THE EDUCATIONAL IMPLICATIONS OF AN INDIVIDUAL LONGITUDINAL CASE INVENTORY

Thesis for the Degree of Ed. D.

MICHIGAN STATE UNIVERSITY

Robert Emmett Martin

1956

This is to certify that the

thesis entitled

THE EDUCATIONAL IMPLICATIONS OF AN INDIVIDUAL LONGITUDINAL CASE INVENTORY

presented by

Robert Emmett Martin

has been accepted towards fulfillment
of the requirements for
Ed. D. degree in Education

F. V. Thulean
Major professor

Date May 8, 1956

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By

Robert Emmett Martin

AN ABSTRACT

Submitted to the School for Advanced Graduate Studies of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

Department of Foundations

Year 1956

Approved C. V. Millard

AN ABSTRACT ROBERT EMMETT MARTIN

The purpose of this study was to summarize the multiple growth data collected on one child over a period of time and to point up by graphic and longitudinal methods interrelationships which existed among his different aspects of growth and development and, from the interpretation of these data, to draw implications for educational practice which would demonstrate how data on an individual child might be helpful in planning a program of instruction which would more realistically meet the needs of the individual as well as point out how the same technique may be used for each child in the educational program.

Longitudinal growth data on this child were obtained from the Child Development Laboratory of the Bureau of Research and Services of the College of Education at Michigan State University. The data covered the following four areas: [1] Physical Development, [2] Mental Development, [3] Subject-Matter Achievement, and [4] Personality, Aptitudes, and Abilities. These data, collected over a period of twelve years by the laboratory personnel, included actual measurements of height and weight at frequent intervals, mental ability tests, personality and interest inventories, periodic anecdotal records of the individual's behavior throughout the

study, information from the school records, and interviews with the boy's teachers and parents.

The Olson and Courtis techniques of interpretation of growth data were used to discover the individual's patterns of growth and the interrelationships which existed among them.

From the analysis and interpretation of these data it was concluded that the school did not provide the type of learning experiences for the child which were consistent with child growth and development principles. It was assumed that if the learning experiences planned for the individual had been geared more nearly to his needs, interests, and abilities positive changes might have been affected in his academic achievement, as well as in his personal-social relations and his attitudes, habits, and emotional adjustments.

Implications were drawn from this longitudinal case inventory for individualizing the program of instruction for the boy under study. An attempt was also made to show how like data for children could contribute to the individualization of the curriculum for each child in a group. Suggestions were made in the areas of evaluation and testing, meeting individual interests and needs, personal-social relationships, motivation for learning, and effective home-school relations.

This study was meant to be illustrative of how individual methods could be used to adapt the curriculum to the learner.

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5/28/57
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ACKNOWLEDGMENT

The writer wishes to express his appreciation and gratitude to all those who have assisted in making this study possible; particularly to Dr. Cecil V. Millard and Dr. Arthur R. DeLong for their critical interest and valuable guidance throughout.

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INTRODUCTION

Statement of the Problem and Purposes of the Study

Improving the instructional program is the persistent problem with all schools. Since the broad aim of education is to improve the quality of living in the school, the family, and the community, the kind of program that exists, the variety of experiences that are provided and the wide use of materials and resources that are available, are very important. Up until recently, educators have conceived improvement as a matter of manipulating these exterior factors on the assumption that content, methods, and materials are the crucial aspects of learning. With the ever increasing research on the individual and how he grows and learns this concept has been modified. More and more research has demonstrated that there is no magic formula which will apply to all human beings everywhere. In spite of the use of the best known techniques, the ever increasing acquisition of knowledge, and the almost limitless resources and materials, a corresponding degree of success on the part of the learners has not been achieved.

Learning takes place within the individual. It is dependent upon what he brings to the situation: his attitude, habits, feelings, abilities, past experiences, interests,

needs, and a host of other conditioning factors.[1] These can not so easily be controlled. Within any group the range is great and the multiplicity of the combinations of determinants and their complexity approach infinity.[2]

Although the physical environment for two individuals may be ostensibly the same, each individual perceives this environment differently. If it is assumed that the individual is himself part of his environment then he becomes an important factor in the learning situation.

For the purposes of this study Denton is the case in point. An attempt has been made to find out as much as possible about this individual, not just for the knowledge, not just to try to understand the boy, but most important to discover ways in which this knowledge may be used to enrich the environment for learning and to "tailor-make" the program so that comparable individuals may benefit most from the experiences which are provided for them and which they provide for themselves. Any curriculum to be most effective must be so determined.

Admittedly, no generalization can be made on the basis of this one case. Furthermore, the writer on the basis of

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[1]Arthur I. Gates, et al., Educational Psychology (New York: Macmillan, 1942), Chapter IX.

[2]Association for Supervision and Curriculum Development, Guidance in the Curriculum, 1955 Yearbook (Washington, D. C.: National Education Association, 1955), pp. 50-51.

this one detailed study, does not intend to suggest an answer to all the educational problems. What is intended is to analyze these data and indicate a process or manner of approach to some of the problems which exist and project some possible ways for arriving at better solutions to these problems. Neither is it assumed that the curriculum should be built for one child, but rather that each child should be considered carefully if optimum learning for all is to be the goal. Formal education in our society is a group process, and the interaction among this group is vital to the ultimate ends of education. Although this is not an attempt at curriculum construction it implies a curriculum sufficiently flexible to be adaptable to each child. It must be remembered that even though individuals within a group have many differences, at the same time there exist certain common elements. For example, there is a wide range of abilities, but within this range there are many likenesses; interests differ but there are those common to some in the group and often to many or most of the individuals; needs vary but some are basic to all. It should be repeated that it is not being inferred that a teacher with thirty pupils should build thirty curricula, one for each child, but that the curriculum be so enriched that each is able to find himself within it--meet his needs, follow his interests, and approach more nearly his potential.

The implications for educational practice included in this study are not limited solely to data of this individual study. These findings serve as a basis for discussion and as an example from which to project the thesis but are tempered necessarily by the present day literature in the field, and the writer's experiences, observations, and philosophy of education.

The purpose of this study, then, may be summarized as follows:

1. To summarize the multiple growth data collected on one child over a period of time.

2. To point up by graphic and longitudinal methods inter-relationships which exist among the different aspects of growth and development in the case of Denton.

3. To relate the longitudinal study of Denton to the established norms and to discover if possible his individual growth patterns.

4. To draw implications from this study for educational practices, and to demonstrate how data on individual children may be helpful in planning programs of instruction which would more realistically meet the individual needs of children.

5. To suggest the kinds of data which are most helpful in interpreting growth.

Chapter II deals with the general developmental characteristics of Denton with reference to the established norms. The

following categories have been arbitrarily selected to allow for a more workable organization: [1] Physical growth and health status, [2] Mental Development, [3] Academic learnings, [4] Personal and social development, [5] Home and family environment, and [6] General school environment.

Chapter III attempts to show inter-relationships which exist among the various aspects of Denton's growth. There are presented graphically by means of both the Olson concept of organismic age and the Courtis theory of cyclical growth. Some attempt has been made to reconcile where possible this case with the above hypotheses and to indicate patterns and rate of growth as well as to predict future growth and possible maxima.

Chapter IV is a consideration of implications of this study for improvement of classroom practices. This includes suggestions to teachers to help the child set realistic goals which are consistent with his potential, his rate and pattern of growth, as well as his needs and interests. There is no deliberate attempt on the part of the writer to be unduly critical of present practices although many of the statements which appear in this chapter may necessarily appear to be. The emphasis is entirely upon change for better educational experiences for all children.

The Data and How They Were Gathered

Denton is one of a study of seventy individual children which was begun on a cooperative basis by the Everett Elementary School and the Child Development Laboratory of the Bureau of Research and Services, College of Education, Michigan State University. This school was selected because of its proximity to the university and for the reason that the students, the curricular content, and the teaching methods were considered typical for the State of Michigan.

The formal study was begun in the fall of 1943 when this group of boys and girls entered kindergarten. It was carried on in detail through the sixth grade of the elementary school. The data for grades seven through eleven have been collected somewhat informally since the studies were not continued in detail through these years.[3]

The following are described as the major purposes.

1. Research to determine the relationship of the child's growth and development to the school program.
2. Observation of children as a part of a program for training teachers to understand better the principles of child growth and development.

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[3]Some of these children continued their schooling in the Everett high school. Twenty-two of them have at the time of this study completed the eleventh grade. The staff of the Child Development Laboratory and graduate students have collected the information from records and interviews for the secondary school years.

3. Service to the school and thus the child involved in the program.

The studies have been carefully supervised by the Child Development Staff of the University. The observations were done by students being trained in these techniques. The testing was done by graduate students and laboratory staff members.

The research aspect of the study involved the recording, processing, and interpreting of tests and measurements of the twenty-two individuals for a period of twelve years. The tests and measurements recorded by a trained graduate student or a staff member covered four areas: [1] Physical Development, [2] Mental Development, [3] Subject-Matter Achievement, and [4] Personality, Aptitudes, and Abilities.

Physical Development. Height and weight were recorded regularly from the first month of kindergarten in 1943 through the last month of the sixth grade in 1950. Two measurements were recorded in the eighth grade and one in the tenth. Height and weight at birth plus early dentition and early physical developmental tasks were recorded from the family's and doctor's records.[4]

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[4]It is obvious that the validity of these data can be questioned, but must be accepted as the most valid data obtainable.

Mental Development. The Kuhlman-Anderson test was administered in the first, second, fourth (twice), fifth, sixth, and eighth grades. It was processed in terms of mental age, grade age, and I. Q. An individual test, the Stanford-Binet, was administered in the seventh grade.

Subject-Matter Achievement. The Stanford Achievement test was administered regularly through the elementary school. Some other measures of achievement were also used. Samples of work, teacher progress reports, and semester ratings may be found in the individual's record file.

Personality, Aptitudes, and Abilities. The Millard Personality Inventory was recorded by the teacher each year from second through sixth grade. The Rorschach test, the Thurstone Temperament Schedule, the Mooney Problem Check List, the Differential Aptitude Tests, and the Kuder Preference test were administered at the high school level.

In addition to the above, the following are included in each child's file:

1. A yearly case inventory including information relating to the following six areas:

   A. General School Background
   B. Physical Growth and Health
   C. Mental Development
   D. Academic Learnings
   E. Personal and Social Development
   F. Home and Family Environment

2. Periodic anecdotal records of the individual's behavior throughout the study.

3. Samples of the individual's work.

4. Photographs.

5. Recordings of unstructured interviews.

6. Information from the school records, including health and attendance records.

7. Interpretations of the growth data both in terms of organismic age as reported by Olson, and the law of growth as reported by Courtis.[5]

The Multiple Approach to Child Study

In the case of Denton an attempt has been made to gather data about many factors which are significant to the very complex processes of growing and learning. It is not implied that these factors are separate and distinct. The human organism does not grow and develop in a compartmentalized way. The child grows as a whole. In order to try to arrive at some degree of understanding about growth, some of these factors which can be observed and measured are sorted out for study. Many others might have been selected. An attempt is made to find out some things about how each aspect of growth relates to total growth, and to see if there is a togetherness of growth as it proceeds toward maturity.

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[5]Stuart A. Courtis, "Maturation Units for Measurement of Growth," School and Society, Vol. XXX (November 16, 1929), pp. 683-90.

It is not the purpose here to prove the relationship of these aspects, but to use the available data to show whether or not Denton conforms to this concept.

The longitudinal study of an individual might be concerned with the measurement of one aspect of growth over a period of time. The multiple approach, however, in this case has been used. Data have been collected and recorded about many factors contributing to Denton's physical growth and his increase in skill and complexity of function.

The Longitudinal and Cross-Sectional Methods

The testing programs which have grown so extensively in the past three or four decades have furnished those who are working in the field of education with worlds of data about people from which valid generalizations can be made. For example, in the areas of mental ability or I.Q., reading and other academic achievements, physical growth, the development of motor skills, etc., data are available from which normal curves can be constructed and against which individuals and special groups can be measured.

This method, however, can and often does work a hardship upon an individual since it ignores his uniqueness and does not take into account the wide range which necessarily exists within the data to contribute to its oversimplified conclusions. Misuse of the results of these cross-sectional studies has tended to cause confusion among such designations as "average," "normal," "exceptional," and "sub-normal."

It has given credence to such misconceptions as "the five-year-old child," "third-grade reading," or "sixth grade spelling." Instead of being conceived as reference points or norms they too often have become in practice to be used as goals or standards, and have become expectations for all children.

The present movement toward wider use of the longitudinal method of study of the multiple aspects of the growth and development of individuals does not ignore nor minimize the importance of the cross-sectional approach.

The longitudinal method in dealing with individual growth patterns helps those who work with boys and girls to understand them in terms of their own abilities, skills, interests, and developments rather than measuring them only against the cross-sectional sampling. There is, of course, some use of the norms, but they are not being used as a standard for all. Expectation and prediction become individualized rather than being based alone upon generalized measurements which are not so effective when applied to specific entities.

According to Olson:

> The cross-sectional method is economical and rapid, and it is possible to get data that can be summarized in a brief period of time. The longitudinal method is expensive and slow, and it takes many years to accumulate data that will help trace the course of development of individual children. The cross-sectional method was very effective in showing the individual differences that exist among children

> with respect to any trait at any given age. It tells little, however, about the individuality of growth or change with time. The cross-sectional method tends to minimize and conceal by an averaging-out process the changes which may actually be very dramatic . . . .
>
> There is no real antagonism between longitudinal and cross-sectional methods. Both are useful and supplement one another; both have advantages and limitations. A thorough knowledge of both methods permits more penetrating analyses.[6]

Teachers generally are seeking more and more information about the boys and girls with whom they are dealing. They are no longer satisfied with only the objective test results, but are becoming increasingly aware of the importance of such factors as the family relations, cultural background, interpersonal relations, attitudes, and values of the individual. The techniques for gathering data such as illustrated in this case of Denton are being used more commonly by teachers as they feel the need for individualizing the program of instruction. The professional teacher is no longer content with the traditional approach which offers the same diet for all appetites even though they differ widely both in degree and kind.

When dealing with growth on a longitudinal basis, there are certain parameters which need to be used and described; namely, starting-point, rate, maxima, and growth pattern.

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[6]Willard C. Olson, Child Development (Boston: C. D. Heath, 1949), pp. 14-15.

Significance of Starting-Point

Actual starting point or incipiency is somewhat difficult to determine. For purposes of physical measurements the starting point is coincidental with conception. There are those also who hold that certain predispositions are formed prenatally from the mother's attitudes about pregnancy, her acceptance of the situation and her calmness, serenity or anxieties and fears. No one is able to discover exactly the incipiency for the various developmental tasks.[7] The point at which a child takes his first steps might be considered the incipiency for walking; when he says his first word, for talking; or when he reaches a certain score on a reading test, for reading. Olson and Hughes in their longitudinal studies of reading achievement have for their purposes arbitrarily adjudged a child to have learned to read when he has achieved a reading age of eighty-four months on the Gates Primary Reading Test. For their studies this then becomes the incipiency or starting-point of the growth curve.

The dictionary defines incipiency as "very beginning, early stage." As it relates to the Courtis technique it assumes that the child emerges into a given cycle with certain

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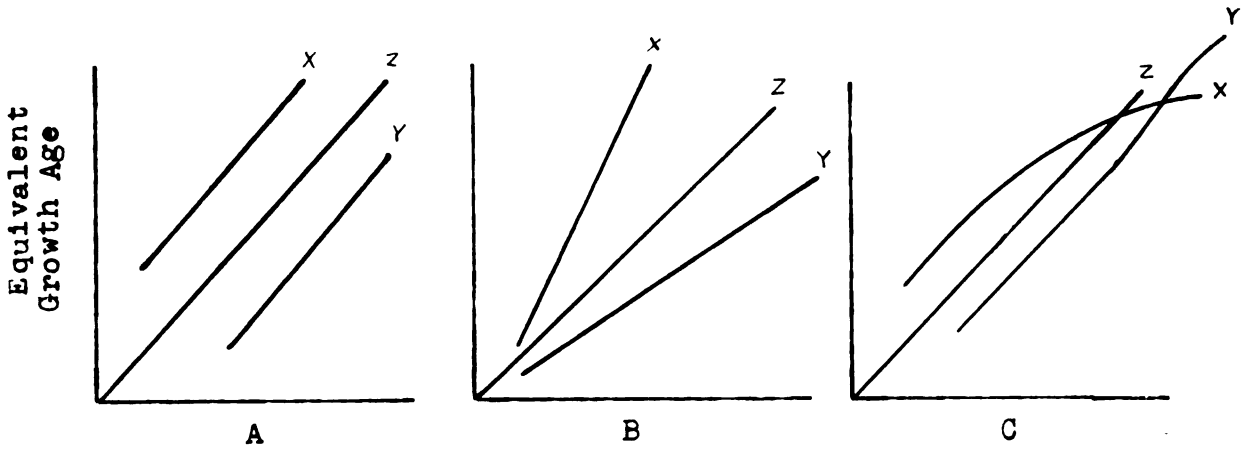
[7]Incipiency for many aspects of growth and development could very logically be traced back to conception, and for others, to birth.

growth already manifested. It accounts for growth already made and provides a starting point for such growth under consideration in a specific cycle.



Chronological Age in Months

Fig. 1. Comparative Growth Curves

To illustrate the importance of the starting-point and its relationship to the growth pattern, the three hypothetical graphic illustrations shown above may be used. In these figures z represents the norm or average while x and y represent individual cases. In Figure 1-A, x and y have different starting-points but approximately the same rate of growth. In Figure 1-B, x and y have approximately the same starting-point but different rates. In Figure 1-C, x and y have different starting-points, approximately the same rate, but different maxima.

In Figure 1-A, x would be considered by many as a faster grower than y since his level of achievement is higher. On the basis of achievement alone, a teacher may be misled without the additional information regarding incipiency and rate of growth. The tendency is to treat x as though he were achieving more than y when in reality they are achieving identically in terms of amount; x is an early starter; y is a late starter. With the portion of the data shown here it is not possible to determine differences in maxima. These illustrations of comparative growth curves are not unusual examples of actual cases.

Starting-point by itself is no measure of future growth. When a child begins walking, talking, cutting teeth, or reading, is not a valid basis on which to predict either rate or maximum of growth.

It is also important to note that all the cases shown in these examples may be growing towards maturity at their own individual rates, and, were this true, would be said to be equally successful in the specific area of growth being considered.

Significance of Rate

As has been shown in the discussion of starting-point, rate is an important aspect in the longitudinal study of growth and development. According to Olson[8], "Rate refers to the amount of increment or increase in a structure or

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[8]Olson, op. cit., p. 4.

function in terms of units of time." Since this rate does vary greatly from child to child, it becomes mandatory for those dealing with children in the learning situation to have this knowledge about each child in order that the expectations which he sets for himself, or are set for him, have realistic value.

In order to establish rate, measurements in the areas involved must be made periodically over a significant length of time.

Height is a physical measure of growth which is least likely to be affected environmentally. In using this measurement as a norm there is assumed to be a consistency of other aspects of growth and development with physical growth. The Courtis Technique, which interprets growth in generalized units of per cents of maxima, is not dependent upon actual magnitude of achievement. The judgments which are made in terms of correlations are on this basis. For example, an individual may be reaching his height maximum [100 per cent] at a chronological age of 195 months, and at the same time approaching mental maturity with a mental age of 250 months. He may be short or tall, but percentage wise these two growth curves would be coincidental at this point. In other words, he grew at constant rates in both aspects of growth toward different maxima, both of which may be represented by 100 per cent.

Individual Patterns of Growth

With the longitudinal approach, as more and more data are collected over a period of time and when these data are summarized graphically or organized systematically in other ways, certain trends of development begin to emerge. Certain regular progressions of change become apparent. These are referred to as patterns of growth.

In cross-sectional studies patterns are determined for the sampling and these patterns are called the norms. When plotted as curves, these are called "normal curves." In some of the graphs used in this study the individual's growth curves are compared with the norm or average--the pattern of growth representing the total population. From these norms it has been established that all children progress through the same growth sequences. The average pattern, however, does not represent for the individual "normal development." According to Jenkins, Shacter, and Bauer:

> A specific statement of what is "normal development" at a particular age level is a dependable statement only as it is correctly interpreted with understanding that (1) individual children vary, each being like only himself; (2) "normal" means not a point on a scale, but a range, extending over a relatively wide portion of a measure; and (3) "development" refers not to physical growth alone, but to mental, social, and emotional growth as well.[9]

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[9] Gladys Gardner Jenkins, Helen Shacter, and William Bauer, These Are Your Children (Chicago: Scott, Foresman and Company, 1953), p. 284.

In this longitudinal study an attempt has been made to discover the existing patterns of the physical growth and the development in such areas as mental ability, social responsibility, emotional adjustment, academic achievement, and family relationships, as well as the interrelations among them. Patterns in some of these areas [e.g., physical growth and academic achievement] lend themselves to more or less objective measurement and can be demonstrated graphically. Patterns of development in other areas such as those which deal with the social and emotional are much more subjectively determined not through exact measurement but by the use of descriptive data collected by means of observational and interviewing techniques. The techniques used in observation and interview, the degree of skill of the persons gathering and recording the data, and the interpretation placed upon the data by the summarizer determine the validity of the data. As more data are collected and recorded by carefully supervised students and by trained staff members over a long period of time, individual biases and inaccuracies tend to be minimized. The individual pattern of development thus is not influenced by any single observation, test, or judgment. The more accurately descriptive and anecdotal material is the less susceptible it is to misrepresentation and misinterpretation. Although anecdotal techniques are admittedly subjective and open to question because of the human factor, they do furnish evidence which has a certain

validity in the case study approach in a variety of fields of endeavor, e.g., medicine, social work, psychology, sociology, and anthropology, as well as child growth and development.

