remarks

Although there exists a possibility that selection factors in placing the children in special education classes might have had some influence; the main implication of the findings of this study indicates that special classes, as presently constituted, do not seem to be producing any positive gains for the educable mentally retarded children in academic achievement or social maturity. Indeed, on the basis of the data presented, one might wonder if special class placement is not having an adverse effect on the educable mentally retarded in special classes. Of course, special classes cannot be totally condemned on the basis of this study alone or on the basis of these variables alone; but it should arouse educators to look in more depth at the efficacy studies already done and to pursue the placement issue with more fervour at the local level.

It is the opinion of the investigator that educable mentally retarded children should be identified as soon as they enter school, if not sooner. Educators should identify appropriate goals for these children at the outset and seek to establish programs to achieve them. It seems possible at present that appropriate goals are not identified for the educable mentally retarded and a lack of appropriate structuring and programing may exist within the special education program. The investigator suggests, on the basis of the data presented, that special class placement may not be the most complete or best answer, but that some integrative scheme with the "normal" children would produce better academic and social results. Let educators assure that the educable mentally retarded will be given a program which would be appropriate for an "educable" person.

III. RECOMMENDATIONS FOR FURTHER RESEARCH

1. This study used only three variables: arithmetic achievement, reading achievement and social maturity. One recommendation for further study is that a similar study be conducted in both rural and urban areas including other variables such as teachers' qualifications, socio-economic status, family size, teacher expectancy, objectives of special education programs and perceptual and other specific learning problems of the educable mentally retarded.

2. Since the educable mentally retarded in regular classes seem to be academically superior to the educable mentally retarded in special classes there is need to research more fully the question of how academic differences affect adjustment.

3. There seems to be a lack of structure within the program for the educable mentally retarded. It is therefore recommended that a study be conducted analysing the interactive affects of different programs with different types of children to determine which program or method of instruction might be best suited to the child and his needs.

4. It is also recommended that longitudinal studies be conducted to compare special and regular class programs and their effects upon the developing child from the primary level to high school.

5. Since this study dealt with reading achievement in the area of word recognition and pronunciation only; it is recommended that in a future study reading achievement be extended to include comprehension.

6. There seems to be many indications that early EMR placement is superior to placement at a later date. It is therefore recommended that a study be conducted to analyse the effects of age placement on one's academic ability and social adjustment.

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APPENDIX A

Correspondence with the School Board

The Avalon Consolidated School Board

P. O. BOX 1990
ST. JOHN'S, NEWFOUNDLAND

April 21, 1971

Mr. Melvin Burden,
Memorial University,
Educational Foundation,
P. O. Box 103,
St. John's, Nfld.

Dear Melvin:-

Thank you for your letter of April 2, 1971 addressed to the Avalon Consolidated School Board.

I have discussed with the superintendent your request to do research for your thesis with a sampling of children classified educible mentally retarded children. We are agreeable to your pursuing your study with children in our schools. In view of the lateness of the school year I would suggest it is desirable to make contact with the schools as soon as possible in order that you may finish your research as early as possible in May. I would suggest we get together and plan your approach in the next day or so.

Good luck in your endeavours.

Yours sincerely,

W. Claude Robbins
Director, Special Services

WCR/sh

Memorial University
Educational Foundations
P.O. Box 103
April 2, 1971

Avalon Consolidated School Board
90 Barter's Hill
St. John's, Newfoundland

Sirs:

I am a graduate student in Guidance and Counseling at Memorial University and for my thesis have planned to do a study on "The Efficacy of Special Class Placement for the Educable Mentally Retarded".

The purpose of this letter is to request the permission of your School Board to use a sampling of children classified as educable mentally retarded who are attending special classes and a sampling of the educable mentally retarded, who are to date, still in regular classes.

The aim of my study is to measure the achievement and social adjustment of these children in their respective classes in order to make a comparison between the two groups. There will be no measures of self concept attempted and no information of a deep personal or family nature will be solicited. Furthermore children selected will be dealt with by some devised coding rather than on a name basis.

Mr. C. Robbins, Director of Special Services, is fully acquainted with the project I have in mind and no doubt would supply you with extra details if required. Furthermore, I am available at any time to talk this matter over with the Board should it be deemed necessary. Dr. W. Spain, my thesis advisor, will also make himself available to you if such a request is made.