In establishing patterns of growth physical measurements, although subject to certain inaccuracies, are probably the most reliable measurements. There are certain intangibles occurring in the growth patterns which are used for interpretation. For example, when health factors intervene to arrest physical growth, certain behavioral changes may seem to occur. Description of behavior which is significant in the judgment of the professional observer may give understanding and insight into concomitant variations in the growth patterns. This does not necessarily assume a cause and effect relationship nor that the changes arise from a common cause.

Normal Growth of the Individual

When cross-sectional data are used, the term normal refers to a certain percentage which falls within a determined range above and below the mean or average. An individual who falls within this range whether it be in mental ability, achievement in certain skills or abilities, or growth in height or weight, is often described as normal or achieving or growing normally. It must be noted, however, that this evaluation is always in terms of the total sample. If each child grows and learns according to a discoverable rate, and in relationship to his individual starting-point, the judgment

as to his success cannot be made on the basis of group established criteria. Being up to norm or below or above norm would not be indicative of success if the individual's rate of growth be either unknown or not considered.

What is being implied here is that norms can be established for each individual when enough longitudinal data are available to establish his patterns of growth. From these patterns it may well be determined that some of those who are above norm are retarded or not growing successfully according to their pattern. Contrariwise it will most certainly be found that many who are below the so-called norm seem to be growing and learning successfully according to their own rates. Much more accurate evaluation of present growth and prediction of future growth becomes possible on the basis of these kinds of data.

Normal growth is what is normal for the individual--abnormal refers to that which is inconsistent with his individual rate and pattern of growth.

Many of the implications this concept has for educational practices become quite obvious. Millard sums it up in this way:

> When single measurements of growth and achievement are the only data available for study, it is easy for teachers to fall into the error of considering one child as superior or inferior to another. Data from a single measurement are virtually useless in making reliable interpretations.
>
> Two girls with different reading scores may be used to illustrate the point that growth is a very complex process and does not lend itself to easy interpretations. Case histories indicated that Girl B

received "F's" in reading in both the first and second grades. In grade three she was given "C's," in grades four and five her marks were "B's" and finally in grade six "A's." Girl A's marks followed a reverse pattern. In terms of growth, each girl was found to be following a rather precise sequence. This would indicate consistent growth throughout all grades. There was no change in the curves that would justify shifting evaluations. The marks given by the teachers had no correct interpretative values regarding the growth of either. The facts are that Girl A started her reading curve sufficiently early to seem superior, whereas Girl B started so late as to be considered dull. In regard to the maximum or real reading potentiality, Girl B was definitely superior, but for three years this potentiality was unrecognized. Adequate measurement and an ensuing study of the pattern would have singled out this child as having high reading potentiality.[10]

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[10] C. V. Millard, Child Growth and Development in the Elementary School Years (Boston: D. C. Heath, 1951), p. 25.

CHAPTER II

GENERAL DEVELOPMENTAL CHARACTERISTICS OF DENTON

A. Physical Growth and Health Status

1. Maternity and Infancy

Denton was born in a hospital with a doctor in attendance on September 29, 1938. This was the mother's third pregnancy. She visited the obstetrician regularly every month during this time. Her pregnancy was normal except for a urinary disturbance two weeks before the delivery. She was in labor forty-eight hours before the birth as compared to thirteen hours for the first child and seven hours for the second. The labor was described as spastic. Some gas was used as anesthetic. The birth was listed as two weeks premature although Denton's weight [eight pounds, two ounces] would indicate a term birth. He was nineteen inches long at birth. By the end of the first month he weighed ten pounds, one ounce.

The mother had breast fed the first two children, but claimed to have broken out with hives when she started nursing Denton. He was put on a formula at the beginning of the second month. The formula prescribed by the doctor was of low grade milk until the age of four months to control his weight.

He was a good sleeper, sleeping twenty hours to the third month, eighteen to the sixth, sixteen to the twelfth, and twelve hours from the twenty-eighth to the thirty-sixth month.

Denton's mother reports that he was trained for the toilet at two years. She started using rectal suppositories twice daily when he was two weeks old and "never had a soiled diaper." He was, however, a bed wetter until the age of eight when his father "gave him a good spanking and he never wet the bed again."

The developmental tasks which were accomplished at indicated ages are shown in Table I.

The ages of accomplishment compare quite favorably with the scales of Spock, Gesell, Watson and the publication of the Children's Bureau. In fact Denton's performance in each case cited represents the early end of the range given by these authorities as the norms. Although his birth was recorded as premature his early rate of growth was accelerated. He increased in weight to the extent that dietary measures were found necessary at the beginning of the second month.

TABLE I

DENTON'S ACCOMPLISHMENT OF VARIOUS DEVELOPMENTAL TASKS AS COMPARED WITH NORMS ESTABLISHED BY SELECTED AUTHORITIES

Developmental Task	Age Accomplished by Denton[1]	Age considered as Norm by Authority			
		Spock[2]	Gesell[3]	Watson[4]	C.B.P.[5]
Discovering hands	3 months	2-3 months	12 wks		
Discovering feet	4 months				
Sitting with Support	5 months		16 wks		
Sitting without Support	6 months	7-9 months	36 wks	7 months	6-8 months
Crawling	7-1/2 months	6-12 months	40 wks	8 months	7-9 months
Standing with Support	7 months	8-12 months			9-12 months
Walking Alone	12 months	12-15 months	15 months		14-15 months
Cutting complete set of milk teeth	24 months	1st half of third year		20-30 months	30 months

[1]Doctor's and Family's Records.

[2]Benjamin Spock, Baby and Child Care (New York: Pocket Books, Inc., 1946), pp. 139-158.

[3]Arnold Gesell and Frances Ilg, Child Development (New York: Harpers, 1949), passim.

[4]Ernest H. Watson and George H. Lowrey, Growth and Development of Children (Chicago: Year Book Publishers, 1951), p. 123.

[5]U.S., Children's Bureau, Dept. of Health, Education and Welfare, Infant Care (Washington: U.S.Government Printing Office, 1955), pp. 48-53.

2. General Health Factors

Denton was rated by the teachers from grades one through six on the Millard Revision of the McFarlane Adjustment Inventory. In the area of Physical Efficiency and Health Status there appears to be nothing unusual that would affect Denton's school experiences or activities. He is described as rather small-boned and of average build. He had the three-day measles at the age of four, chicken pox at age seven, ringworm in the third grade, and tonsillitis in the second and third grade. On the various items of the inventory he is consistently rated "normal," "good," "regular," "sufficient," etc.,--at the positive end of the continuum in all the factors of general health.

The third grade teacher wrote, "Denton doesn't seem sickly in any way, but perfectly healthy and normal." The fourth grade teacher commented, ". . . average in height, weight, and health."

At no time, according to this inventory is there any mention of special physical defects or difficulties. It is questionable as to just how much credence can be placed upon the teacher ratings. There is a possibility that in rating children by observation alone the tendency of the teacher might be to select the mid-point of the continuum unless there exists some defect too obvious to be overlooked. Since, however, he was rated in detail on the inventory during each

of the school years and the records show nothing abnormal nor indicate any general health problems, it may be assumed that Denton's physical characteristics and abilities were at least average and certainly satisfactory to his adjustment. It is also important to note that on the Mooney Problem Check List, Denton showed no particular concern about his personal health other than underlining item No. 114 "Frequent Colds."

Figure 2 represents the Olson graph of Denton's height and weight in comparison with the norm for boys. It shows that Denton was above the average in weight throughout and with the exception of a short period around the age of seven, he was also above average in height. Around the age of eight there evidently occurred a spurt of upward growth without a corresponding increase in weight. This is the only point where proportionately his height increase was greater than his weight increase. As can be observed in the figure, Denton, with this exception, is somewhat heavy for his height. It is noted several places in the record that he is "stocky." This observation, however, is not borne out by the interpretation of his Wetzel Grid.

The evaluation of Denton's physical fitness according to the Wetzel Grid shows him advancing in height and weight constantly through the normal channels with some deviations. He drops briefly into the lower normal channel around the ages of six, nine, eleven, and thirteen and one-half. Toward

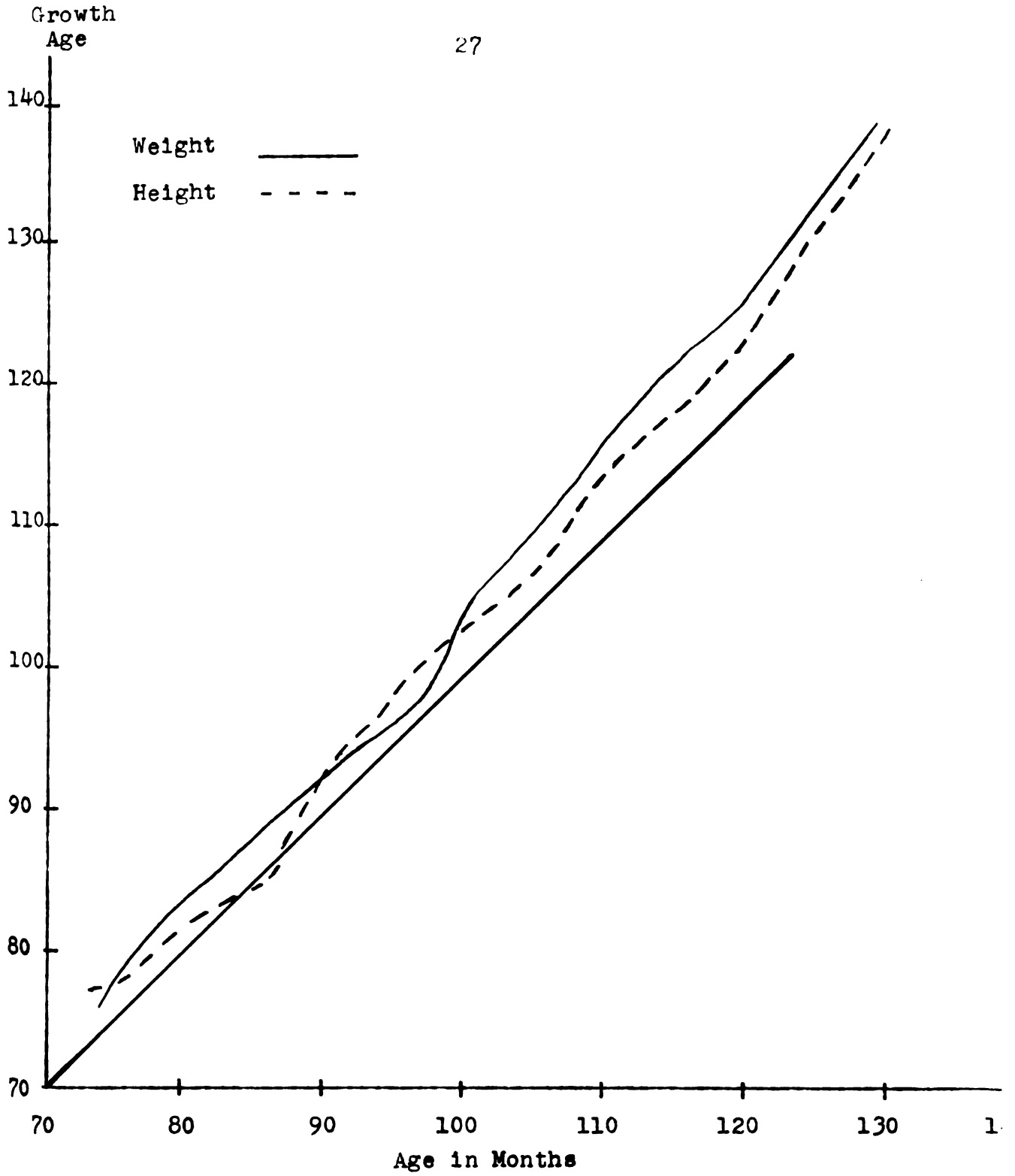

Fig. 2. Comparison of Height and Weight

his fifteenth year he drops slightly into the "fair" column for a short period from which he returns to lower normal. Something may well have happened here to affect his growth; some illness or deprivation or possible spurt in height.

Physical growth is an indication of other health factors. If children are growing successfully, the chances are that they are in a reasonably healthy state. There is no doubt but what size has an effect upon the child as a whole. It makes a difference if he is not large enough to participate in certain activities or to handle himself when challenged by others. If a child is ill-proportioned, obese or too thin, this is likely to affect his social and emotional adjustment. Men who are too short and women who are unusually tall sometimes compensate in terms of personality. Fluctuations in weight are common and attributable oftentimes to minor causes while height is affected only by major factors and cannot so easily be controlled.

B. Mental Ability

Denton was tested for mental ability both by the school and by the research staff. Figure 3 shows the results of these graphically. It is quite significant to note that the tests he was given in school graph almost identically with the research project results. Table II shows his I.Q. ranging from eighty-five to 109--highest at the first grade level and lowest at grades five and seven. In grade six he was scored

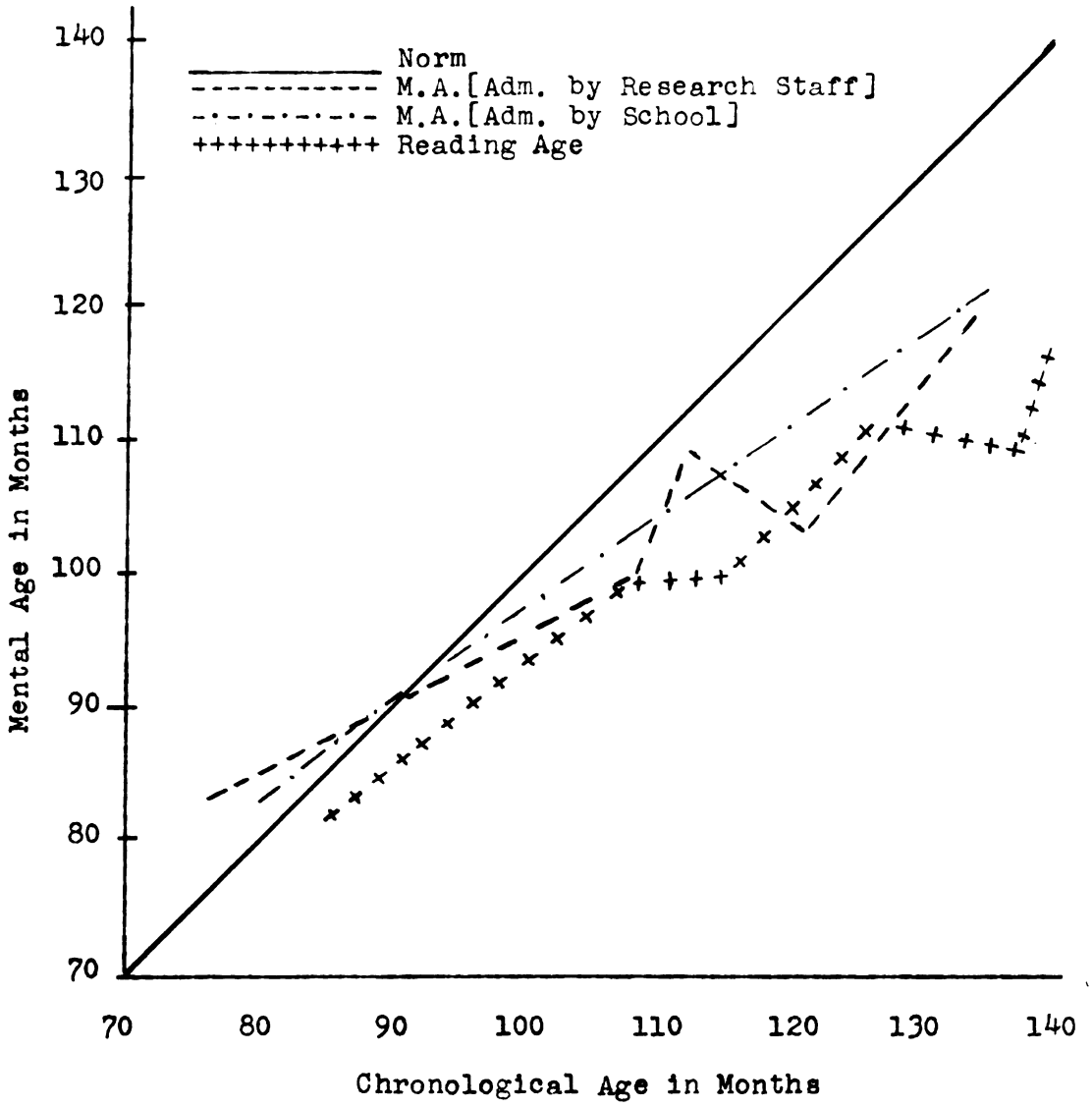

Fig. 3. Comparison of Denton's Mental Age Curve and Reading Curve with Curve of Norms

TABLE II

KUHLMAN-ANDERSON RESULTS

Administered by Research Staff					Administered by School				
When Given			Results		When Given			Results	
Year	Month	Age in Months	M.A.	I.Q.	Year	Month	Age in Months	M.A.	I.Q.
1944-45	Feb.	76	83	109.2	1944-45	May	80	83	103
1945-46	Feb.	88	89	101.1	1945-46	Feb.	89	90	101
1947-48	Oct.	108	100	92.6					
1947-48	Feb.	112	109	97.3					
1948-49	Nov.	121	103	85.1					
1949-50	Dec.	134	119	88.7	1949-50	Dec.	133	119	90

on the Kuhlman-Anderson eighty-nine by the child development tester and ninety on the test taken in school. On the advanced Otis group test given the same year his I. Q. was 101.

In first grade Denton's I. Q. was slightly above the norm. On subsequent tests with the exception of one instance his I.Q. shows a continuing increasing negative deviation. It is interesting to speculate on the causes for this constant loss in his intelligence quotient.

On Figure 3 the writer has superimposed the boy's reading age. As is illustrated in this figure, he was only slightly below the norm when tested initially in the second grade. He remained somewhat below the norm but made good progress until he was tested at age 115 months at the end of grade four. He showed practically no progress from the first month of that grade but showed a spurt the following year towards the end of the fifth grade.

There is evidence that in Denton's case his mental age and reading age follow quite closely as the curves have been plotted. Whether the mental age has influenced the reading achievement or the lack of reading achievement has influenced the mental ability test results or some other factor has influenced both, is an interesting question to raise. Since the mental ability test used in this does depend somewhat on reading, it is not unlikely that his lack of reading ability has influenced these test scores.

Greenshields[11], in a study underway at the time of this writing at the Child Development Laboratory of the Bureau of Research and Services at Michigan State University, has found an interesting correlation between reading and intelligence among a group of thirty-two sixth graders who have been tested regularly for five years. The sixteen who have made at least average achievement in reading during these five years have varied not more than ten points in their I.Q.'s during this time. Those sixteen who have been designated as poor readers because of their lack of achievement, have without exception dropped in their I.Q. scores as many as forty points. It is not safe to infer a causal relationship on the basis of these data alone, but, nevertheless, it is significant for further study.

Other factors that may have influenced Denton's I.Q., as shown by the test, may include his cultural background and his lack of interest in school and testing activities as a result of accumulating boredom throughout the elementary school. Davis and Havighurst[12] in their studies of social-class influences on learning have demonstrated quite conclusively the positive advantages for middle class children on

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[11]Charles M. Greenshields, "The Relationship Between Consistent I.Q. Scores, Decreasing I.Q. Scores, and Reading Scores Compared on a Developmental Basis" (unpublished Master's thesis, College of Education, Michigan State University, 1955), passim.

[12]Allison Davis and Robert Havighurst, Social-Class Influence Upon Learning (Cambridge: Harvard University Press, 1955), passim.

existing standardized tests for measuring mental ability. Denton by their criteria would fit the lower class description.

In estimating Denton's intelligence, his teachers have responded in the following ways: Second grade teacher--"I believe Denton is a good average student." Third grade teacher--"I feel Denton could do better. He doesn't seem dull and he is interested in his school work." Fourth grade teacher--"Quite slow but capable of doing 'B' work." Fifth grade teacher--"Denton is below average intelligence."

The writer does not know whether teacher judgments were influenced by the knowledge of the boy's I.Q. test results. If these comments could be somehow superimposed upon Figure 3, another correlation could possibly be made. The second grade teacher finds him "average," in the third grade he "doesn't seem dull," in the fourth is "quite slow," and by the fifth grade the teacher calls him "below average in intelligence." Without any knowledge of individual growth patterns, teachers often make the mistake of misjudging a child with a slower rate of growth.

This close correlation which is demonstrated between his reading and mental age may be perfectly normal for Denton. It does not mean that he is deteriorating mentally. It could well demonstrate the principle that growth proceeds according to the individual's rate and that this is evidence of Denton's normal rate of growth both in reading and mental maturity. It

may also be true that there is a great deal of reading ability reflected in his mental age since the tests of mental maturity depend somewhat on reading ability. In the following chapter this idea of interrelationships of all aspects of growth and development will be explored further.

The testing movement has probably been more concerned with attempting to measure intelligence than with almost any other aspect of the individual. It was thought that if the mental capacity of a child could be discovered then somehow teachers would be able to set realistic expectations based upon abilities. This theory was based upon the hypothesis that the human organism is born with a potential that remains constant throughout his life. By determining the elements of intelligence and measuring these characteristics an intelligent quotient could be established which would serve as a basis for assessing this innate ability for each individual.

It may well be true that <u>what</u> one is born with intellectually is important, however, consensus among educators, psychologists, and sociologists today is that the environmental factors have great influence upon human growth and learning. Deprivation over a period of time has been found to substantially lower the intelligence quotient, while a rich, challenging environment tends to enhance this quotient. The emotional and physical may also contribute to the outcomes of mental ability tests. It is difficult to isolate any part

of a human personality and test it accurately. The human organism grows as a whole and the parts are so interrelated that it becomes difficult to evaluate one without consideration for the others. It is the total growth of the child that is significant.

In interpreting intelligence one must not assume that children with the same I.Q. have the same kind or amount of intelligence. With the Kuhlman-Anderson test used in this study a series of tests are given and the median or middle score is used from which to compute the mental age. Two children with the same mental age results may have differed greatly on their accomplishment of all the various aspects of intelligence tested. It would not, therefore, make sense for a teacher to expect the same quality, quanity, or kind of performance from individuals with the same I.Q. on any subject matter or other area of activity.