I am fully persuaded that this study, the first of its kind in Newfoundland, can and will supply valuable information to your board with regard to the effectiveness of special class placement. I am anticipating your approval and looking forward to working with you and your professional personnel in the near future.

Very truly yours,

Melvin Burden
(graduate student)

APPENDIX B

(Data collected from the Special and Regular Class Samples)

DATA COLLECTED FROM SPECIAL CLASS SAMPLE

	Student's assigned No.	001	002	003	004	005	006	007	008	009	010	011	012
	School	A	A	A	A	A	A	A	A	A	B	B	B
	Age Dec. 31/70 years - months	13- 2	12- 5	12-11	12-11	11- 2	12- 2	12- 3	12- 7	12- 0	13-10	11- 0	11- 3
	Sex	F	M	M	F	F	F	M	M	M	M	M	M
IQ	Verbal IQ	61	74	63	67	61	72	67	72	71	67	75	62
	Performance IQ	64	83	83	74	69	76	83	64	69	78	82	54
	Full Scale IQ	59	72	70	67	62	72	72	65	67	70	75	54
SOCIAL MATURITY	Total Score	81	73	69	895	705	73	765	83	84	83	795	675
	Age Equivalent	11.0	8.7	7.8	15.0	8.1	8.7	9.6	11.7	12.0	11.7	10.6	7.5
	Social Quotient	80.9	68.0	58.6	113.2	61.3	69.6	75.6	90.0	97.6	85.0	93.0	67.0
ARITHMETIC TEST	Score	16	11	12	12	28	13	12	16	15	13	29	18
	Grade Equivalent	4.9	2.3	2.9	2.9	3.2	3.4	2.9	4.9	4.4	3.4	3.6	1.4
	Standard Scores	81	65	69	69	78	73	69	82	76	73	81	65
	Percentile	10	1	2	2	7	4	2	12	5	4	10	1
READING TEST	Score	24	19	19	31	44	23	21	28	22	30	29	38
	Grade Equivalent	2.8	1.8	1.8	4.8	2.4	2.6	2.2	4.2	2.4	4.6	1.4	2.0
	Standard Scores	68	62	62	81	72	68	65	77	65	78	65	69
	Percentile	2	1	1	10	3	2	1	6	1	7	1	2

DATA COLLECTED FROM SPECIAL CLASS SAMPLE ((CONTINUED)

	Student's assigned No.	013	014	015	016	017	018	019	020	021	022	023	024
	School	B	C	C	C	C	D	D	E	E	F	F	F
	Age Dec.31/70 years - months	11-10	12- 7	13- 2	12-10	11- 7	13- 6	13- 4	13- 8	13-10	13- 9	13- 2	13- 0
	Sex	M	M	M	M	M	M	M	F	F	M	M	M
IQ	Verbal IQ	67	66	67	66	72	75	80	66	67	67	71	70
	Performance IQ	67	79	58	69	85	69	71	76	72	76	79	64
	Full Scale IQ	64	70	59	64	75	70	73	68	67	70	72	64
SOCIAL MATURITY	Total Score	80	87	755	76	78	72	83.5	87	83	79	73	79
	Age Equivalent	10.8	12.6	9.5	9.7	10.3	8.5	511.8	13.8	11.7	10.5	8.8	10.5
	Social Quotient	90.0	102.4	69.1	77.6	85.8	61.0	85.5	98.6	82.4	74.0	67.7	78.3
ARITHMETIC TEST	Score	12	12	13	12	14	13	13	10	16	14	11	10
	Grade Equivalent	2.9	2.9	3.4	2.9	3.9	3.4	3.4	1.9	4.9	3.4	2.3	1.9
	Standard Scores	70	69	72	69	80	69	71	62	79	68	64	62
	Percentile	2	2	3	2	9	2	3	1	8	2	1	1
READING TEST	Score	19	20	23	20	15	28	25	29	30	35	14	17
	Grade Equivalent	1.8	2.0	2.6	2.0	1.1	4.2	3.2	4.4	4.6	5.6	1.0	1.5
	Standard Scores	62	63	67	64	60	73	69	78	78	80	57	59
	Percentile	1	1	1	1	.8	4	2	7	7	9	.5	.7