This is in no way meant to minimize the importance of I.Q. to growth and learning. Within certain limits it has been found possible to measure intelligence and predict, also within limits, probability of success in certain learning activities. No fine lines of demarcation can be drawn, but exceptional ability as well as mental deficiency can be discovered. Within a range somewhere between these extremes are those who may be called "normal." By definition they constitute the greater part of the population.

One of the great dangers of the use of the I.Q. stems from the fact that any given test administered to an individual at a specific time may not be a true evaluation of what it is intended to measure. Teachers and administrators too often have unjustly labelled children as being "dull normal," "borderline," or "mentally retarded" on the basis of one test alone without consideration for other factors which might have influenced their scores.

Davis and Havighurst[13] have particularly concerned themselves with the hypothesis that schools and the expectations they have for children as well as the experiences they afford them, are basically geared to the middle class culture with the values and standards inherent in this culture, despite the fact that the majority of the children are from the lower class culture. They have sought to substantiate their hypothesis by altering the vocabulary of the items on the mental ability test to bring the concepts within the experience of these children without changing the essence of the items being tested. They called this "eliminating cultural bias from mental tests." Lower class children on the whole had been demonstrating I.Q.'s considerably lower than middle class children. On this newly devised test, which does not, incidentally, penalize the middle class children, the I.Q.'s of the two groups were found to be almost identical. This is not inconsistent with the concept of intelligence since these tests, which presume to test innate ability, assume that those tested

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[13] Ibid.

have had the same opportunities to learn the information and skills needed to accomplish the test.

C. Academic Learnings

1. Interpretation of Achievement Test Results

During his elementary school years Denton was given the Stanford Achievement test battery six times from second through sixth grade. The battery consists of tests in reading, spelling, language, literature, social science, science, and arithmetic. The complete results of these tests are shown in Table III.

2. Reading Achievement

Denton's scores in reading are presented in Table IV. The table is arranged to make comparisons both with grade levels and age equivalents. Denton was tested in November of his second grade. Counting September as the first month of the school year, this makes his grade placement at this time 2.3. Since he was born the last of September in 1938, his age at the time of this testing 7-1 or eighty-five months. These two figures, grade equivalent 2.3 and age equivalent eighty-five months, become then the norms for this first test. It will be noted that Denton in paragraph meaning made a score of eleven which when computed into grade level becomes 1.9 which would be interpreted to be .4 [or four months] below his norm. His age equivalent on this test is

TABLE III

DENTON'S STANFORD TEST RESULTS

Test	Month Given						
	Nov.	May	Oct.	May	Apr.	Mar.	May
Par. Meaning	11	12	28	29	46	44	44
Word Meaning	8	18	28	29	36	34	45
Ave. Reading	9	15	28	29	41	39	44.5
Lang. Usage	--	--	21	26	26	26	34
Arith.Reasoning	13	23	26	30	44	55	52
Arith.Computation	1	20	29	39	48	58	59
Arith. Averages	7	21.5	27.5	34.5	46	56.5	55.5
Literature	--	--	27	30	30	39	35
Soc. Studies: I	--	--	28	30	51	49	43
Soc. Studies: II	--	--	32	31	42	41	38
Soc. Studies: Ave.	--	--	30	30.5	46.5	45	40.5
Science	--	--	26	28	26	36	28
Spelling	6	13	24	30	37	42	46
Total: Ave.	7.8	17.2	27	30.2	38.6	42.4	
Age in Months	85	91	108	115	126	137	139
Grade	2	2	4	4	5	6	6
Year	45-46	45-46	47-48	47-48	48-49	49-50	49-50

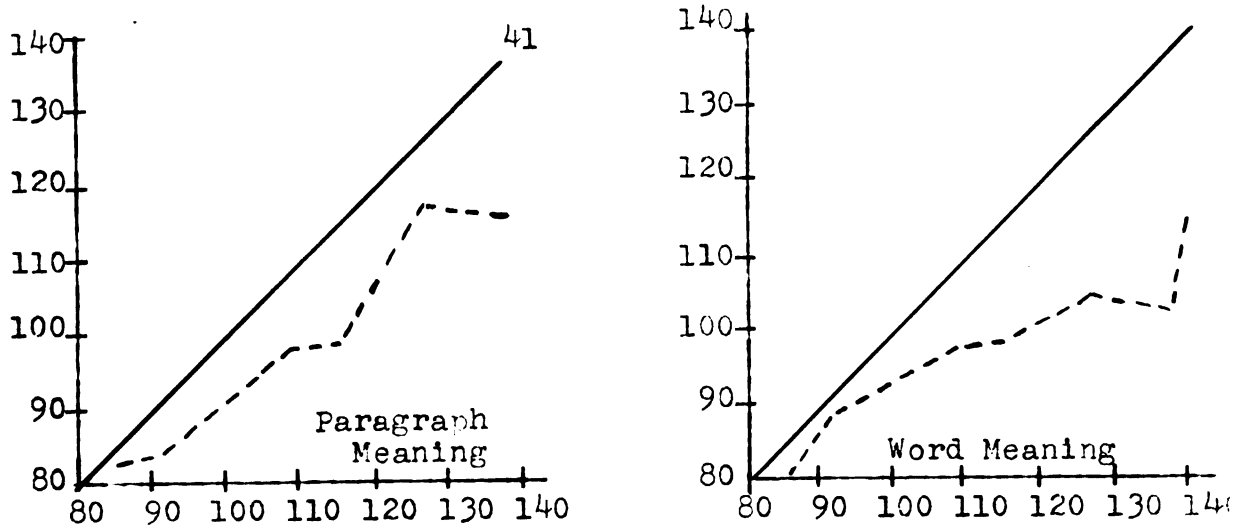
TABLE IV

DENTON'S READING SCORES

Grade	Month	C. A.	Scores			Grade Equivalents			Age Equivalents		
			P.M.	W.M.	Ave.	P.M.	W.M.	Ave.	P.M.	W.M.	Ave.
2	Nov.	85	11	8	9	1.9	1.7	1.8	83	80	81.5
2	May	91	12	18	15	2.0	2.4	2.2	84	89	86.5
4	Oct.	108	28	28	28	3.1	3.1	3.1	98	98	98
4	May	115	29	29	29	3.2	3.2	3.2	99	99	99
5	Apr.	126	46	36	41	4.8	3.8	4.3	117	105	111
6	Mar.	137	44	34	39	4.6	3.6	4.1	115	103	109
6	May	139	44	45	44.5	4.6	4.7	4.7	115	116	115.5

eighty-three months or two months below the norm of his age. The rest of the table may be read in the same way, by subtracting the equivalents from Denton's chronological ages and from his grade placements at the times the tests were administered.

Figure 4 shows the comparison of Denton's reading curve with the curve of norms. He started out in second grade below the norm and showed consistent good achievement through third grade. During the fourth grade, between ages nine and ten, he showed little achievement in reading. His greatest gain was made during the fifth grade. On the curve this line approximates the rate of the norm--it is practically parallel to it. Denton was tested two months apart towards the end of grade six. The first of these shows a marked loss in reading achievement followed only two months later by a phenomonal spurt which might bring into question the validity of the test results. The score made in the first instance may be a reflection of something other than reading achievement. Since reading is the first test of the battery, Denton may not have got a good start at the beginning of the testing period. His total achievement on the battery does not reflect a corresponding drop in other subjects. It is not likely that in two months Denton would have achieved the amount indicated on the curve. If this were the case, a curve drawn ignoring this score would probably be a more accurate representation of his growth in reading achievement.



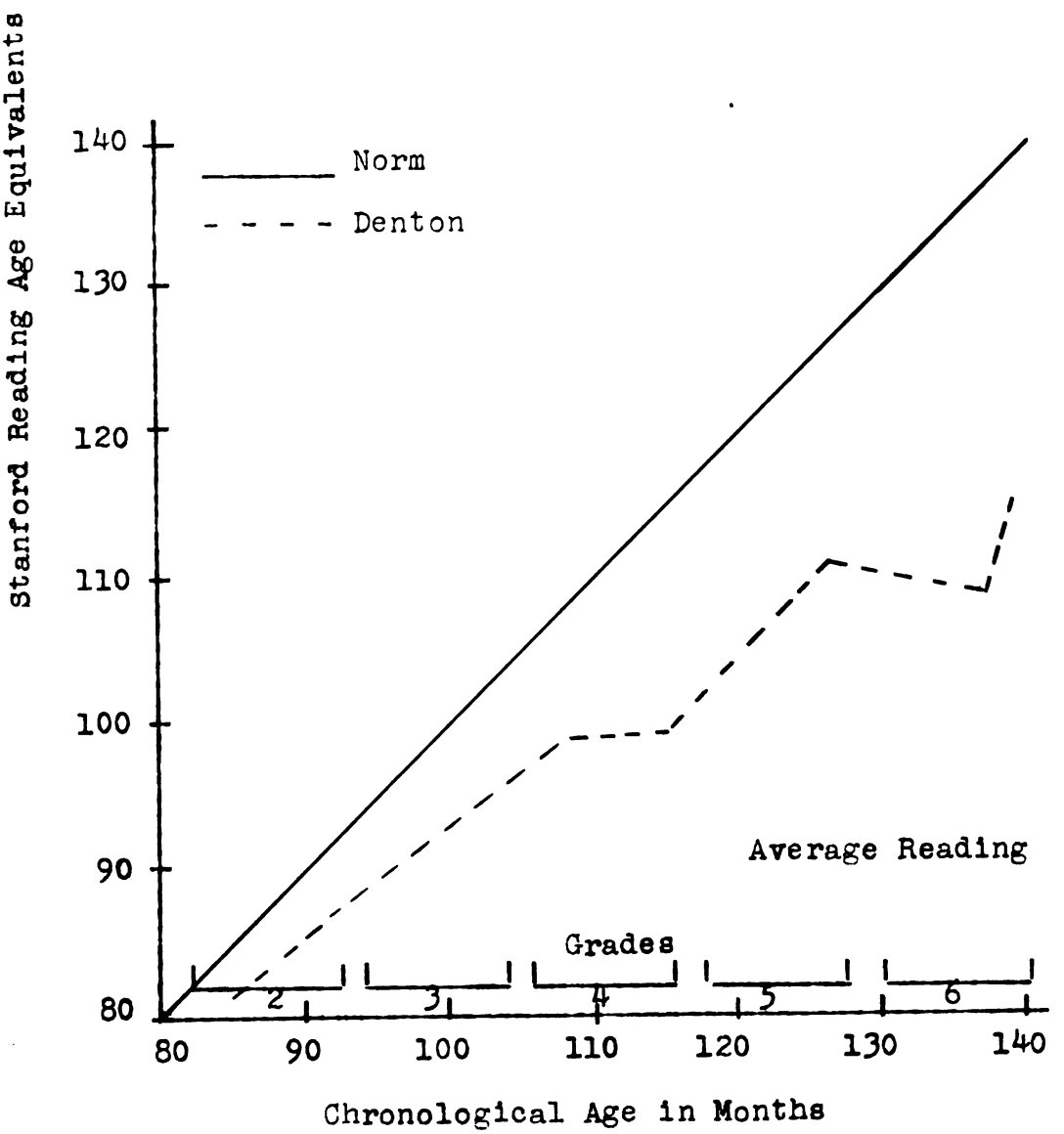


Fig. 4. Comparison of Denton's Reading Curve with Curve of Norms.

It has been pointed out previously how closely Denton's reading achievement correlates with his mental growth. Although he does not approach the norm in reading, he is achieving consistently with his mental age. Since his rate is constant, in a school situation where this information was available to the teacher, he would probably be considered as making satisfactory progress in reading.

Teacher Evaluation. It is interesting to note that despite his apparent deficiency in this area his teachers have marked him "C" or average until sixth grade when he received a "D." His growth curve shows just as satisfactory progress in grade six even though he continued to deviate further below the norm.

In letters to the parents the first grade teacher rated his reading fair. The second grade teacher stated, "Denton is showing improvement in his reading;" the fourth grade teacher, "He is trying harder in reading and I see some improvement;" and the sixth grade teacher, "His attitudes and attempts in reading are fine. He still has difficulty interpreting silent reading exercises in any class." Despite the fact that Denton showed his greatest achievement in reading during the fifth grade, his teacher, if his marks and the letters to the parents are an indication of her evaluation, appears not to have taken account of this.

The first grade teacher showed her concerns about Denton's reading with the following statements: "He has difficulty in

reading. He is in the second reading group. He is somewhat lacking in basic reading skills."

The philosophy of the teacher and perhaps the school which places such a high value on reading skills at this early period in the child's school experience coupled with the mother's over concern about this lack in first grade may well have contributed to some of Denton's negative attitudes about reading later on. All the data that are available, particularly those in the area of mental maturity, and the fact that boys mature more slowly than girls, would indicate that Denton was being expected to read before he was ready.

Table V indicates the extent of Denton's deficiencies when compared with the norms both in terms of grade and age equivalents.

One might presume a discrepancy between Column Three and Column Six which show differences in grade and age levels--that Column Six which shows difference in months should be twelve times Column Three, which shows difference in years. This is explained by the fact that Denton is below the average for his grade. Since his birthday falls on September 29, he entered first grade at the age of five years and eleven months. The Stanford Achievement norms are figured on the basis of an entrance age of approximately two and one-half months older than Denton. For this reason, the grade expectations are greater for him than the expectations for his age.

As can readily be seen by this table, Denton progressively improved in reading although just as progressively he continued to fall farther behind the norm expectations both for grade and age. In spite of this at the end of the sixth grade he was reading at 4.7 grade level which, considering the normal range found in any sixth grade, is not a bad reading achievement.

TABLE V

DEFICIENCIES BY NORM COMPARISON--AVERAGE READING

Testing (Grade)	Grade Levels			Age Equivalents		
	Norm	Denton	Diff. (Years)	Norm	Denton	Diff. (Months)
2 Nov.	2.3	1.8	-0.5	85	81.5	- 3.5
2 May	2.9	2.2	-0.7	91	86.5	- 4.5
4 Oct.	4.2	3.1	-1.1	108	98	-10.0
4 May	4.9	3.2	-1.7	115	99	-16.0
5 Apr.	5.8	4.3	-1.5	126	111	-15.0
6 Mar.	6.7	4.1	-2.6	137	109	-26.0
6 May	6.9	4.7	-2.2	139	115.5	-23.5

In this school the reading program consists of directed teaching of reading as a subject, and almost complete reliance upon text book materials from first through sixth grades. At no time is there any indication in the data that Denton was motivated to read according to his own interest. He was consistently in one of the "low" reading groups throughout the six years and perfectly aware of the fact. There was pressure

on him both from the teachers and the mother to do better in reading. It is questionable whether at any time Denton was helped to feel the real values and joys of reading. Reading seems to have been a subject that one must "pass" to please the teacher and the parent so that promotion to the next grade will be forthcoming. It is most interesting that in high school on the student record form, Denton's answer to the question "Do you enjoy reading?" was "Not at all."

For purposes of evaluating Denton's reading growth these longitudinal data become most important. The national norms have little pertinence to the case of Denton. The crucial factor is his own rate of growth and the consistency with which he achieves according to this rate. The evidence as presented here substantiates successful and adequate reading achievement for Denton.

3. Arithmetic Achievement

Denton's arithmetic scores are presented in Table VI. As in Table IV for reading, comparison is made both with grade levels and age equivalents. He was tested seven times from second through sixth grade--twice each in grades two, four, and six, and once in grade five. The table shows results in reasoning and computation and the averages of these two.

Figure 5 shows the comparison of Denton's arithmetic curve with the curve of norms. He was tested first in the third month of the second grade and met the norm in reasoning,

TABLE VI

DENTON'S ARITHMETIC SCORES

Grade	Month	C.A.	Scores			Grade Equivalent			Age Equivalent		
			Reas.	Comp.	Ave.	Reas.	Comp.	Ave.	Reas.	Comp.	Ave.
2	Nov.	85	13	1	7	2.1	1.2	1.7	85	75	79.5
2	May	91	23	20	21.5	2.8	2.6	2.7	93	91	92
4	Oct.	108	26	29	27.5	3.0	3.2	3.1	96	99	97.5
4	May	115	30	39	34.5	3.3	4.1	3.7	99	109	104
5	Apr.	126	44	48	46	4.6	5.0	4.8	115	120	117.5
6	Mar.	137	55	58	56.5	5.9	6.4	6.2	131	137	134
6	May	139	52	59	55.5	5.5	6.6	6.0	126	139	132.5

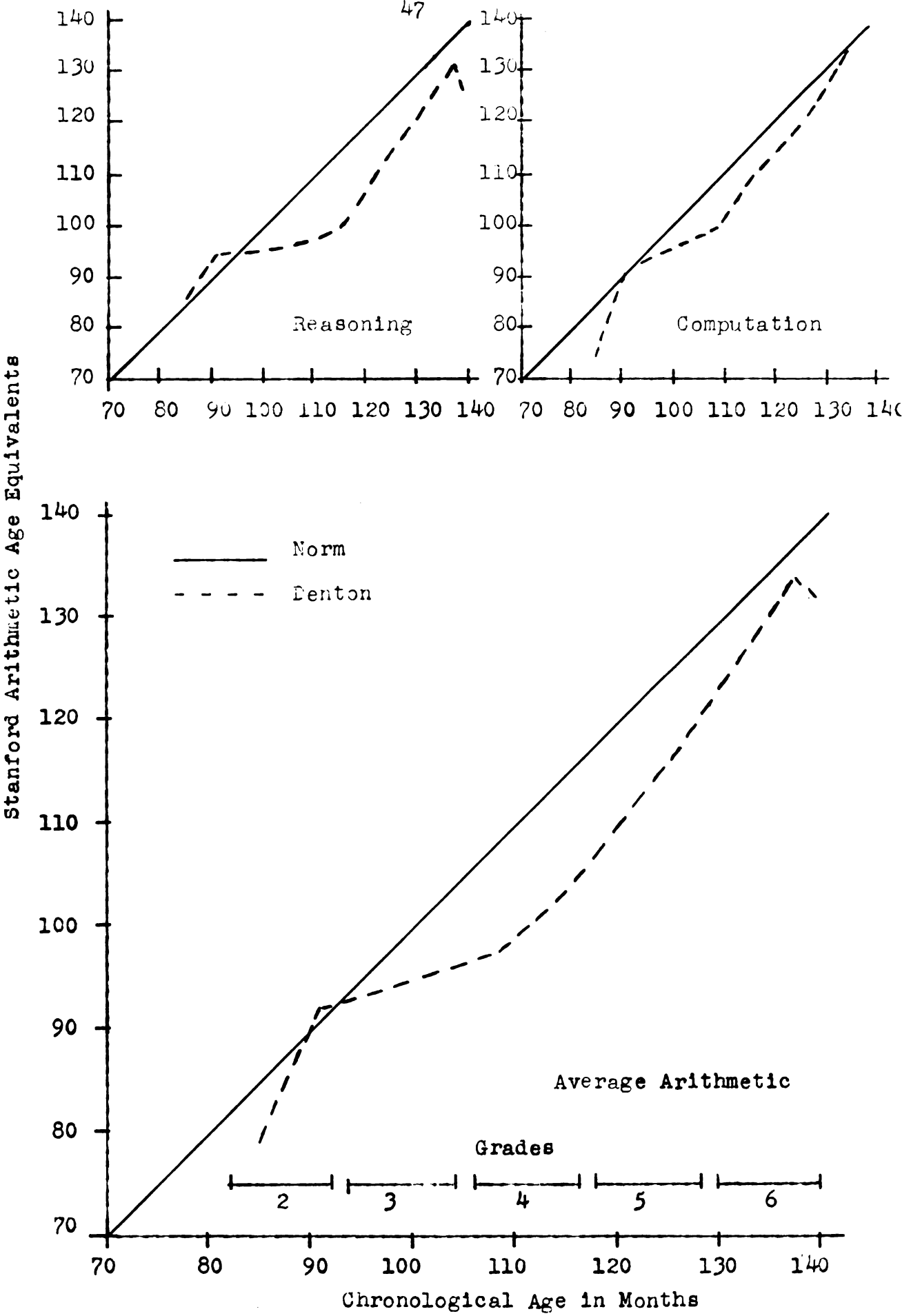


Fig. 5. Comparison of Denton's Arithmetic Curve with Curve of Norms

was below it in computation and, of course, also below it in average arithmetic--the average of reasoning and computation. When tested six months later--in May of the same grade--he was found to have made a gain of one full year in grade-- from 1.7 to 2.7 and twelve and one-half months in arithmetic age. This is the only incident of Denton's exceeding the norm during his elementary school experience.

He was not tested in grade three, but in the second month of grade four, seventeen months later, he showed a gain in arithmetic age of only five and one-half months and a corresponding gain of .4 in grade level. Tested seven months later in the same grade he showed a gain of six and one-half months in arithmetic age and .6 in grade equivalent. Denton's achievement in arithmetic took a distinct upward spurt during grades five and six. From May of grade five to April of grade six-- .9 in grade and eleven months in age--he gained sixteen months in age and 1.2 in grade equivalent. At this point in sixth grade, he approached very closely to the norm. His reasoning was a little below but his computation was coincidental with the norm.

Denton's total arithmetic achievement during the elementary years was good. It followed his mental age quite closely until fifth and sixth grades, and during these years exceeded it to a substantial degree. In looking at his total achievement picture it will be found that he was by far more successful in this area than any of the others.

Table VII shows the extent of Denton's deficiencies when compared with the norms for his grade placement and age at the time of the tests. Here, as in Table V for reading, Denton's age being below the norm for his grade placement causes his differences from the norms to be less for age than grade level. This table demonstrates his divergence from the norm and shows that he progressed consistently to the point where he was only one-half year behind grade level in March of grade six and only three months below the average for his age at that point. When tested two months later of the same year he shows a loss in achievement which may be cuased by some other factor rather than what it intends to measure. It is not likely that he actually regressed almost half a year in grade placement and three and one-half months in arithmetic age in this short period of time.

TABLE VII

DEFICIENCIES BY NORM COMPARISONS--AVERAGE ARITHMETIC

Testing (Grade)	Grade Levels			Age Equivalents		
	Norm	Denton	Diff. (Years)	Norm	Denton	Diff. (Months)
2 Nov.	2.3	1.7	-0.6	85	79.5	- 5.5
2 May	2.9	2.7	-0.2	91	92	+ 1.0
4 Oct.	4.2	3.1	-1.1	108	97.5	-10.5
4 May	4.9	3.7	-1.2	115	104	-11.0
5 Apr.	5.8	4.8	-1.0	126	117.5	- 8.5
6 Mar.	6.7	6.2	-0.5	137	134	- 3.0
6 May	6.9	6.0	-0.9	139	132.5	- 6.5

It is interesting to speculate as to just why Denton in arithmetic should have exceeded to such a degree his apparent capacity as measured by his mental age tests. He mentioned it as the subject he most liked in grades three, four, and five. He may have excelled in arithmetic because he liked it or he may have liked it best because he found more successful experiences with it than the other subjects.

Although Denton made his greatest achievement in arithmetic, his grades do not reflect this fact. He received a "D" and a "C" in grade one, two "C's" in grade two, "D+" in grade three, "D" in grade four, "C+" in grade five, and "C-" in grade six. Despite the fact that his rate of growth in arithmetic was more rapid than his rate in the other academic subjects during grades four, five, and six the teachers' marks do not show him to be doing even satisfactory work in grade four and no more than average in grades five and six. In grades three and four his achievement results show him progressing at a higher level and a faster rate in arithmetic than in reading, yet the teachers on their marks rated him lower in arithmetic.

In letters to the parents, the first grade teacher ranked him "Fair +" in numbers. The second grade teacher remarked, "Denton is doing good work in numbers." The fourth grade teacher wrote in October, "His arithmetic is good, but he is sometimes careless about it and, therefore, gets some wrong." In January of the same school year she stated, "I think he has improved in his arithmetic. He still needs to

know his tables better." And in March she reported to the parents, "He has improved in his arithmetic." There are no records of any reports to the parents during his fifth and sixth grades.

It is impossible to tell just what were Denton's mathematical concepts and how he was able to put them to work in real meaningful situations. The program in this elementary school is text-book and work-book oriented. The fourth grade teacher's greatest concern, as is reflected in the above remark to the parents " . . . he is sometimes careless, and, therefore, gets some wrong," is typical of the prevailing philosophy in the teaching of arithmetic--the aim being to get correct answers. This is what is measured both by the teacher and by the achievement tests. If the answer is wrong, nothing appears to have been achieved even though the boy might well understand the concept and know the process for arriving at the solution to a problem. Arithmetic is taught a certain number of minutes each day to all the children in the class without much consideration for the individual's abilities, needs, and interests. There is emphasis upon drill in number manipulation to the detriment of gaining real insight and understanding through seeking solutions to problems in everyday living. There is little doubt but what Denton found himself perfectly adequate to handle the mathematical problems of living with which he was faced outside the school. In the

culture in which Denton lives, where money is figured closely and values are well known to the whole family, it may be that figuring and budgeting are more realistic than in the middle and upper class cultures. While reading may not be as much a part of their everyday living, the mathematical concepts and skills are possibly valued more highly since they affect their lives more immediately.

An example of the classroom practice in grade five was noted by the observer. For a punishment ". . . the teacher told the whole class that they must have ten arithmetic problems done before they could go home." If this technique of discipline was used very often, it would not be at all surprising if the children would build up very bad attitudes about the subject and its value to them.

4. Spelling Achievement

Denton was tested in spelling twice in the second grade, twice in the fourth, once in the fifth, and twice in the sixth. The results of these tests are represented in Table VIII with the scores computed into both grade and age equivalents established by the norms on the Stanford Achievement tests.

Figure 6 is the graphical representation of the age equivalents of his scores compared with Denton's chronological age. The figure shows Denton progressing steadily in spelling throughout the elementary school. Through the second grade, although below the norm, he parallels the norm line which

indicates a lower starting point but a month's achievement for each month between the two tests given during that year.

TABLE VIII

DENTON'S SPELLING SCORES

Grade	Month	C.A.	Data		
			Score	Grade Equivalent	Age Equivalent
2	Nov.	85	6	1.6	79
2	May	91	13	2.1	85
4	Oct.	108	24	2.9	94
4	May	115	30	3.3	99
5	Apr.	126	37	3.9	107
6	Mar.	137	42	4.4	113
6	May	139	46	4.8	117

When next tested, in the second month of fourth grade, he has shown a gradual veering away from the norm. During this year, between the second month of the fourth grade and the retest at the ninth month, he achieved at a slightly higher rate which continued through grade five until the test given the seventh month of sixth grade where he shows a dip in his achievement curve. When tested two months later, [at 6.9], however, this dip in the curve is overcome by a four months gain over the two months' period. This would bring into question the reliability of the score on the previous test.

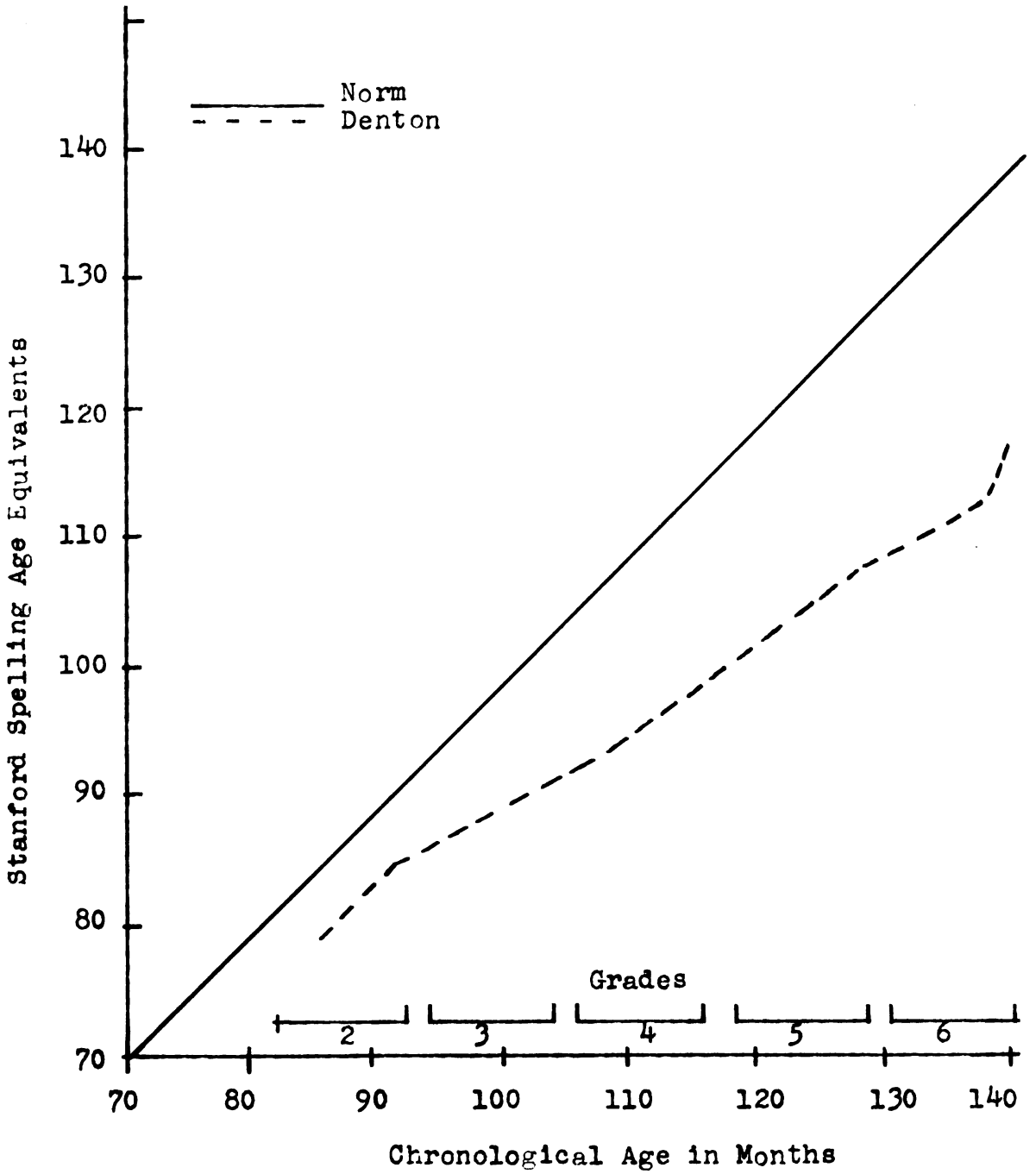


Fig. 6. Comparison of Denton's Spelling Curve with Curve of Norms

Although continually below the norm, Denton's progression of constant growth throughout the time of testing would indicate satisfactory achievement for Denton during this period. It is quite consistent with the other areas of growth and achievement which have previously been discussed in this chapter.

As more data become available, it appears apparent that there is a close correlation between the various areas of Denton's academic achievement and his rate of mental maturity. Each area so far has shown achievement progressing quite adequately but below the norm, which is what should be expected of Denton in terms of the data. Again it should be emphasized that according to the growth concept, the individual norms established for this case are being met.

Table IX shows Denton's retardation in grade ranging from .7 of a year at grade two to 2.1 at grade six, and in age from six months at grade two to twenty-two months at grade six. This does not mean that he is becoming a poorer speller but that he is proceeding at a slower rate toward a lower maximum while consistently improving in ability to spell.

Teacher Evaluation. The teacher evaluations of Denton's spelling as reflected in his yearly marks, show that he was considered an "average" student. With the exception of the first semester of grade two when he was marked "B" the rest of the marks on his report card are "C's"--"C-'s" in grades three and four, and "C+" in grade five.

TABLE IX

SPELLING ACCELERATION--RETARDATION BY NORM COMPARISON

Testing (Grade)	Grade Levels			Age Equivalents		
	Norm	Denton	Diff. (Years)	Norm	Denton	Diff. (Months)
2 Nov.	2.3	1.6	-0.7	85	79	- 6.0
2 May	2.9	2.1	-0.8	91	85	- 6.0
4 Oct.	4.2	2.9	-1.3	108	94	-14.0
4 May	4.9	3.3	-1.6	115	99	-16.0
5 Apr.	5.8	3.9	-1.9	126	107	-19.0
6 Mar.	6.7	4.4	-2.3	137	113	-24.0
6 May	6.9	4.8	-2.1	139	117	-22.0

The following are taken from the teachers' letters to the parents: Second grade teacher: ". . . is doing good work in spelling." Fourth grade teacher on reports in October, January, and March: "He is trying hard in spelling and I see some improvement;" and, "He does good work in spelling;" and, "His spelling is still good." Sixth grade teacher: "He is showing good growth in spelling."

An anecdote by an observer in grade four quotes Denton as saying he likes spelling. In an interview in grade five, however, Denton rates spelling as his "subject most "disliked." This was in spite of the fact that he received a "C-" in spelling in fourth grade, and a "C+" in fifth. The following

observation recorded in grade five may give some indication of the cause of his poor attitude towards this subject: "The children came into the room, making a lot of noise. The teacher announced that they must take their seats or she would give them a spelling test. Denton took his seat quickly and started his arithmetic lesson." An area of learning used as a threat for punishment would not ordinarily be associated with positive attitudes.

Spelling is taught in this school pretty much by the same methods and with similar materials as are used in most schools throughout the country. Children are asked to learn a certain number of words a week which constitute a graded list of spelling words. The accompanying work-book supposedly provides them with exercises which will familiarize them with both the spelling and the meaning of the words. Daily and weekly tests are given, the result of which serve as a basis for grading. Occasional spell-downs and spelling games are supposed to enliven their interest, but more than likely serve as a motivation to those who already spell best and, therefore, need it the least and tend to discourage further those who do the poorest by giving them additional failing experiences.

Little attempt has been made in this school to help boys and girls to spell correctly those words which they want and need to use. There is little evidence of opportunities

for creative writing experiences or other real opportunities for using spelling in functional situations.

The evaluation is based upon the ability to spell words studied for the test. Whether or not real learning has taken place--learning which persists--is seldom taken into consideration.

Spelling was probably not considered very important to Denton, at least beyond the level of pleasing the teacher. It is part of the curriculum, must be taught according to the school's established schedule, so must be endured with as little pain as possible. The goals of spelling thus become vague, unrealistic, and deferred and the motivation becomes almost wholly exterior and artificial.

The writer in visiting schools and talking with teachers and children has found that dread of spelling is common to both groups. Teachers feel it is most difficult to teach, and more often than not report it to be their classes' poorest subject, while children mention it more often than any other subject as the one most disliked. It is too often identified with the manual labor of writing a list of unrelated words over and over again to learn them and then recopying the ones they miss ten or twenty-five times. This is not fun, nor is it easy, nor is this the way to learn to spell. Unless positive attitudes can be built and somehow children can be helped to <u>feel</u> a real personal need for accomplishing this skill, there is little chance of improvement in the subject.

Denton probably did what most boys do--get by with the minimum amount of work without displeasing the teacher or incurring her punishment. Outside of spelling class when other writing was required he tended to use only those words he was certain he could spell correctly, since misspelled words must always be written many times over.

A teacher who places high value on spelling can well stifle all creative writing activities among her pupils, and develop a distaste for the subject among the very ones she so hopes to motivate.

5. Miscellaneous Achievements

The Stanford battery in addition to testing for achievement in reading, arithmetic, and spelling also tests social studies. science, language, and literature. These four will be given consideration together. Denton was not tested in these areas until the beginning of fourth grade. He was tested again towards the end of that year, once in the spring of fifth grade, and twice in grade six. Scores, grade equivalents, and age equivalents are shown in Table X.

These subjects are not considered crucial in the school under discussion. That is, no one would likely be retained in a grade if he failed to pass any one of them. The children were not even tested on these until the fourth grade, and then probably because they were included in the battery. Science was taught neither as a subject nor incidentally during the

TABLE X

DENTON'S TEST RESULTS IN SOCIAL STUDIES, SCIENCE, LANGUAGE, AND LITERATURE

Grade	Month Given	C.A.	Scores				Grade Equivalent				Age Equivalent			
			S.S.	Sci.	Lan.	Lit.	S.S.	Sci.	Lan.	Lit.	S.S.	Sci.	Lan.	Lit.
4	Oct.	108	30	26	21	27	3.3	3.0	2.6	3.0	99.5	96	92	97
4	May	115	30.5	28	26	30	3.4	3.1	3.0	3.3	99.5	98	96	99
5	Apr.	126	46.5	26	26	30	4.9	3.0	3.0	3.3	119	96	96	99
6	Mar.	137	45	36	26	39	4.7	3.8	3.0	4.1	116.5	105	96	109
6	May	139	40.5	28	34	35	4.3	3.1	3.6	3.7	111	98	103	104

elementary years. Literature was covered in a small degree with the materials in the reading classes, but outside of that time Denton did not seem to be motivated to read much on his own. Neither science nor literature was included as a subject on the report card nor were they mentioned by the teachers in their letters to the parents. Language and social studies were taught as subjects and marked on the report card. Social studies consisted of formal history and geography taught from textbooks.

Figure 7 shows Denton's achievement in these four subjects tested by the Stanford battery in comparison with the age norms.

In social studies Denton was almost a year below his norm when tested in October of the fourth grade, and on the second test, in May of the same school year, he showed almost no achievement so fell farther below the norm. A year later in the fifth grade he gained almost twenty months on the test which is deomonstrated by the rising line approaching the norm. On the two tests in sixth grade he achieved lower scores than in the fifth which shows his falling far below the norm. This is not consistent with his mental age or reading rates. It is difficult to explain just why he failed not only to improve his performance but fell below the preceding test on both occasions. This may reflect a negative attitude towards either the subject, or the test, or both. On the other hand the fifth grade test that showed such growth may have reflected recent learning which did not persist.

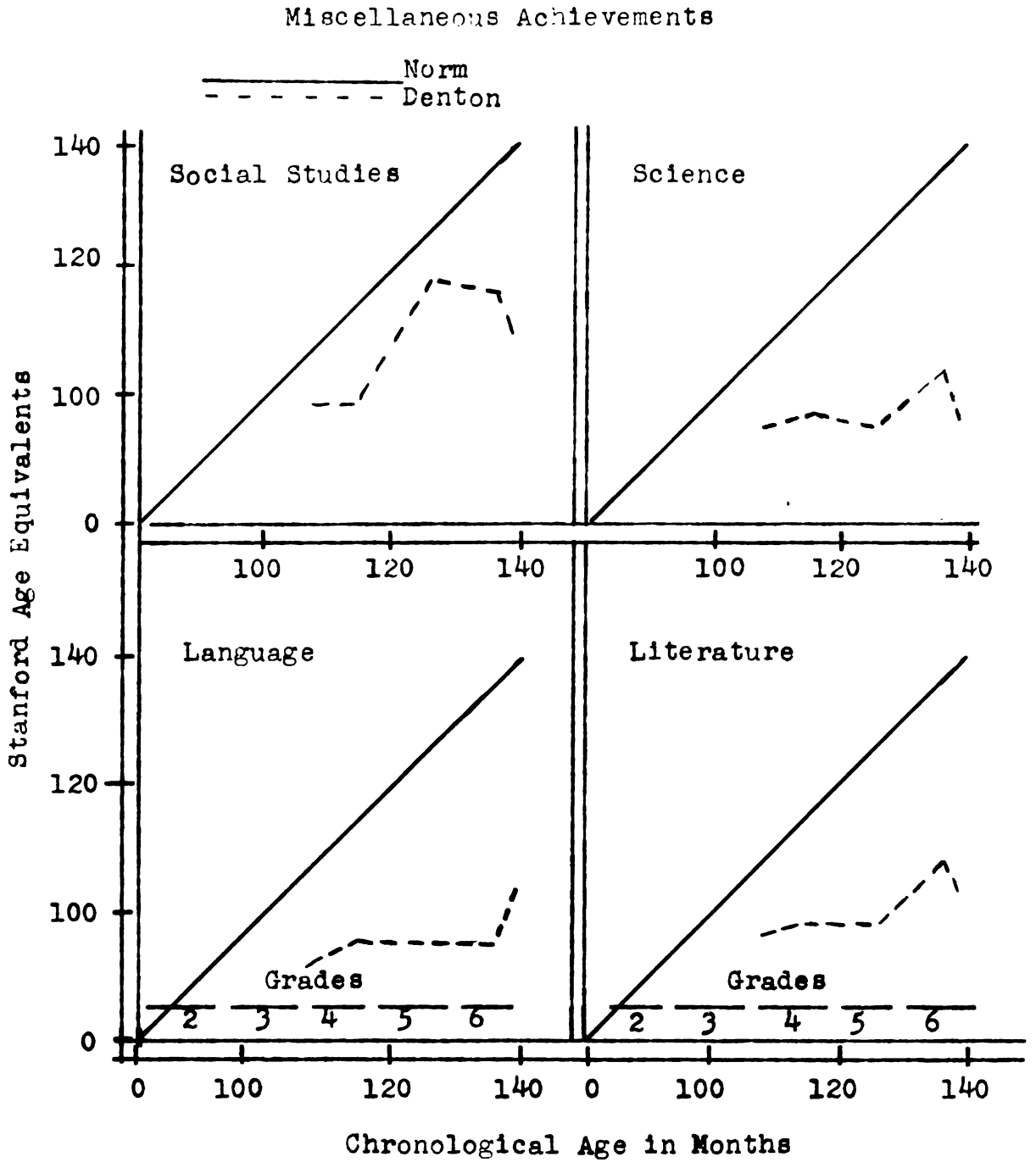


Fig. 7. Comparison of Denton's Achievements with Norms

His science and literature curves are almost identical, showing very gradual growth in the fourth grade, little or no achievement a year later in the fifth, and almost a year's growth in a year's time when tested in March of the sixth grade. In May of that year, two months later, both subjects show a corresponding sharp dip in accomplishment.

On the language figure Denton shows very little growth, starting below the norm in grade four, and progressively falling farther below it through the first test of grade six and then showing a sharp spurt on the final test.

As can be seen in Table X, Denton was considerably below both grade and age equivalents throughout the three years of testing. Tables XI, XII, XIII, and XIV show the extent of these deficiencies.

The important aspect of these results is not that he is below the norm for his grade and age, but that these achievements are not consistent with his own growth pattern. In comparison with his performance in the other areas handled in this chapter he would not seem to have achieved according to the expectations that could reasonably be held for him particularly in literature, language, and science.

Teacher Evaluation. Denton received marks on his report card only in language and social studies; literature and science were not graded. He received "C's" in fourth, fifth, and sixth grades in language, and "B's" in fourth and fifth in social studies, but a "D" in grade six--during the time he showed such poor performance on the achievement tests.