DATA COLLECTED FROM REGULAR CLASS SAMPLE

	Student's assigned No.	025	026	027	028	029	030	031	032	033	034	035
	School	G	G	G	H	H	H	I	I	I	I	I
	Age Dec.31/70 years - months	13- 5	13-11	13- 2	11- 7	12- 5	13- 0	13- 7	13-11	13- 4	11- 3	12- 2
	Sex	F	M	M	M	M	M	F	M	M	F	M
IQ	Verbal IQ	79	74	77	82	80	72	48	60	76	77	71
	Performance IQ	72	80	78	65	78	85	76	90	79	57	82
	Full Scale IQ	73	75	75	72	75	75	53	72	75	64	74
SOCIAL MATURITY	Total Score	88	84	82	80	81	77	75	66	86	78	83
	Age Equivalent	14.4	12.0	11.3	10.8	11.0	10.0	9.3	7.2	13.2	10.3	11.7
	Social Quotient	104.3	83.3	83.7	90.0	86.6	74.6	66.4	51.0	96.3	88.0	92.7
ARITHMETIC TEST	Score	17	14	17	14	16	14	11	12	15	29	12
	Grade Equivalent	5.3	3.9	5.3	3.9	4.9	3.9	2.3	2.9	4.4	3.6	2.9
	Standard Scores	82	71	82	77	82	75	62	65	76	78	69
	Percentile	12	3	12	6	12	5	1	1	5	7	2
READING TEST	Score	24	27	30	26	33	33	24	16	28	65	19
	Grade Equivalent	2.8	3.9	4.6	3.5	5.2	5.2	2.8	1.3	4.2	5.1	1.8
	Standard Scores	67	71	78	74	83	83	65	56	75	90	62
	Percentile	1	3	7	4	13	13	1	.4	5	23	1

DATA COLLECTED FROM REGULAR CLASS SAMPLE (CONTINUED)

	Student's assigned No.	036	037	038	039	040	041	042	043	044	045	046
	School	I	I	I	I	J	J	J	J	J	J	J
	Age Dec.31/70 years - months	11- 4	13- 6	12- 5	12- 5	13- 4	13- 2	13- 7	11-11	13-10	12- 2	13- 0
	Sex	M	M	F	F	F	M	M	M	M	M	M
IQ	Verbal IQ	65	66	75	65	75	72	60	67	72	80	65
	Performance IQ	62	82	79	53	85	69	72	86	62	72	79
	Full Scale IQ	60	71	75	55	75	68	62	74	64	74	69
SOCIAL MATURITY	Total Score	84	73	76	86	84	84	79	80	81	79	84
	Age Equivalent	12.0	8.8	9.7	13.2	12.0	12.0	10.5	10.8	11.0	10.5	12.0
	Social Quotient	102.4	63.7	75.8	103.1	87.6	88.2	75.0	87.8	77.5	84.0	90.2
ARITHMETIC TEST	Score	26	12	13	12	14	14	13	17	14	13	11
	Grade Equivalent	2.8	2.9	3.4	2.9	3.9	3.9	3.4	5.3	3.9	3.4	2.3
	Standard Scores	73	68	72	69	74	74	69	87	71	72	65
	Percentile	4	2	3	2	4	4	2	19	3	3	1
READING TEST	Score	38	17	42	28	30	25	25	22	27	29	20
	Grade Equivalent	2.0	1.5	6.8	4.2	4.6	3.2	3.2	2.4	3.9	4.4	2.0
	Standard Scores	67	59	94	77	78	69	67	66	71	78	62
	Percentile	1	.7	34	6	7	2	1	1	3	7	1

APPENDIX C

STATISTICAL PROCEDURES USED IN THE STUDY

The formulat used in testing the difference between the mean for the two samples was the t-test for the significance of difference between the means for independent samples.

$$t = \frac{X_1 - X_2}{\sqrt{S^2/N_1 + S^2/N_2}}$$

where S^2 was the combined Variance of the two.[1]

The formula used in calculating the correlations among the variables used in the study was the Pearson-product-moment correlation coefficient.[2]

$$r_{xy} = \frac{n\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[n\Sigma X^2 - (\Sigma X)^2][n\Sigma Y^2 - (\Sigma Y)^2]}}$$

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[1] G.A. Ferguson, Statistical Analysis in Psychology and Education (New York: McGraw-Hill, 1966), p. 167.

[2] G.W. Glass, and J.C. Stanley, Statistical Methods in Education and Psychology (Prentice-Hall, Inc., Englewoods Cliff, New Jersey, 1970), p. 114.