TABLE XI

SOCIAL STUDIES ACCELERATION--RETARDATION BY NORM COMPARISON

Testing (Grade)	Grade Levels			Age Equivalents		
	Norm	Denton	Diff. (Years)	Norm	Denton	Diff. (Months)
4 Oct.	4.2	3.3	-0.9	108	99.5	- 8.5
4 May	4.9	3.4	-1.5	115	99.5	-15.5
5 Apr.	5.8	4.9	-0.9	126	119	- 7.0
6 Mar.	6.7	4.7	-2.0	137	116.5	-19.5
6 May	6.9	4.3	-2.6	139	111	-28.0

TABLE XII

SCIENCE ACCELERATION--RETARDATION BY NORM COMPARISON

Testing (Grade)	Grade Levels			Age Equivalents		
	Norm	Denton	Diff. (Years)	Norm	Denton	Diff. (Months)
4 Oct.	4.2	3.0	-1.2	108	96	-12
4 May	4.9	3.1	-1.8	115	98	-17
5 Apr.	5.8	3.0	-2.8	126	96	-30
6 Mar.	6.7	3.8	-2.9	137	105	-32
6 May	6.9	3.1	-3.8	139	98	-41

TABLE XIII

LANGUAGE ACCELERATION--RETARDATION BY NORM COMPARISON

Testing (Grade)	Grade Levels			Age Equivalents		
	Norm	Denton	Diff. (Years)	Norm	Denton	Diff. (Months)
4 Oct.	4.2	2.6	-1.6	108	92	-16
4 May	4.9	3.0	-1.9	115	96	-19
5 Apr.	5.8	3.0	-2.8	126	96	-30
6 Mar.	6.7	3.0	-3.7	137	96	-41
6 May	6.9	3.6	-3.3	139	103	-36

TABLE XIV

LITERATURE ACCELERATION--RETARDATION BY NORM COMPARISON

Testing (Grade)	Grade Levels			Age Equivalents		
	Norm	Denton	Diff. (Years)	Norm	Denton	Diff. (Months)
4 Oct.	4.2	3.0	-1.2	108	97	-11
4 May	4.9	3.3	-1.6	115	99	-16
5 Apr.	5.8	3.3	-2.5	126	99	-27
6 Mar.	6.7	4.1	-2.6	137	109	-28
6 May	6.9	3.7	-3.2	139	104	-35

In the letters to parents social studies was the only one of these four to be mentioned. His first grade teacher reported social studies as "good" and the fourth grade teacher wrote, "He has taken a definite interest in social studies."

The following anecdotes written by observers are worth noting since they may give some clues to classroom procedures and possible causes for Denton's apparent poor performance in these subjects:

> [Grade 5]--The teacher asked the class to sit up straight and get out their social studies books. Denton straightened up but didn't get out his book. He paid no attention when one of his classmates was reading.
>
> [Grade 6]--The teacher said, "Get out your social studies books and you may have a few minutes to prepare your lesson." She wrote the page number on the board. Each child had to read a paragraph aloud. Denton read very slowly and haltingly. Then he sat quietly with his hand in front of his face. He looked out at me through his fingers, examined a band-aid on his finger and glanced at the clock.
>
> [Grade 5]--In a penmanship and English class, Denton was writing sentences in a workbook. The teacher said, "Where do you use commas, Denton?" He sat quietly with his hand over his mouth, looking straight ahead and giving no answer.
>
> [Grade 6]--The teacher asked, "If you have a singular predicate, what does it mean, Denton?" Denton: "More than one." The teacher called on someone else and Denton sat quietly, scribbling on his desk with a pencil.[14]

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[14] From the case inventory data.

These anecdotes were selected as typical of the kinds of experiences the children were being given in both social studies and language. All the evidence points to a total diet of textbook assignments and recitation, and workbook exercises that had little relationship to anything that Denton really wanted or felt he needed. "Where do you use commas, Denton?" "If you have a singular predicate, what does it mean, Denton?" "Sit up straight and get out your social studies books." "Each child had to read a paragraph aloud." This probably is not the most efficient way to help children gain language facility, think critically, solve real problems, or gain insight into the crucial aspects of living in our society. This is not the rich, exciting, challenging, satisfying kind of environment that is considered so essential to learning.

The fact that Denton's rate of growth in these areas is much slower than his rate of physical growth, mental maturity, and reading and arithmetic achievement would indicate that some exterior factor was affecting his achievements here.

6. The Total Achievement Picture

In order to take a complete look at Denton's academic learnings in their relationships to each other, all the results have been brought together in reference to age equivalents. The seven subject matter results are shown in Figure 8.

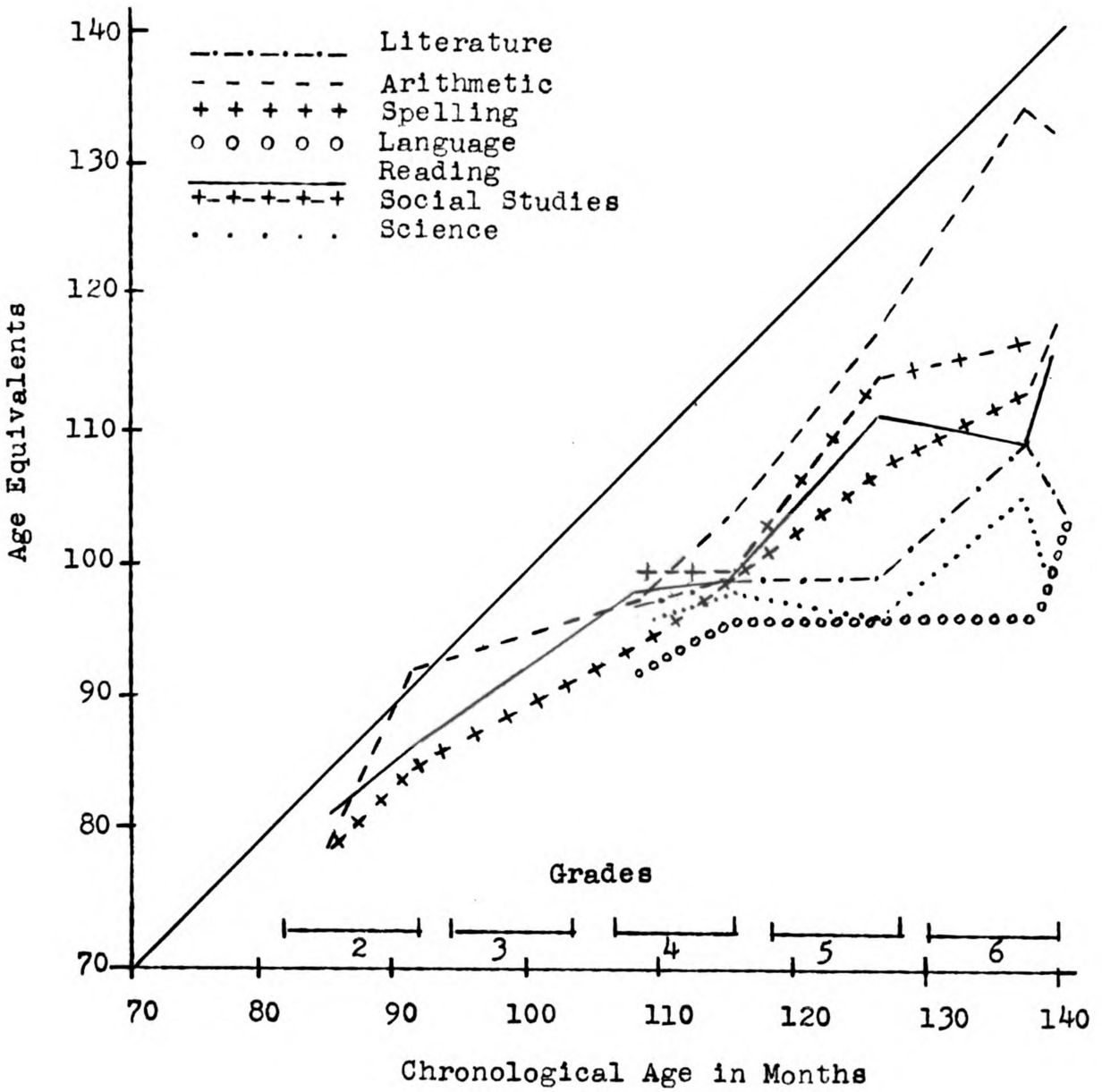

Fig. 8. Denton's Total Achievement Pattern--Stanford Tests

At first glance this figure may seem to indicate that the total picture is not very consistent with his growth pattern. It should be pointed out, however, that the three subjects which seem to fall so far behind his normal rate as indicated in other areas, are literature, language, and science. In these three his rate of growth was much slower than in the other four subjects which show quite a close correlation. Up until the testing at 115 months the achievements show a very close grouping in results. At 115 months--towards the end of fourth grade--the curves all come very close together. This would indicate a consistency in Denton's growth pattern. During the fifth grade quite a disparity can be noted. Denton's achievement in arithmetic, spelling, reading, and social studies continues to follow a successful rate of growth in a predictable pattern along with his physical growth and mental maturity.

It may be that some emotional factor entered the picture at this time to upset his continued evidence of growth in these other subjects.

Towards the end of fourth grade the observer wrote the following:

> Mrs. G--[the teacher] showed me Denton's marks and said she had marked him high on everything because she was going to go on with the class and felt she could help him more taking him with her than leaving him, because it would take a new teacher several weeks to know and understand him, and meanwhile he'd be losing that time. She said she'd had a long talk with him that day and told him that he was on trial

> and he'd promised to do better and to work harder. She said that Denton was the fourth lowest student in the class but was capable of "B" work.[15]

Undoubtedly Denton entered fifth grade under a great deal of pressure to succeed, although the evidence that exists in the case inventory indicates that he was working according to his own rate at nearly his capacity. The teacher had not indicated any deficiencies on his report cards except possibly in arithmetic in which he received a "D" despite the fact that his achievement was greater in this subject than in any of the others.

Figure 9 represents Denton's average achievement growth. Despite the fact of his lack of achievement in the three mentioned subjects, Denton showed the most rapid rate of growth in academic learnings between 115 and 126 months during the fifth grade with a levelling off from 126 to 139 months during the sixth grade. As is indicated in Figure 9 both his rate of achievement and the achievement itself correlate quite closely with his mental age curve.

A teacher who knew the growth concept and who was acquainted with the data available on Denton might have evaluated him somewhat differently. Perhaps his achievement record has suffered because of the lack of understanding on the part of the teacher and consequently a misinterpretation of him to the parents. It is quite obvious that Denton was never allowed

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[15]From observers report in the case inventory.

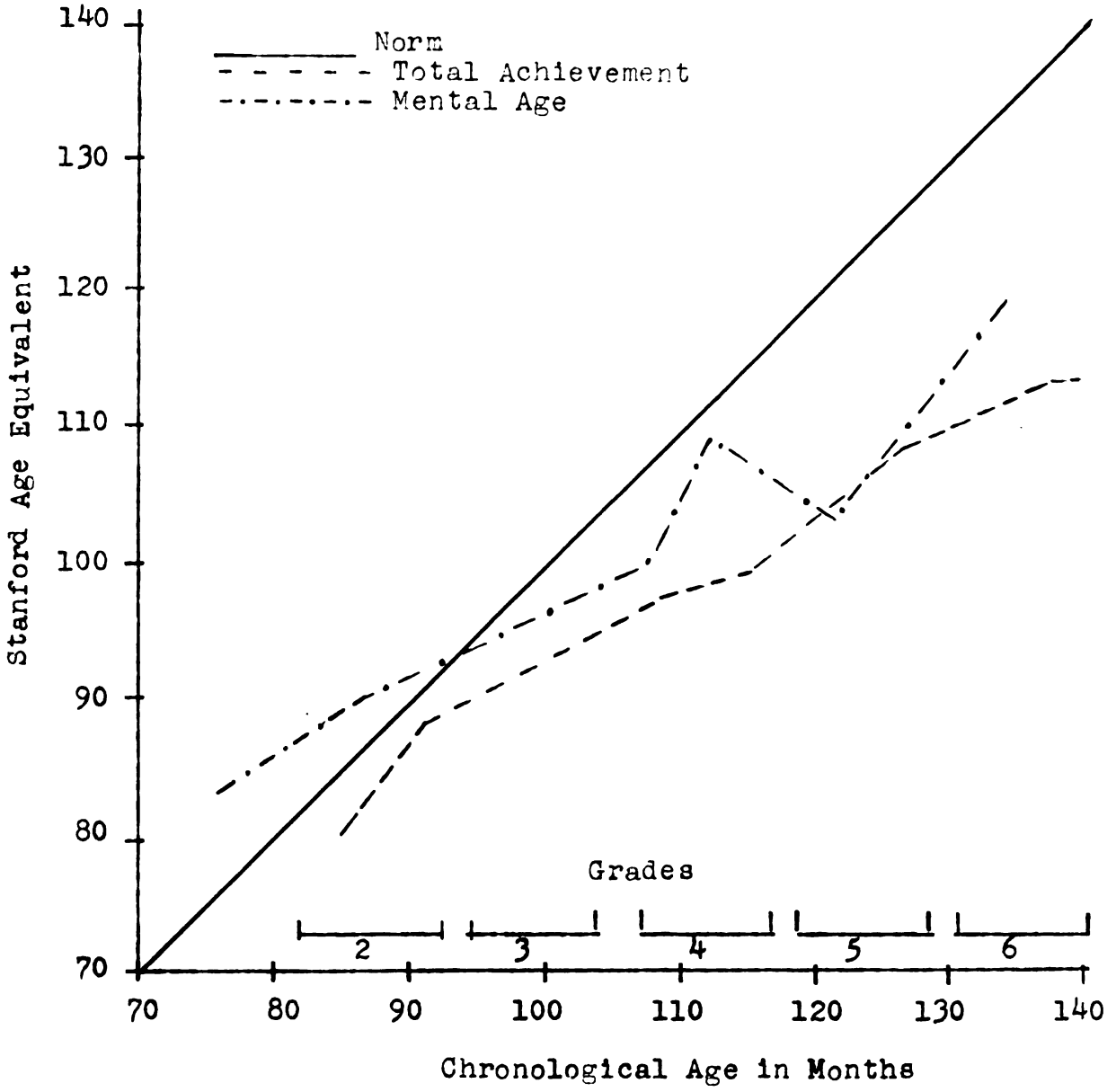

Fig. 9. Denton's Average Academic and Mental Age Growth

to feel that he was succeeding to any great degree. Teachers so often refer to those children who are not "working up to their capacities" without much knowledge of what those individual capacities are. Their judgments are usually based upon a single mental age score or I.Q. which in itself is certainly insufficient. As has been pointed out, total growth is the result of so many complex factors and unless all of these are considered in relation to the individual's development, valid judgments cannot be made.

According to the teacher ratings on the McFarlane Adjustment Inventory, Denton's progress in school was rated as "normal" in grade two, "slow" in grades three, four, and five, and "normal" in grade six. These same teachers, however, did not make these distinctions on his report cards. As may be seen by Table XV, if "C" represents normal or average, there is no evidence here of his being considered "slow" in grades three, four, and five.

TABLE XV

DENTON'S REPORT CARD GRADES

Subjects	Year in School											
	1		2		3	4	5	6				
Arithmetic	D	C	C	C-	D+	D	C+	C-				
Reading	C	C	C	C	C-	C-	C	D				
Language-Grammar	C	B	B	C-	C	C-	C+	C				
Handwriting	C	B	B	B	C+	C+	C	C				
Spelling			B	C	C-	C-	C+	C				
Social Studies	B	B	C	C	B	B	B	D				
Art	C	B	B	C	C+	C+	B	C				
Music	B	A	A-	B	A	A	A	C				

D. Personal and Social Development

Personality is difficult to describe and impossible to categorize by traits which are all inclusive and at the same time mutually exclusive. For the purposes of this study it can be defined as "the sum total or integration of all the capacities of the individual in action."[16]

Judgments about his social development must necessarily be made on the basis of the limited data which have been collected concerning Denton's relationships with others. Practically all the data are confined to the school setting.

Most of the data on personal and social development have been collected by means of teacher ratings on the Millard revision of the McFarlane Adjustment Inventory and the observers' and teachers' comments in the school observation notes.

1. Personal Habits and Traits

Table XVI shows the teachers' ratings of Denton in grades two, three, four, five, and six for specific personality traits. It will be noted that the second grade teacher has rated him average throughout. It would appear that she observed him as an "average" rather than as a specific individual having distinguishing characteristics. The third grade teacher rated

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[16] C. V. Millard, School and Child (East Lansing: Michigan State University Press, 1954), p. 117.

TABLE XVI

RATING OF SPECIFIC PERSONALITY TRAITS

General Trait	Positive	Grade Level Rating 1	2	3	4	5	6	Negative
1. Attitude	Confident		3	2	2	3		Inferior
2. Cleanliness	Immaculate		3	3	2	1	2	Unclean
3. Cooperation	Habitual		3	3	1	1		Lacking
4. Courtesy	Habitual		3	2	2	1	3	Infrequent
5. Dependability	Habitual		3	2	3	2	2	Infrequent
6. Disposition	Calm		3	2	1	3	2	Irritable
7. Disposition	Happy		3	2	4	2		Unhappy
8. Disposition	Kind		3	2	2	2		Cruel
9. Disposition	Optimistic		3	3	2	3	3	Pessimistic
10. Dominence	Aggressive		3	3	3	2		Submissive
11. Effort	Industrious		3	4	4	3		Idle
12. Integrity	Uniform		3	2	2	3		Lacking
13. Judgment	Rational		3	3		3	3	Irrational
14. Leadership	Conspicuous		3	3	4	4		Lacking
15. Morality	Moral		3	1		1	2	Immoral
16. Reliability	Punctual		3	2	4	1		Tardy
17. Reliability	Obedient		3	2	3	2	3	Disobedient
18. Reliability	Responsible		3	2	3	2		Irresponsible
19. Self-Control	Stable		3	2	1	3		Unstable
20. Thrift [Materials]	Saving		3			3		Wasteful
21. Thrift [Time]	Saving		3			3		Wasteful
22. Summary	No Code							See Comments

Ratings: High----1 2 3 4 5----Low

him quite consistently as average and high average with the exception of the highest rating in morality and a lower rating

on effort. From the point of view of the teacher he appeared to be quite satisfactory in every respect.

The ratings of the fourth grade teacher show a greater variance. She has rated him at the lower end of the five point continuum in happiness, effort, leadership, and punctuality, but at the very top in cooperation, calmness, and self-control. In fifth grade this same teacher, according to her judgment has found him greatly improved in many of the traits. She gave him the highest rating in cleanliness, cooperation, courtesy, morality, and punctuality. She has noted improvement in dependability, happiness, effort, obedience, aggressiveness, and responsibility, but somewhat lower in the traits of confidence, calmness, optimism, integrity, and self-control.

It will be remembered that Denton remained with this teacher for these two years and was conditioned to the fifth grade by the teacher who progressed with the group. According to her other reports she found him quite difficult and exerted a good deal of pressure upon him both directly and through her reports to the parents. It was during this period that he also showed a marked falling off in academic achievement.

On the whole Denton, by these ratings, can be considered to possess these specific personality traits in a positive degree. A profile of the results would indicate a well-adjusted boy with little deviation towards either extreme. This conclusion is also supported by the following exerpts taken from the teachers' written reports to the parents:

Grade 1:

Denton has a good attitude toward his work and his teacher. He assumes responsibilities.

Grade 4, October:

He seems to be interested in all the things we do in school, and he has a nice helpful attitude in the room, and he gets on well with the group.

Grade 4, January:

Denton seems interested in all the things we do . . . Denton is always willing to help someone else out, and is always courteous to the children in the group and me.

Grade 4, March:

He has such a nice, helpful attitude in the room.

Grade 6:

Denton has lost much of the reserve that I mentioned in the first report. He responds and volunteers much more freely. He is quite blunt on occasion, but a pleasing smile and a sense of humor help a lot.[17]

Table XVII, the teachers' ratings of miscellaneous personality traits, shows Denton on the three point scale to be "average; like other children" throughout.

2. Character Traits and Ideals

On the McFarlane Inventory, Denton has been rated by the teachers as a boy who was not unduly disturbed and one who had good control of his emotions. He was obedient, well disposed toward authority and accepted responsibility readily

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[17]From the case inventory data.

TABLE XVII

MISCELLANEOUS PERSONALITY TRAITS

Positive	Grade Level Rating						Negative
	One	Two	Three	Four	Five	Six	
1. Honest		2	1	2	2	2	Steals, cheats
2. Truthful		2	2		2	2	Lies,decieves, cheats
3. Courageous		2	2		2	2	Cowardly
4. Loyal		2	1		2	2	Treacherous
5. Generous		2			2	2	Stingy
6. Happy		2	2		2	2	Mean
7. Kind		2	2		2		Unhappy
8. Thrifty		2	2		2		Spendthrift
9. Reasonable		2	2		2		Self-willed
10. Considerate		2	2		2		Inconsiderate
11. Unselfish		2	2		2		Selfish
12. Dependable		2	2	2	2		Irresponsible
13. Appreciative		2	1	2	2		Ungrateful
14. Self-reliant		2	2	2	2		Dependent
15. Stable		2	2		2		Erratic
16. Cooperative		2	2	2	2		Uncooperative
17. Humble		2	2	2	2	2	Conceited
18. Tranquil				2	2		Easily upset
19. Reverent		2			2		Disrespectful
20. Communicative		2	2	2	2		Too talky

Rating Code: 1--High; toward positive end
2--Average; like other children
3--Low; toward negative end

and eagerly. He was well liked by his classmates, liked to play, and had fun on the playground.

He was listed as "careful and neat with his materials," "tidy of things in his desk," and "took good care of others' things." These comments reflect the value of the school and the teachers and the great emphasis on neatness, orderliness, and general submission to the wishes of authority.

He was ranked average in all of the following character traits: honesty, truthfulness, courage, loyality, generosity, happiness, kindness, thrift, reasonableness, consideration, unselfishness, dependability, appreciation, self-reliance, stability, cooperativeness, humility, tranquility, reverence, and communicativeness. In none of these traits was he rated at the extreme positive end of the continuum, nor was it ever indicated that he had any deficiencies in his character. It would appear that the teachers looked upon him as a satisfactory, average pupil who caused them no trouble, and on the other hand, who exerted very little leadership or displayed unusual initiative. One teacher went so far as to state, "Denton was the kind of a student that you hardly knew was in your room until the end of the term when you had to mark him. He was always quiet and never did anything out of order."

3. Emotional Characteristics

Table XVIII is a summary of the teachers' comments on Denton's emotional characteristics in his personal adjustment. Of the five teachers who gave their reactions, there is a great deal of agreement as to his outlook. Four of them classified him as pleasant, three as confident, two as generous, cheerful, happy, nice, good, mischievous, and possessing a good sense of humor. He was mentioned once as being self-reliant, kind, thoughtful, dreamy, ambitious, and obedient. The only comments that might be construed as the least bit negative in this area are "mischievous" and "dreamy." Without question it may be said that the teachers considered Denton's outlook in general to be most positive.

In the category of "Negativism" only one teacher commented. The fourth grade teacher found him to be sullen, moody, resentful, and self-willed. In the column labeled "Anxiety," the second grade teacher evaluated him as shy, while the fourth grade teacher, [the only other one to make a comment], mentioned he was sensitive and that he "holds grudges." They all found him to be self-controlled or even-tempered and with the exception again of the fourth grade teacher, who called him stolid and unemotional, they agreed he smiled frequently or laughed easily. The teachers considered him non-aggressive having judged him to be independent, sincere, a natural follower, self-assured, submissive, and easily influenced. Under the heading of "Ego,"

TABLE XVIII

PERSONAL ADJUSTMENT--EMOTIONAL CHARACTERISTICS

Grades	Teachers' Comments						
	Outlook	Negativism	Anxiety	Control	Tempermant	Aggression	Ego
2	pleasant confident self-reliant generous mischievous		shy	self-controlled	smiles frequently	independent self-assured sincere	reserved, aloof
3	cheerful dreamy mischievous			self-controlled even-tempered	smiles frequently	submissive	sensitive to what others think of him
4	pleasant confident kind thoughtful ambitious generous nice good	sullen moody resentful self-willed	sensitive holds grudges	self-controlled placid	stolid, unemotional	independent natural follower	conceited seeks spotlight sensitive to what others think of him
5	happy pleasant confident cheerful good sense humor nice obedient good			even-tempered	laughs easily	sincere easily influenced natural follower	
6	happy pleasant good sense humor			even-tempered	smiles frequently		

the second grade teacher saw him as reserved and aloof, the third grade teacher as sensitive to what others think of him, and the fourth grade teacher as conceited, seeking the spotlight, and sensitive to what others think of him. He was not rated in this area by the fifth and sixth grade teachers.

Again it becomes apparent that Denton had some difficulty during his fourth grade experience. It is not certain as to whether a change in his behavior resulted in the kind of relationship he had with the teacher, or the attitude of the teacher toward him resulted in a change in behavior pattern, or whether some experiences outside the school were the cause of his difficulties. Nevertheless, the fourth grade teacher's evaluation of him academically, socially, or emotionally is not consistent with the ratings of either the teachers who preceded or succeeded her. We have no data that would support either alternative. It may have resulted from a personality clash, or from some problems that Denton was having at home or in the community. Undoubtedly this year was not a happy one for the boy. This is reflected in almost all aspects of his growth with the exception of the physical.

From all the data that have been gathered it can be concluded that with this exception Denton was a well adjusted boy emotionally throughout his elementary school experiences. He was generally happy, pleasant, and even-tempered. Even the fourth grade teacher reported to one of the observers, "He is a quiet, thoughtful boy . . . . He never seems to

display much emotion. He seems very reserved . . . . He is usually quiet and self-controlled. He seems to be too busy watching and taking everything in to get excited."

According to the observer's record of an interview with his fifth grade teacher:

> Miss G--said she had seen him angry only once since she had had him in the room. That day he swore violently at her and told her his Dad said she was never to touch him or he would come over and "tell her off." She said she made him sit at her desk the rest of the day and that she would not allow him to take part in any activities. When school was over, Denton came to her and said he was sorry and asked her not to tell his mother. The teacher did have a talk with Denton's mother. She gave Miss G--permission to spank him if he ever did that again.[18]

Since Miss G-- was also Denton's teacher in grade four, it is likely that this event took place during the preceding year. This one incident may have influenced her evaluation of him in all of the areas of rating.

4. Social Development

The data which were available to make some assessment of Denton's relationship with others consist of the results of a status inventory of social characteristics, anecdotal material written by observers, and items from the teachers' written reports to the parents.

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[18] From observers report in case inventory.

The following status inventory was used in grades two through five. It consisted of check-list items with a possible frequency of four.

1. Makes advances to others
2. Makes friends easily--1
3. Socially minded
4. A good mixer
5. Well-liked by class--2
6. Has respect of class--1
7. Likes to share with others
8. Has good time with others--3
9. Cooperative--3
10. Extrovert
11. Friendly with all
12. Friendly with few
13. Has a few chums--1
14. Haughty, cold
15. Wide interests and many friends
16. Responds to advances--3
17. Makes friends with difficulty
18. Individualistic--1
19. Has few friends--2
20. Disliked by class
21. Avoided by class
22. Ridiculed by class
23. Persecuted by class

24. Uncooperative

25. Introvert

26. Friendly with many--2

27. Friendly with none

28. Exclusive--few friends

29. Lonely--would like friends

30. Narrow interest and few friends--3

The underlined items followed by numbers indicating frequencies are those which were checked by Denton's teachers. It is just as important to note those items not checked as it is to give value to those which were.

On the positive side are such items as, "Well liked by class," "Has respect of class," "Has good time with others," "Cooperative," "Responds to advances," and "Friendly with many." At the same time other items checks were: "Has few friends" and "Narrow interests and few friends."

It would seem that he was well accepted by the group and did have a few with whom he shared friendships. He was considered neither as an extrovert nor an introvert. He was not disliked, avoided, ridiculed, nor persecuted by the class. Neither is there any indication of his being a favorite of the group. It might be concluded from this evidence that Denton was reasonably well adjusted socially with his peers.

The following anecdotal records are indicative of Denton's social relations:

Grade I. Denton has a pleasing personality, but is a little shy and reserved towards strangers, but not to his playmates. He seems well liked by the class, and the teacher. He has his own small play group of associates.

Grade III. Denton has many friends, both boys and girls.

Grade IV. He seems sincere, but reticent in making new friends. He appears to be well-liked by his schoolmates and teacher.

Mother to teacher--She said Denton didn't seem to have any real close friends.

Grade V. He seems shy with adults if anyone else is around.

Grade VI. The class was playing "Charades." While his group waited their turn, Denton played with the others, punching and being punched by the other boys, and laughing.

Denton talked to another boy in line. He hit two of the boys on the head with a book and then they smiled at each other.

Denton played on the merry-go-round with the other boys and girls. He didn't want me to know that he saw me there. He picked another boy up and threw him off the merry-go-round. He threw a snowball at me when I wasn't looking. Some of the boys were teasing the girls by taking their scarves off. Denton went over and joined the fun.

The teacher was called out of the room. Denton watched her and then turned to one of the girls. He made faces and made exaggerated mouth movements as though he were talking. He laughed and talked with her after the teacher had returned to the room. He reached over and wrote on her book. She shoved him away. He laughed and wrote some more in his book, then leaned over to her and asked her how to spell a word.

. . . walked back to his seat, hitting one of the boys on the head with his notebook as he passed him.

The teacher suggested playing "Poor Pussy" and the class was enthusiastic. Soon the child who was "it" chose the teacher. The teacher went to Denton's desk, knelt down with her head and hands above the desk. She said "Meow" and Denton couldn't even pat

her on the head. He just put his head down on the desk and laughed hard. He was "it" for awhile, then finally got someone else to laugh. He seemed to be enjoying the game immensely.

He talked for a minute to a girl near him, and then went up to the waste basket. Another girl was there, too, and she pushed him with her shoulder. He made a move to hit her but missed.

The school held an assembly to distribute prizes to the high salesmen in the magazine drive. Denton walked in with two of his pals and sat with them, his arm around one of them. They laughed and talked and punched each other.[19]

These samplings from Denton's behavior patterns seem to indicate a normal adjustment to his peer group consistent with the data included in the status inventory of social characteristics. Although considered shy and somewhat reticent through the first five grades, in sixth grade he appeared to be developing much more of an outgoing personality, and exhibited all the normal behavior characteristics of boys at the stage of puberty. His relationships as described by these anecdotes are both typical and wholesome in terms of successful growth and development.

E. Home Environment

The data concerning Denton's home environment were gathered from interviews with the mother by classroom teachers and the visiting teacher; and from reactions that Denton expressed to the teachers and observers.

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[19]From observers' records in the case inventory data.

On the whole it would appear that Denton had a satisfactory home life. According to the Warner social class structure[20] his family would probably be classified as "upper-lower". The father was a service manager of a garage. The mother did not work outside the home. They lived in an average type neighborhood consisting of bungalow type houses. Denton had sufficient play space and equipment.

The mother and father were quite compatible and had made a fairly normal adjustment to family life with only occasional upsets in spite of the difference of temperaments--the father was quick to flare up while the mother was quite calm and even tempered. The father demanded a great deal of the mother's time, and appeared to be somewhat jealous of her women friends. The mother admits that she is a different person when the father is present. At these times she constantly was concerned with preventing situations that would cause conflict between the father and the others in the family.

Denton is the youngest of three children. His brother is four years older and his sister seven. There was a normal adjustment between Denton and his siblings despite the fact that the father seemed to favor the brother and the mother somewhat favored Denton. The parents held quite high standards

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[20] W. L. Warner, et. al., Social Class in America (Chicago: Science Research Associates, 1949), passim.

for Denton in his school work by comparing him with his sister who was an honor student in college. School work was difficult for Denton, and this extra pressure only added to his frustrations.

There existed some tension between the parents over their differences in philosophies of handling children. While they both exerted what might be termed as strict discipline, the father was quite inconsistent while the mother was much more predictable and reasonable in her demands. Denton often expressed affection towards his mother, and took responsibility for helping her around the house. She spent a great deal of time playing with the children and seemed to enjoy them much more than the father.

On the whole Denton seemed to have enjoyed a happy home life and the family generally seemed to have experienced real satisfactions as a family unit.

CHAPTER III

INTERRELATIONS AS SHOWN BY GRAPHIC AND LONGITUDINAL METHODS

It will be the purpose of this chapter to utilize two tested techniques of longitudinal study, apply them to the data available on the case in question and show the interrelationships which exist and any differences or inconsistencies of interpretations of the data which accrue from these two methods.

The technique used throughout Chapter II is based upon Olson's theory of "organismic age."[21] In Olson's studies he has used measurements of height, weight, carpal, mental, reading, grip, and dentition. These translated into age equivalents and averaged at any selected chronological age point give the organismic age of the individual.

In the study of Denton the measurements were not recorded in the areas of carpal bone development, grip, and dentition. All the measurements available in describing Denton's growth in Chapter II, however, were computed into age equivalents and the Olson technique was used to describe

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[21] Olson, op. cit., p. 39.

the child's growth pattern and to show relationships and inconsistencies in the various aspects of his growth.

According to Olson:

> It has been demonstrated that the centeral tendency of growth called organismic age tends to remain at a very constant rate of change, while the part-growth factors involved in the computation may vary widely.[22]

This central tendency is illustrated in part in Denton's case by by Figure 9 on page seventy-one showing the relationship of his total achievement to his mental age. Although there is a great deal of fluctuation among the factors of achievement,[23] nevertheless, the average of these factors do remain constant and do correlate quite closely with the curve representative of his growth toward mental maturity.

Interrelationships have also been shown between Denton's height and weight[24] and between his mental age and reading achievement.[25] Olson's studies which have been made over a long period of time demonstrate quite conclusively that when the organismic age for a child is calculated for successive time intervals and the points are plotted and connected, much stability and predictability in trend is revealed.

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[22] Ibid., p. 40.

[23] See Figure 8, Chapter II, p. 68.

[24] See Figure 2, Chapter II, p. 27.

[25] See Figure 3, Chapter II, p. 29.

The Olson technique uses norms as a basis for comparisons. This method is also conducive to establishing individuals' rates of growth and although no maximum is computed specifically, some indication of maturity can be assumed within limits.

The second method used to describe developmental interrelationships to be used in this study is the Courtis technique.[26] Millard quite clearly describes this Courtis method which he has tested over a period of many years.

> Up to the present, Courtis alone has devised a method for exact study of growth interrlationships. Starting with the Gompertz curve he designed a technique whereby it is possible to resolve a natural-growth curve into its various components or what he calls "constants." The names given to these, respectively, were maximum,rate,and incipiency or what might roughly be called a correction, in the equation, for growths which do not begin at the zero point. Starting with log-logs of actual measures, a system of units was derived which preserves the straight line design of log-log values but eliminates the awkwardness involved in their handling. The name "isochron" was given to this unit. By definition it represents one per cent of the total time required to reach maturity in a given cycle of growth. Since the equation reduces the picture of growth to a straight-line basis, it is assumed that equal growths are made for each unit of equal time. Courtis has used this method extensively with a multiplicity of types of growth data. In predicting maxima, in pointing out and defining cyclic changes, and in studying the effect of factors influencing growth, he has achieved amazingly accurate results.[27]

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[26] S. A. Courtis, Maturation Units and How to Use Them (Ann Arbor, Michigan: Edwards Bros., 1950), passim.

[27] C. V. Millard, School and Child (East Lansing: Michigan State University Press, 1954), p. 165.

He further states:

> The Courtis technique appears to offer the most complete and exact method for studying growth interrelationships. It is superior to the inspectional method and to the technique of norm comparison because it can be applied to any series of performance measures without necessarily reducing data to a common unit such as growth age.[28]

Olson has the following to say about the Courtis technique:[29]

> The problem of describing growth through generalized mathematical curves is an old one in the field of general biology. Courtis has given intensive and extensive study to the problem as applied to growth of children. His general point of view is that it is possible to describe all growth that occurs in a particular cycle by a universal growth curve. He distinguishes four general cycles: prenatal, infancy, childhood, and adolescence.
>
> Courtis has developed units called "isochrons" to describe complex growth. An isochron is 1 per cent of the total time from the incipiency to the maturity of a change. Under this system, developments made in equal time are considered equal.
>
> Courtis has used the isochronic technique extensively in predicting mature status, in revealing cyclic changes which are obscured by mass data, and in studying the effects of planned and accidental perturbations. He has also applied the technique in areas related to curriculum and method. For example he has described growth in ability to spell a particular word in successive years in school populations, the influence of instruction in the year when the word appears in the curriculum, and the subsidence of growth to the original prediction in subsequent years.
>
> The chief use of the technique to date has been as a research and analytic device. From the point of view of the child as a whole there is the basic

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[28] Ibid., p. 166.

[29] Olson, op. cit., pp. 170-171.

> assumption of some validity that a curve, even though based on one set of data, will tend to express an underlying growth rhythm which will also find expression in other measures.

Nally and DeLong[30] have highlighted the Courtis technique as the most scientific and valid method for predicting growth.

> The most encouraging of these studies were those reported by Courtis whose evidence indicates that he has discovered the law of growth. Time after time he has reported predictions within an average deviation of ± 2%. Courtis' success seems to be due to a consideration of a combination of two factors which are not generally considered together: (1) He assumes that growth is cyclic in nature and (2) He expresses growth data in terms of percentages of development rather than in terms of either raw scores or age scores.

The only printed adverse criticism of Courtis' method was written by Meredith.[31] Nally and DeLong have recently quite thoroughly and convincingly negated this criticism.[32]

The Courtis technique is being used here because its scientific approach to growth and its predictability of measurement have been verified.

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[30] T. J. Nally and A. R. DeLong, An Appraisal of a Method of Predicting Growth (East Lansing: Child Development Laboratory, Michigan State University, 1953), p. 1.

[31] H. V. Meredith, The Rhythm of Physical Growth Vol. XI, No. 3 (University of Iowa Studies in Child Welfare, 1953), passim.

[32] Nally and DeLong, op. cit., pp. 3-4.

Per Cents of Development at Various Chronological Ages

To show interrelations of the various developmental phases per cents of development at different chronological ages were computed at twelve-month intervals by using the "score" equations and divided by the sum of the cyclic maxima. The result of the computation is called the "per cent of total growth" at the specified age. These results are presented in Table XIX. At the age of twelve months, for example, Denton had achieved 38.66 per cent of his total height, 10.10 per cent of his maximum weight, and 13.35 per cent of the maximum mental age. These data are presented in graphical form in Figure 10 and give a good picture of the relative progress of these various growths, highlighting the likenesses and differences in the maturational progress. It should be noted that the height, weight, and mental-age curves are not paralleled by the academic-age curve since the former three curves begin at birth, and the academic does not begin until after the child starts to school. Hence the child starts to grow academically later but progresses at a much higher rate. This is well demonstrated in Figure 10 which shows Denton's starting point at seventy-two months with the first academic measurement and proceeding at a rapid rate to become comparable to the per cent of total development in height, weight, and mental age at 120 months, the point of approximately seventy-five per cent of his total growth.

TABLE XIX

PER CENTS OF DEVELOPMENT OF VARIOUS GROWTHS AT TWELVE-MONTH INTERVALS[1]

Chronological Age	Aspects Measured			
	Height	Weight	Mental	Academic
12	38.66	10.10	13.35	. . . .
24	47.93	15.55	23.07	. . . .
36	55.52	20.67	33.42	. . . .
48	59.99	24.91	43.07	. . . .
60	62.73	28.14	51.14	. . . .
72	64.43	31.11	57.42	1.1
84	66.27	34.47	62.21	15.33
96	69.11	38.58	65.57	40.88
108	72.66	43.03	67.99	61.11
120	75.98	47.20	72.85	78.44
132	79.36	51.64	83.21	90.88
144	83.80	59.39	91.85	96.66
156	88.74	70.84	96.14	98.66
168	92.93	81.68	98.21	99.55
180	95.86	89.42	99.07	99.55
192	97.65	94.07	99.42	99.55
204	98.70	96.76	99.64	99.55

[1]The per cents were computed from score equations. Although these results were geared to the data and meant to be interpretive rather than predictive, it is interesting to note the correlation with the actual measurements at 204 months.

According to these computations, Denton's predicted height at 204 months was 98.70 per cent of the predicted maximum of 72 inches, or 71.06 inches. His actual height at this age was 71.5 inches, a variation of only .43 inches or an error of + .6 per cent. His predicted weight at 204 months--96.76 per cent of the predicted maximum of 148.5 pounds--is 143.7 pounds. His actual measurement for weight at this age was 150 pounds--a difference of 6.3 pounds or an error of +4.38 per cent. The prediction for maximum mental age was based on only five measurements covering the two cycles of growth preceding adolescence. Since the adolescent cycle could not be plotted, the maximum shown here for mental age was 140 months at the chronological age of 168 months. Denton's measured mental age at 204 months was 187 months.

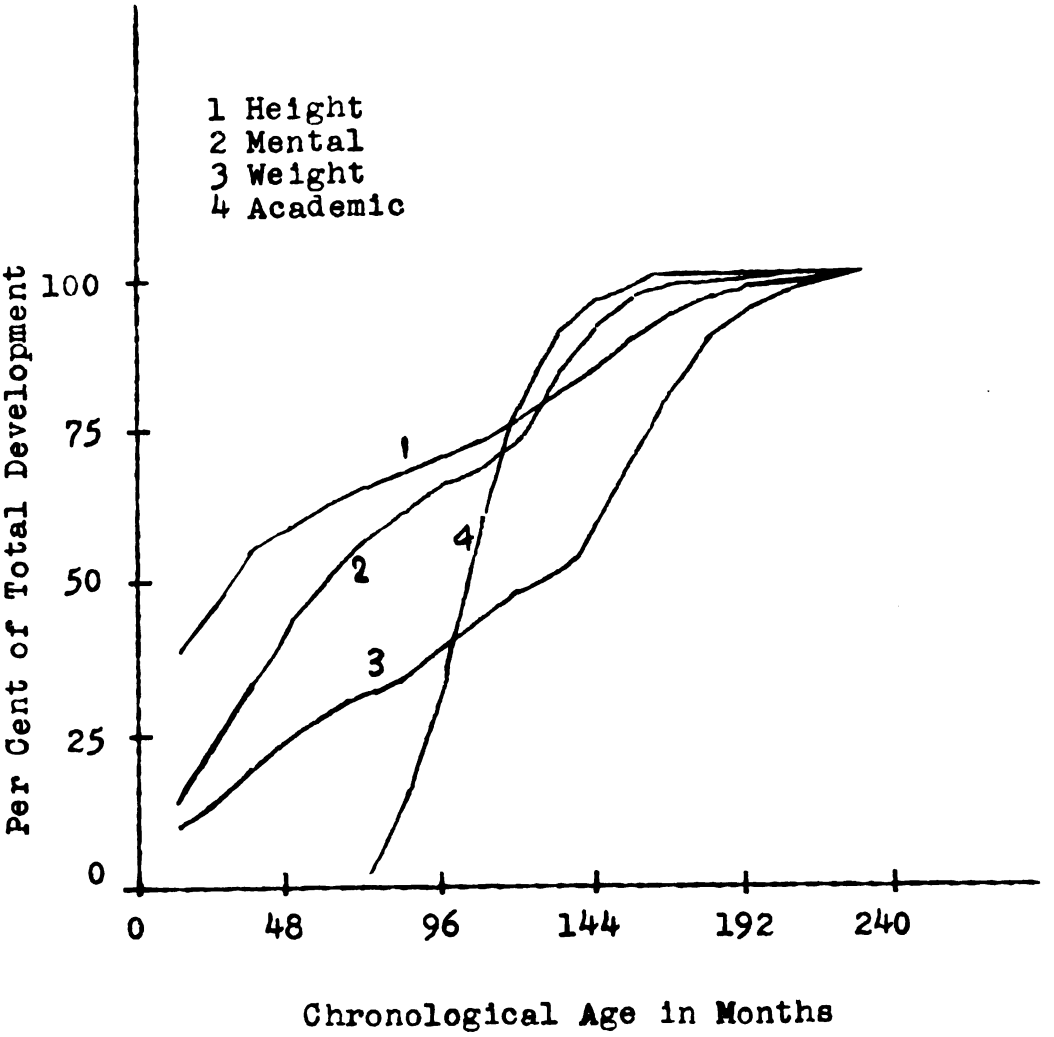

Fig. 10. Maturity Curves of Various Growths

The longitudinal method of growth study is predicated upon the assumption that total development can be pictured with reliable accuracy. More credence can be given when the various growths are plotted separately as in Figure 10. It is, however, sometimes useful to reduce the various growths to a composite single curve to show total development. All the data were reduced to age equivalents, and the equations were computed for ages from twelve to 204 months. These are shown in Table XX. As the chronological age progresses it will be noted that the height and weight ages far outstrip the mental and academic ages and influence the average of all positively. If, however, total growth is to be used, the developmental picture is best shown in this manner as in Figure 11 which shows the developmental pattern of cyclic growth. Over the past several decades a great deal of speculation has arisen regarding the relationship between physical and mental development and learning. It has been assumed that such a relationship does exist, but just what level of physical and mental maturity is necessary for the beginning of certain academic learnings has up to recent times been a mere matter of speculation on the part of educators. Millard poses the problem in the following way:

> Stated specifically, the problem in this instance is one of determining the amount of maturity of physical and mental growth necessary for the beginning of academic learning. This particular problem has a relationship to so-called reading readiness, etc., and when solved gives a logic to the concept of

TABLE XX

GROWTH-AGE SCORES AT VARIOUS CHRONOLOGICAL AGES
[COMPUTED FROM AGE-EQUIVALENT EQUATIONS]

Chronological Age	Growth Ages					% of Average Development[1]
	Height	Weight	Mental	Academic	Average of All	
12	9	3	18.7	. . . .	10.2	6.07
24	23	12	32.3	. . . .	22.4	13.34
36	44	27	46.8	. . . .	32.2	23.36
48	59	47	60.3	. . . .	55.4	33.01
60	68	61	71.6	. . . .	66.8	39.80
72	73	71	80.4	73	74.4	44.33
84	80	83	87.1	80	82.2	48.98
96	89	95	91.8	89	90.9	54.17
108	104	107	95.2	98	100.8	60.07
120	121	118	102.0	107	110.6	65.91
132	139	132	116.5	111	121.9	72.64
144	154	149	128.6	113	132.3	78.84
156	171	165	134.6	114	140.9	83.96
168	188	180	137.5	115	148.1	88.25
180	208	194	138.7	115	155.3	92.55
192	218	204	139.2	115	159.4	94.99
204	221	213	139.5	115	161.9	96.48
Maxima	223.3	230	140	115	167.8	.....

[1]Per cent of development computed by dividing the average value by the average maximum.

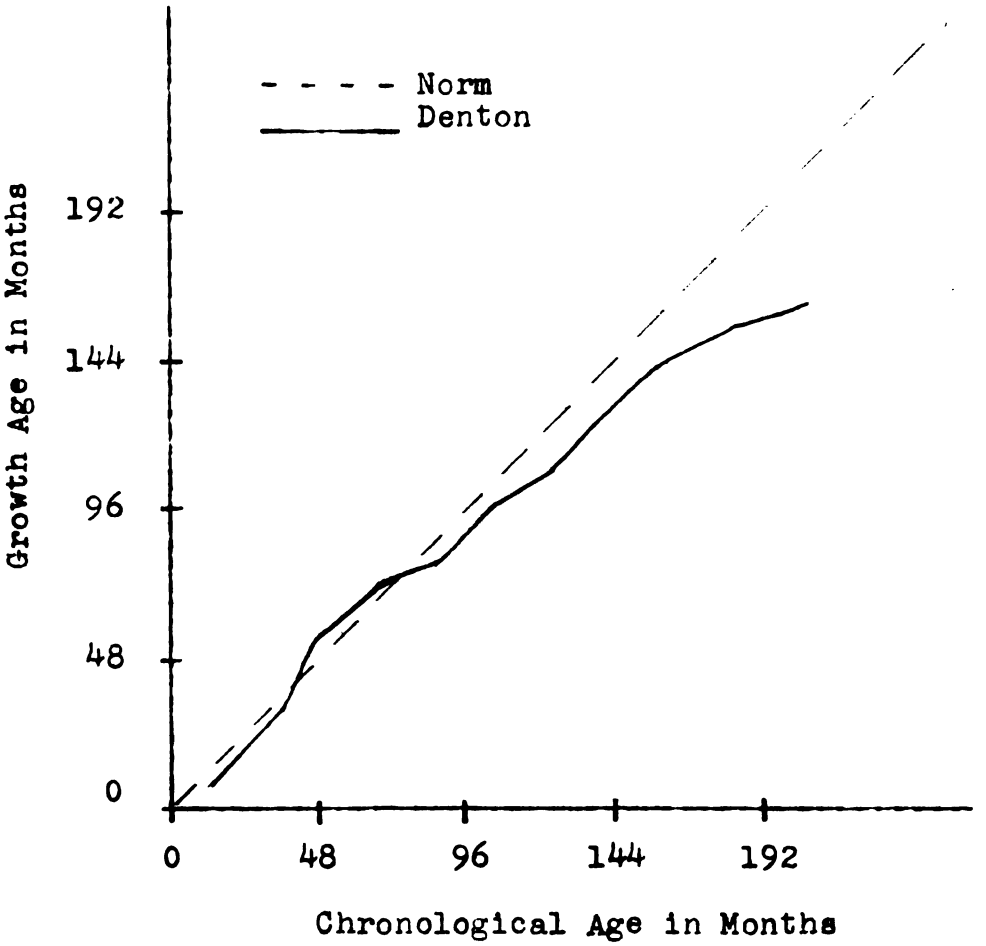

Fig. 11. Organismic-Growth Age Curve

> readiness, thereby withdrawing it from the vague, unrealistic category in which most reading experts have placed it. To say that a child will read when he has approximately 70 per cent of his total height, 35 per cent of his weight, 40 per cent of his mental development is much more authoritative than statements that the child will learn when "he has adequate experiences and sufficient physiological maturity."[33]

With further insight into this concept of growth as a goal Nally has made a significant contribution. The purpose of his study was:

> . . . an attempt to determine with precision the relationship between the achieved growth in height and the beginning of growth in reading on the belief that such a relationship, when once established will enable the user, under constant conditions, to predict within fairly narrow limits the time at which a specific individual should be ready to read.[34]

Nally found that a relationship does exist between the point of theoretically determined beginning reading and percentage of development in height within the pre-adolescent cycle of growth. He also found that little relationship exists between percentage of development in height and the chronological age which reading theoretically begins.

For the boys in Nally's study the chronological age for reading incipiency was 77.7 months, and the percentage of development in height mean was 72.4 per cent.

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[33] Millard, School and Child, op. cit., p. 170.

[34] T. P. F. Nally, "The Relationships Between Achieved Growth in Height and the Beginning of Growth in Reading" (unpublished Ph.D. thesis, Michigan State University, 1953), p. 5.

Denton's chronological age at the beginning of his first reading cycle was 66.5 months. At this age, however, he had reached approximately 71 per cent of his development in height within the pre-adolescent cycle of growth. This compares quite closely to the findings in Nally's study.

Rusch[35] and Stoltz and Stoltz[36] working independently using different techniques for interpreting growth have both demonstrated that height precedes weight in the adolescent cycle. As is shown in Figure 10, the interrelationship between Denton's height and weight is consistent with these findings.

When considering an individual's growth from his incipiency, at his own rate towards his unique maximum according to the cyclic concept, the proportion of growth at each cycle becomes the important factor. The early childhood cycle normally represents fifty per cent of the average total development; during the childhood cycle, seventy-five per cent is reached, and 100 per cent is approached at the end of the third or adolescent cycle. Denton at 84 months, the end of the first cycle, had achieved 46.98 per cent of his average development; at 132 months, the end of his second cycle, 72.64 per cent; and, 96.48 per cent at 204 months, the end of the adolescent cycle.

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[35]Reuben R. Rusch, "The Relationship Between Growth in Height and Growth in Weight" (unpublished Master's thesis, Michigan State University, 1954), passim.

[36]H. R. Stoltz and L. M. Stoltz, The Somatic Development of Adolescent Boys (New York: MacMillan, 1951), passim.

The following table illustrates the great divergence of chronological ages at which the ten boys of this study reached the end of the third cycle or adolescent maturity as compared with Denton.

TABLE XXI

COMPARISON OF DENTON'S AGE AT ADOLESCENT MATURITY TO OTHER BOYS

Aspect of Growth	Denton	Boys' Average	Boys' Range
Height	240.9	241.6	208.4--298.3
Weight	235.2	247.8	224.6--285.3
Mental	182.5	200.9	160.0--287.9
Reading	181.2	190.2	159.2--257.3
Average Achievement	166.9	197.3	166.9--276.2
Total Average	201.3	215.5	183.8--281.0

In every aspect of growth, Denton matured earlier than the other boys of this study. Denton's age of adolescent maturity in weight, according to the computation, was 235.2 months as compared to the average for boys of this study of 247.8 months--a differential of twelve months. In height maturity Denton was about a month younger and he reached adolescent mental maturity about one and one-half years earlier. In reading he was eight months earlier and almost

three years previous in average academic achievement. Denton matured according to the total average of all the aspects approximately fourteen months earlier.

It must be kept in mind, however, that age of maturity alone does not indicate either age of incipiency, rate of growth, or amount of maximum. In other words, this early age of adolescent maturity does not mean that Denton was taller, heavier, or of higher I. Q., or that he excelled in reading or other academic achievements. The emphasis must always be upon the characteristics of the growth of the individual, and it must never be overlooked that the growth of the whole organism in all its aspects is the crucial consideration. As has been emphasized over and over again, the atomistic approach to the study of growth is unrealistic but nonetheless practical and necessary for gaining insight into the total interrelated growth of the organism as a whole.

CHAPTER IV

INDIVIDUALIZING THE CLASSROOM PROCEDURES

Restatement of the Problem

Through insights gained from the study of the data of an individual longitudinal case inventory, the problem of this paper is: to discover the methods and techniques which will lend themselves to the individualization of the instructional program consistent with sound child growth and development principles, and the research in the area of how learning takes place; and, to demonstrate how data on individual children may be helpful in planning programs of instruction which will more realistically meet the needs of each child.

Procedures Used

In attacking this problem the writer has analyzed and summarized all the available data on the individual by use of tested techniques of child study to learn as much as possible about the individual's patterns of growth and development physically, mentally, academically, socially, and emotionally. An attempt was made to draw from these data implications which appear to be significant in terms of the problem stated.

Findings of the Study

1. Within the limitations of the techniques used a degree of relationship was found to exist between Denton's growth in height and weight, mental ability, arithmetic, and reading. Only in weight and arithmetic did he closely approach the height criteria.

2. There is no evidence to indicate that Denton's home life was lacking in adequacy, supportiveness, or security.

3. Denton's school experiences were based on the traditional type course of study which was text-book and subject-matter oriented and consequently had little consideration for the individual's interests, abilities, and needs.

4. Motivation for the learning activities in the school was largely artificial and exterior, consisting of grades, marks, promotions, rewards, and punishments, and which did not seem to affect Denton's achievement significantly.

5. Evaluation in the school program was generally in terms of group norms rather than in terms of the expectations which would be considered more realistic for the individual. The teachers' grades did not reflect Denton's growth patterns as established by the achievement test results.

6. The major purposes of the school seemed to be in terms of the acquisition of academic skills and knowledge. Social growth, emotional adjustment, personality improvement, health, and like areas of competencies were not stressed.

7. The school and home did not work closely together to provide an environment which would contribute to the optional growth and development of Denton.

8. Denton's classrooms were teacher-centered and the program of instruction was determined by the teacher. There is little evidence of teacher-pupil planning either in terms of content or method.

Educational Implications of the Findings

As can be seen from the preceding chapters, a great deal of data has been gather about one individual. Data which in themselves and separately may not be very significant, but when they are brought together as a whole over a long period of time, demonstrate the emergence of certain definite growth and developmental patterns. From these patterns insight can be gained into how one individual grows and develops toward maturity. Further, when the various aspects of growth and development are considered in respect to their dependence upon each other and their relationships as they affect the total growth of the individual, judgments can be made as to the factors which determine or influence change of the organism in any direction.

It has been well demonstrated that severe deprivation will have a negative influence upon the total growth of any organism. It follows that a rich full environment should make a positive contribution to all aspects of growth.

The case of Denton was chosen because he seemed typical of what teachers unscientifically label as average or normal. At least it seemed apparent from the data that Denton was not among the group commonly called "deprived" nor the one which is termed "highly-endowed" or "gifted" physically, socially, emotionally, or mentally. It was the writer's feeling that here was a boy who rather well represented the majority of the boys in the schools who are doing "all right." Teachers and observers have described him over and over again in every phase of his growth and development as "normal" or "average." They have rated him consistently in the middle category wherever a check list or rating was asked for. He was considered neither bright nor dull, over-enthusiastic nor listless, highly motivated nor disinterested. It is hoped for this reason that Denton's case might be considered as somewhat representative, so that implications for educational practices and procedures which will be drawn may be construed as applicable in a degree to most children in a variety of situations.

Providing for Individual Differences. Almost all teachers recognize the fact of individual differences and agree with the thesis that the program of instruction must be geared to these differences, yet too often a common diet for all prevails. In Denton's case study there is little or no evidence that any variation of the program was made to fit

his particular needs. Despite all the evidence of research in the area of individual differences and how they relate to the way learning takes place, the assumption, as far as practice at least reveals, seems to be that all are expected to flourish to the same degree in a common environment and with like opportunities. The school program has been set, grade levels have been established, norms for chronological ages have been determined and success or failure, promotion or retardation have been based upon these hypothetical measures, which may be totally unrealistic in terms of an individual and his unique growth pattern.

If practice is to change to the extent that the instructional program of the school is to fit more nearly the needs of the individual, and learning is to be achieved commeasurate with the potential of each, then the discovery of methods of assessing the expectations for the individuals and groups of individuals becomes inherent. Observation alone based upon subjective evaluation by the teacher is not only unscientific but is highly unreliable as a basis for providing the best learning environment.

Changes in educational practices come about slowly and apparently with great difficulty. The traditional methods and procedures seem to give teachers the greatest security while variations to any degree appear to threaten and upset them. Even where teachers are relatively free from the pressures of

minimum standards of grade level achievement, rigid daily schedules, competitive marking systems, and the restrictions of set grade placement and promotional policies, it does not necessarily follow that educational practices will change, or that the program of instruction will be more creative, more flexible or geared more expressly to the specific needs, interests, and abilities of the individuals or the groups of individuals. Slavish dependence upon text materials and teachers' manuals commercially produced which allegedly fit the needs of all children everywhere at a given grade level, is a definite deterrent to advancement towards the provision for individual differences which is mandatory when considered from the child development point of view. Where this practice exists the curriculum, which is determined not locally but on the basis of national norms or averages, is unrealistic and non-functional in terms of the individuals involved. Even in the subject-centered curriculum where achievement in the various academic areas is the expressed goal, this mass approach is wasteful, uneconomical, and inefficient. It limits and bores the more able, frustrates and defeats the less able, and runs the risk of not even interesting nor challenging those who fall in the so-called average category who are supposedly somewhere near the norm. They become totally dependent upon the teacher for making the decisions, setting the limits within which they can operate, and assuming the responsibility for the quality and extent of their learning experiences.

These teachers viewed the curriculum as a certain amount of subject matter to be covered in a specific given time. Certain books must be read, workbooks had to be accomplished according to schedule, graded word lists [perhaps totally unrelated to the other aspects of learning] were to be memorized for spelling. Arithmetic, geography, history, art, music, language, literature, spelling, writing, and reading were dealt with as separate areas distinct and apart from each other. A certain specified time was given to each during the week, compartmentalizing to the extent that integration of learning became next to impossible. The teachers often expressed concern about completing all the material--"getting through the books by the end of the year." In situations like these it is inevitable that individuality is lost sight of. First grade is the place to learn to read so that the boys and girls will be ready for second grade. Second grade becomes a time and place to accomplish this much of these things so they will be able to succeed in third grade and be ready for fourth. The sixth grade is the place to get ready for junior high school where three years will be spent gaining competencies for successful achievement in high school. As they advance through this continuum they are somehow expected to become more alike when actually, because of the great range in any group of abilities, rate of growth, interests, experiences, etc., they become more individual and the range in any

one aspect of growth or development becomes greater, and the need for individualizing the instructional program becomes more pressing.

Meeting Individual Interests and Needs. At a very early age Denton expressed an interest in things mechanical. His father had been a pilot in World War II, was engaged in flight training following that, and throughout the years has been the service manager in a rather large garage. On several occasions the boy exhibited not only a continuing interest but some aptitude as well in this area. When the observer from the Child Development Laboratory took him in her car to attend a movie, he spent quite some time telling her what was wrong with the motor of her car. He said he planned to be a pilot and his plans now as a senior in high school include the air force for his military service and perhaps electrical engineering as a vocation.

At one period of his elementary schooling he also exhibited quite a bit of interest in music.

Are there ways the teachers could have used these interests of Denton's to have enriched his learning experiences and helped him to achieve some of his own immediate goals as well as more adequately achieve the school's academic purposes? Surely, if it can be assumed that certain of the skills that are so greatly emphasized by the school are tools to learning, then the content which is based upon the real concerns of a

child might become the focus for the acquisition of these skills. Throughout his school experience he has expressed a dislike for reading. He does not include reading in his leisure time activities nor does he read unless it is required of him. There is no record nor reference made to supplementary reading materials accessible in the classroom. Each year the reading activities centered around the basic text of the specific grade level. Reading throughout the elementary years was a subject to be taught and learned rather than to be used and enjoyed. Although Denton achieved in reading and grew in this competency at a rate consistent with the various other aspects of his growth, since he did not reach the grade norms he was always faced with the necessity of striving beyond his capacity to accomplish the material at the grade level. It is little wonder that reading always seemed difficult and defeating to him. It stands to reason that if he had been helped to feel successful in this area and had been given many opportunities to read materials at a level which he was able to operate comfortably, that his attitude towards reading may have been very different.

Materials, of course, must be made available. A library, rich in resources consistent with the interests, needs, and abilities of the boys and girls, is a must for every elementary school. This means that where it is possible a trained librarian who knows both the materials and the children be

employed to implement the program. Classrooms can become places where children are motivated to use attractively displayed books and materials both for enjoyment and the acquisition of skills and knowledge. A reading corner with comfortable easy chairs where boys and girls can relax and enjoy themselves does much to encourage them to engage in reading activities. It is not impossible nor difficult to build up a very adequate classroom library that will satisfy both the interest and the reading level of each child in the room. Where there is no school library other facilities may be used; such as, the state, county, and local libraries as well as the home libraries of the boys and girls. History, geography, science, literature, health, and all the other areas of the curriculum can be enriched by a wide use of books, periodicals, and audio-visual materials geared to the varying interests and abilities of the group. When they are all reading and studying from different sources they have a variety of information and ideas to share with the group. In this way the slower reader has as much that is as important to contribute as does the more gifted and the learning experiences are greatly expanded for all. It is very probable that if Denton had been given many successful and enjoyable experiences with reading that his attitude towards reading would be very different from what it now is. Everyone enjoys those things he can do well including the child.

Teachers are often heard to state that meeting individual needs is next to impossible. With thirty or more children in the room it is not practical to cater to each one and his particular whims and fancies. Children's interests, they say, are fleeting and transitory. What they seem to be consumed with today, tomorrow they have forgotten. The job of the teacher is to see that they get what they need and the assumption is that the course of study fulfills those needs.

Granted that there is some basis for these statements, that interests of boys and girls do change and that all cannot be engaged in different and separate endeavors; however, no one who has worked with elementary school children would deny that they have many interests in common. Departing from the uniformity of the same curriculum, the same material, and identical expectations for all does not mean that the other extreme be adopted or that the subject matter that is considered so important be abandoned. Denton, as has been pointed out, displayed an intense interest in airplanes from an early age. One of his hobbies was making model airplanes. His father is a licensed pilot and evidently stimulated Denton's interest in all aspects of flying. There is no way of knowing for certain, but there is a good chance that if one of his elementary teachers had capitalized on his interest that she would have found quite a good sized group of her pupils--particularly the boys--who would have been highly motivated

in this area. Around this center of interest could revolve many activities that would further the subject matter goals. Skills in reading, speaking, discussion, writing, spelling, arithmetic, etc., could be enhanced in a real, meaningful situation. Creative experiences in writing, arts and crafts, and dramatics could well be an integral part of their activities. Denton's father and other adults in the community would have become valuable resources to the group. There were many places in the area that could have been visited on worthwhile field trips. With cooperative planning on the part of the teacher and the group their interests might have grown and broadened. Such areas as weather, astronomy, rockets, jet-propulsion, aero-dynamics, electronics, geography, history, and probably a host of others to intrigue, interest, and challenge their innate curiosity and desire to learn are closely allied to this interest. It is difficult to imagine just to what proportions these opportunities for real learning might have grown.

Cooperative Planning. If children's interests are to be considered in this way much more responsibility is placed upon them to define their own goals and purposes, to plan ways for achieving these ends, to carry out and follow through the plan as well as to make the evaluation of the project or undertaking. Leadership will develop from the group and will be shared by its members. The teacher becomes an advisor, consultant, and resource person who guides and helps them

achieve their goals. In such a situation she is not the task-master, the judge, nor the jury. The boys and girls no longer are working for her. Artificial motivations of exterior rewards and punishments become useless. Assignments are self-assumed. The children become mutually responsible to each other. Each person is committed to the group to carry through his part of the job. Achievement becomes its own reward and there may be little need for arbitrary marks or grades. Learning becomes meaningful, purposeful, and self-satisfying.

School experiences are too often totally unrelated to out of school activities. Where children's real interests, concerns, and problems are made the focus of the school program the activities both in and out of school contribute to each other. Teachers need to learn many more skills of working cooperatively with children.

What is being suggested here is obviously what is referred to in the literature as "pupil-teacher" planning and means just this. Both pupils and teachers have their part in the determination of what is done as well as where, when, why, and how it is done. The teacher still retains the responsibility as the adult leader and professional guide of the group. The teachers', parents' and societal aims and goals are not ignored. Many teachers even within a quite restrictive course of study are able to give children many opportunities to make choices and arrive at decisions within the limits that have been pre-determined.

Hymes has the following to say concerning the needs approach:

> "Whatever they want to do is O.K." People who react this way are apt to say: "Schools just let children do whatever they like to do."
>
> This accusation is in part true--perfectly true--and it is good to face it: Children must like what they are doing. You have no other sure way of knowing that they have grown enough. If youngsters like their work, seek it, and want it, then you can be positive that their whole development has reached the point where they can learn . . . .
>
> A teacher's job is to know: What are the significant facts of life? What counts? What matters? What changes the way people live? What adds to human happiness and what ends misery? [37]

Evaluation and Testing. The testing movement, which received its initial impetus in the early part of this century and which has continued to expand and be refined, has had as one of its major outcomes the emphasis on consideration for individual differences of boys and girls. Merely to discover the range of these differences in all aspects of growth and behavior and to recognize these is not sufficient. Teachers, parents, counsellors, guidance persons, school administrators, and all those concerned with the education of children and youth are becoming more and more aware of the fact that if growth and development of an individual is to be achieved to an optimal degree, the educational program must somehow be geared to the needs, capacities, interests, and abilities of the individual.

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[37] James L. Hymes, Jr., A Child Development Point of View (New York: Prentice-Hall, Inc., 1955), pp. 90-91.

Torgerson and Adams,[38] while pointing out that the desirable effect of the testing movement brought about the recognition of the wide range of individual differences, listed the following undesirable outcomes:

1. Standardized tests were frequently selected for use in a school without consideration as to how well suited they were to the goals of the local educational program.

2. The results of survey tests were frequently misused in an attempt to judge teaching efficiency . . . .

3. . . . teaching in many schools became in part an attempt to teach for test-passing.

4. The tests failed to evaluate growth on a sufficiently broad basis . . . . Hence, teachers' emphasis on the outcomes tested led . . . to an undesirable narrowing of the educational program. What was most measurable became most important.

Many tests have now been developed to measure the broader goals of education; such as, personality, values, attitudes, interests, aptitudes, understandings, appreciations, feelings, and interpersonal relations. Evaluation of necessity is an integral part of the teaching-learning process.

> In elementary education there has been for some years a growing recognition of appraisal and evaluation as an integral, intrinsic and essential part of the total educative process. Evaluation has been seen not as an end activity to be done by some external agency, such as a teacher or an examining board, on a specific calendar date; it has

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[38] Theodore L. Torgerson and Georgia S. Adams, Measurement and Evaluation (New York: The Dryden Press, 1954), p. 8.

> been conceived as a necessary ingredient of all learning, to be engaged in cooperatively by learner and teacher together, impossible of separation from other phases of the total learning process.[39]

Thus, the child-study approach becomes the basis for making decisions on what shall be learned, the methods and techniques of teaching, the kind and quality of learning experiences to be provided, and a constant on-going evaluation for making judgments as to effectiveness of the learning process and for redefining goals and planning further learning experiences in the light of these goals.

Denton's case is an example in point where evaluation was external--something that was done to Denton. The purposes were not his. They were the traditional subject-centered goals geared to academic achievement measured against inflexible standards and grade level norms. The evaluation became a grade or mark given him by the teacher at periodic intervals which was supposedly to communicate to him and his parents the degree of his success or failure. The danger with this is that the goals will become the marks or grades. Children work to please the teacher, who is the sole evaluator, and to accomplish the ends and standards which she sets for them. They seek to gain the reward--a good mark, and to avoid the punishment--a poor mark. They become so engrossed in this

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[39]Agnes L. Adams, "Appraising Student Achievement and Development," Current Trends in Higher Education, Fourth Annual Report of the National Conference on Higher Education, 1949, p. 85.

that there is little or no time nor energy left to pursue their own interests, or to find out about things they want and need to know.

Where marks are used there is a question as to the validity of the motivation for learning. In reviewing Denton's case history it is difficult to find instances wherein he was pursuing some interest or need of his own for acquiring a skill, for gaining knowledge, or even satisfying an intrinsic desire. This is summed up quite well by Elsbree:

> Under the traditional scheme marks acquire an intrinsic value and the pupil's ambition is to qualify for the mark regardless of how little command he may have of the subject matter taught. . . . pupils are impelled to study because of the prestige which the mark carries or the privileges which it brings. Thus the vast proportion of pupils attach little significance to the knowledge and skill which they command, and seldom look beyond the mark to see its full implication.[40]

It is quite likely that pupils, who like Denton have long since learned the futility of striving for higher marks, cease not only to be motivated by them but merely maintain an apathetic attitude of "getting by."

Nor is the deleterious affect upon the pupils alone. Elsbree[41] goes on to say that as long as teachers can wield the "big stick" of marks and grades this has the danger of

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[40]Willard S. Elsbree, Pupil Progress in the Elementary School (New York: Bureau of Publications, Teachers College, Columbia University, 1943), pp. 65-66.

[41]Ibid.

substitution for good teaching. Rogers writes, referring to marks:

> Removal of the modern crutch will literally force teachers to greater classroom efforts and better preparation of their own programs. It will also reveal the inept pedagogue, to himself as well as his superiors.[42]

The fears and tensions that are created as a result of marks and the ensuing threat of failure are certainly not conducive to learning. Hymes points out the lives of children are filled with unpreventable failure of all kinds. He goes on to say:

> A little realism will tell us that children are well acquainted with failure. We do not have to think up ways to fail them in order to stiffen their backbones. We do not have to serve extra helpings of failure simply to remind youngsters that there is such a thing.
>
> Somehow we in school work must learn to understand that failure is a sharp hunting knife if used on a school age child. . . . The school that wields failure like a meat axe makes mincemeat of children's attitudes towards themselves.[43]

The direction the modern school seems to be going is toward parent-teacher-pupil conferences. This method seems more defensible in terms of the expressed goals of evaluation. Faunce and Bossing have summed up the advantages which parents and teachers see in these conferences as follows:

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[42]Frederick R. Rogers, "Education Versus the Marking System," Education, 54 (December, 1933), 234-239.

[43]Hymes, op. cit., pp. 90-91.

1. The parent-teacher conference provides the opportunity for a clear, descriptive report of pupil progress.

2. It brings teachers and parents into contact, and provides a chance for them to get better acquainted.

3. It encourages parents to ask questions and get satisfactory answers.

4. It permits reporting to be made on the basis of the individual's own development in terms of his own potential, instead of forcing automatic comparison with other pupils.

5. It enables teachers to find out more about their pupils.

6. It strengthens the school-home ties, and thus makes a significant contribution to "public-relations."

7. It challenges the teachers to do real evaluation. One cannot effectively participate in such conferences without first knowing something about pupils.[44]

When confronted with this problem teachers are apt to blame parents by implying that the traditional report card is not only expected but demanded by them. This may be true but only because teachers have shunned their professional responsibilities as educational leaders and consultants in growth and development of children. For example, parents have long since learned that comparing one child with another in the home or neighborhood is most devastating to human personality.

44Roland C. Faunce and Nelson L. Bossing, Developing the Core Curriculum (New York: Preintice-Hall, Inc., 1951), p. 296.

Why then is it that they are sending their children to school and asking the teachers to make the same odious comparisons? It is possible that our pediatricians, psychologists, and psychiatrists, as well as the experts writing in the women's magazines of the day have greater status with the public. Is it also possible that the educators have been lax in both their knowledge of the field of growth and development, and their ability to counsel with parents on professional matters concerning their children? This has implications not only for the teachers, but for the institutions who are preparing them.

Grade Placement, Promotion, and Retardation. Closely allied to this question of marking are the problems of grade placement, promotion, and retardation. Although in the school in question promotional practices are based more upon the total aspects of growth, Denton, nevertheless, was threatened towards the end of the fourth grade with retardation, and, as a motivating device, was given conditional promotion. It was at this point that his academic achievement showed a lag that might be inferred to be a result of the impending threat of failure. Also he began to exhibit behavior that was unacceptable to the school. It is difficult to be sure that this was the determining factor in the change which took place, but it doubtless did contribute to it.

Sandin[45] in his study in this area pointed out the unfortunate psychological effects on children who were retarded. According to teachers these children exhibited more behavior of the sort likely to be troublesome and aggravating. The study by Otto and Melby[46] has shown that the threat of failure affords ineffective motivation.

Nor does the repetition of grades help pupils to achieve even academically. Research studies have consistantly shown that pupils who have repeated grades do little if any better the second time than before. In McKinney's[47] study fifty-three per cent of the repeaters made no improvement and twelve per cent did poorer work. In Otto's[48] survey the literature indicated that about twenty per cent of the repeaters do better and forty per cent do worse than before. He concluded that if the objective of the modern school is the optimal development of its pupils, "non-promotion is not the way to get it."[49] In a study of fifty-six counties by teachers and

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[45]Adolph A. Sandin, "Social and Emotional Adjustments of Regularly Promoted and Non-promoted Pupils" (unpublished Ph.D. dissertation, Teachers College, Columbia University, 1942), passim.

[46]Henry J. Otto and Ernest O. Melby, "An Attempt to Evaluate the Threat of Failure as a Factor in Achievement," Elementary School Journal, 35 (April, 1935) 588-596.

[47]B. J. McKinney, "Promotion of Pupils--A Problem in Educational Administration" (unpublished Ph.D. dissertation, University of Illinois, 1928), passim.

[48]Henry J. Otto, Elementary School Organization and Administration (New York: D. Appleton-Century Co., 1944), p. 232.

[49]Ibid.

supervisors in Virginia it was reported that the repeaters in those counties did not show any marked improvement in their knowledge of subject matter after their second year in the same grade.[50]

Another reason given for non-promotion is that groups are kept more homogeneous in their academic makeup and thus make learning more efficient. Elsbree, however, refutes this with the following:

> Proponents of non-promotion as a device for making teaching easier point out that the removal of grade standards and the policy of promoting pupils who fail to achieve them tends to increase the variability of the teaching groups and thus makes the task of the teachers more difficult. . . . the objective evidence does not lend support to this argument. Investigations indicate that the spread in achievement where normal progress is the rule does not differ significantly from that where non-promotion is employed.[51]

Beauchamp takes the following strong stand in discussing promptional policy:

> A child's unsatisfactory progress in the elementary school can be explained only by one of three reasons. One could be a matter of lack of maturation. This the child cannot help and only the passage of time will take care of the matter. The second reason for poor progress could be lack of ability. This the child acquires by accident of birth, and again he can do nothing about it and neither can school teachers. The third reason could be that the child is the victim of a poor instructional program and a poor curriculum. Again the child has no control over this situation. It seems to the author to be an

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[50] Annual Report of the Superintendent of Instruction of Commonwealth of Virginia with Accompanying Documents for the Year 1937-38 (Richmond, Virginia: Board of Education, 1938), p. 16.

[51] Elsbree, op. cit., p. 17.

> immoral act on the part of an adult to fail a child after an entire year of effort for any of these reasons, since they are completely beyond his control.[52]

In surveying the literature it was found that there was little or no support in the research for either the traditional marking system or retardation of pupils. All the data seem to point toward the ultimate goal of a close relationship in the area of evaluation among the teachers, the parents, and the pupil so that there be a pooling of information and understanding; a three-way assessment of growth and development consistent with the goals and values of those concerned. This is essential to the child study approach even though various other techniques are being used.

Providing for Personal and Social Growth. There is little or no disagreement on the part of educators today that one of the major responsibilities of the school is to help youngsters to make successful personal and social adjustments. Despite the wide criticism that today's schools are not teaching adequately the so-called "fundamentals," business, industry, and the professions are testifying to the fact that lack of success on the job is mostly due to factors involving habits, attitudes, and values which result in poor personal and social relationships, rather than from lack of skills or abilities.

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[52]George A. Beauchamp, Planning the Elementary School Curriculum (New York: Allyn and Bacon, 1956), p. 271.

If the goals of education are viewed in the broad sense of helping individuals towards successful living in a democratic society, then the classroom becomes an ideal opportunity for the kind and quality of living which will help boys and girls to gain the necessary personal and social skills. This does not mean that additional or different kinds of subject matter must be taught but that ways of working with children within the classroom setting must be established which provide the kind of experiences in everyday living that are consistent with the expectations of society.

Denton's teachers considered him somewhat shy and sensitive. They accepted him as a boy who was content to sit back and let others make decisions or take the lead. His school experiences were limited to doing pretty much as he was told. About the only choice he had was whether or not he would do it. He and the other children were allowed a minimum of interaction with each other. In a democratic society two of the most desirable goals are for an individual to be able to communicate with others and to be moved to help other human beings. These activities are considered in the traditional classroom as misbehavior. Denton apparently needed many opportunities to gain competence in personal and social skills.

Teachers must begin to look upon behavior in the light of something other than that which is to be "disciplined." Denton's shyness was behavior. Ojeman and Wilkinson, in

summing up the findings of their study of teacher understanding of pupil behavior indicate:

> . . . it is not enough to be concerned about "problem children" when it comes to personality development. Teachers to be effective guides for learning must know their pupils not as entities in the classroom but as living personalities with ambitions, attitudes, conflicts, and problems coming from environments that vary greatly in the encouragement or discouragement effected.

If teachers are to get to know their pupils they must have continuous opportunities to observe them behave in all kinds of situations. This presupposes then an environment in which there is freedom to behave. Denton's shyness and lack of socialization with his peers, although not extreme, was symptomatic as is all behavior. A permissive atmosphere where children are free to relate to one another, where they are free to have differences and discover ways to resolve these differences; where they are free to communicate with and help one another, is the only kind of setting in which they can gain the skills that are held so important and where teachers can discover and help them solve the real life problems that are confronting them and keeping them from developing fully.

Discipline should be an aspect of growth rather than something which is viewed as control which tends to narrow and inhibit growth. Discipline is not outmoded in the concept of the modern school. Sheviakov and Redl have described

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[53]Ralph H. Ojemann and Francis R. Wilkinson, "The Effect on Pupil Growth of an Increase in Teachers' Understanding of Pupil Behavior," Journal of Experimental Education, 8 (December, 1939), 143-147.

this concept quite well in the following four principles of democratic discipline:

1. We want discipline based on devotion to humanitarian principles and ideals such as freedom, justice, and equality for all rather than discipline based on a narrower, more egotistic affiliation of "MY group."

2. We want discipline which recognizes the inherent dignity and rights of every human being, rather than discipline attained through humiliation of the undisciplined.

3. We want self-direction, self-discipline rather than discipline based on obedience to a Fuhrer.

4. We want discipline based on understanding of the goal in view rather than discipline based on "taking someone else's word for it." [54]

McCall defines the socialized individual as one " . . . who has learned to discipline his wants in such a way as not to come into violent conflict with the wants of others."[55] The classroom should become the laboratory for experimentation in socialization. Jennings enlarges upon this idea:

> The kind of group life in which an individual participates contributes to his personal development. Individuals can fully develop only in interaction with their fellows. The happiness and growth of each individual student depend in a large measure on his personal security with his classmates. In a group he also learns to face, to analyze, and to assess problems in a social context, and to develop ways of solving them with others . . . .

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[54]George V. Sheviakov and Fritz Redl, Discipline for Today's Children and Youth, Association for Supervision and Curriculum Development (Washington, D. C.: National Education Association, 1945), p. 19.

[55]William A. McCall, "My Philosophy of Life and Education," Teachers College Record, XXXV (April, 1934), p. 569.

> Children need approval from others of their own age possibly more than the approval of their teachers. They need to grow in their ability to appreciate others, and to make a place for themselves. They should have opportunities for socialization, for exchange of ideas, for helping one another, and for exploring one another's personalities.[56]

If peer status is so vitally important to the individual then it becomes crucial for the teacher to find ways to assess this status. Sociometry is rapidly gaining favor among teachers as a technique for diagnosing peer relationships. The sociometric test is defined by Northway as:

> . . . a means for determining the degree to which individuals are accepted in a group, for discovering the relationships which exist among these individuals, and for disclosing the structure of the group itself.[57]

This book is a good resource for teachers who would like to learn about the possibilities of the use of sociometric techniques in their classrooms. Laughlin's[58] study of peer status is an excellent example of how a teacher's use of sociometric techniques lends itself to sensitizing the teacher to children's group status and affecting changes to improve the social relationships of the boys and girls in the situation.

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[56]Helen Hall Jennings, et al., Sociometry in Group Relations (Washington, D. C.: American Council on Education, 1948), pp. 4-5.

[57]Mary L. Northway, A Primer of Sociometry (Toronto: University of Toronto Press, 1952), p. 7.

[58]Frances Laughlin, The Peer Status of Sixth and Seventh Grade Children (New York: Bureau of Publications, Teachers College, Columbia University, 1944), passim.

Emphasis upon the personal and social relationships of boys and girls does not preclude the neglect of the so-called academic fundamentals. It is not an "either-or" proposition. Beauchamp in discussing the nature of the learning process, sums up as follows:

> Finally, we must remember that in the elementary school we are not interested in learning simply for its own sake. We are concerned with children's behavior so that they might be more worthy citizens by being able to solve their social and personal problems as they live from day to day.[59]

Providing for Home-School Relations. As has been demonstrated throughout this study, Denton is, as is each child, a distinct, unique, highly individualized personality. He came to school in the kindergarten as such, "bringing his family with him." The pre-school years, from birth to approximately five years, are often considered the most formative of a person's life. They are spent almost exclusively in the family situation. What Denton was; how he felt about people, things, and ideas; what he thought; how he acted and reacted; what he wanted; in fact all of Denton, was the result of the experiences he had had up to this time. His complexities of experiences had given him basic attitudes, values, feelings, interests, needs, concerns, and habits--some of these would be changed with great difficulty and others possibly not at all

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[59]Beauchamp, op cit., p. 131.

> To a large extent their families have shaped these unique personalities. Furthermore, the home forces that have functioned in the past will continue to operate--will continue to express themselves in the child's behavior--even in the classroom . . . . To understand why each youngster thinks, feels, and acts as he does, one must therefore know something of his family.[60]

The entire basis for the child-study approach is as complete a knowledge and understanding of the child as possible so that he can be helped to grow and learn successfully. Since the home and family environment is so crucial to this growth and development it becomes mandatory that a great effort be made on the part of the teacher to gain understanding of and insight into the deep emotional relationships within the family.

Redl and Wattenburg state that:

> Very few really important problems involving children can be solved adequately without bringing their parents into the picture. Most of the serious conduct difficulties originate in home conditions.[61]

Nor is it just the problem of "difficulties." There are many positive aspects of the home conditions which can, if the teacher is aware of them, contribute to the improvement of the quality of living and learning of the individual. Many times, through lack of communication, the home and school are

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[60]American Council on Education, Helping Teacher Understand Children (Washington, D.C. 1945), p. 42

[61]Fritz Redl and William W. Wattenburg, Mental Hygiene in Teaching (New York: Hourcourt, Brace and Co., 1951), Chapter V.

working at cross purposes when their goals for the youngster are the same.

Denton would have possibly benefited from a closer relationship between the home and the school; i.e., between his teachers and parents. Both his teachers and his parents, especially his mother, had academic expectations for Denton. For example, both wanted him to read, to write, to figure, and to spell to a certain degree of competency. The degree of these expectations is what probably worked a hardship on Denton. Denton's expectations for himself were formed from those of the teachers and the parents. The teachers' seemed to have been arrived at from the grade norms of achievement tests and the parents' from the success of the older sister. Time and time again Denton's mother "encouraged" him to do as well as his sister before him. What everyone wanted in the situation, of course, was that Denton do as well as possible for him. There was, however, little attempt to define realistic expectations which would be acceptable to all concerned. As has been pointed out in Chapter II, there were available a good deal of data which, if they had been interpreted and communicated to the parent as well as to the teacher, might have promoted Denton's feelings of adequacy rather than frustration.

Both Denton and his parents had certain vocational expectations for him. It is impossible to tell from the study whether or not the school was aware of these. Surely, there should have been a consideration in his school program even

at a very early stage in his educational experience. Even now, when Denton is in the eleventh grade, his self-image interview shows he aspires to enter either medicine [his first choice] or electrical engineering. Neither his academic nor economic status seems to indicate that medicine is a wise choice for him. The question arises: How much help and understanding has Denton received from the school in making this important selection of his vocation? The school has a certain amount of responsibility to both the individual and his parents.

There is no evidence in the study that any of Denton's teachers visited his home. During his elementary years his mother came to school for parent-teacher conferences. According to the reports they were helpful although somewhat superficial. They talked about his academic achievement, but always in terms of "how can we get him to do better." The mother and the teacher discussed his problems of behavior at home and at school, but always with the idea, "How can we get him to conform." As was stated this is probably better than no contact between the home and school, but there is the question of how much Denton was helped by these interviews.

The goals of education in our society are pointed towards the quality of the individuals. Education must always be evaluated in terms of these individuals. What contributes to the achievement of these goals must be looked at in light of the improvement of the product. This is the purpose of home-school relations.

> The proof of the pudding in home-school relations is whether or not youngsters living is improved:
>
> 1. Do they have a richer, fuller, more nourishing life, in school and out, than would otherwise be open to them?
>
> 2. Do they have more consistent guidance, in school and out, and, as a result, live more fully at the peak of their powers?
>
> . . . . Presumably youngsters will gain in proportion to the fullness with which a school carries on its home-school relations. Assuming that the techniques suggested, children's living should be improved as more and more ways of working with parents are used.[62]

This becomes another plea for the individualizing of our instructional program. Lee lists as blocks to individual instruction:

> 1. We do not adequately know our children. Much more can be done in all schools in getting better acquainted with the children, with their home conditions, with their abilities, with their motivations.
>
> 2. We are not too conscious of how differences in background affect learning. Does a child who has travelled widely have a better motivation for studying geography than one who hasn't? Does a child who has interest in science have a better motivation for studying science? What differences exist in children from homes of lower social economic backgrounds? What differences exist in their ability to use language, in their ability to understand various social concepts? There is some research in this area but the most important thing is that each faculty study their own children to see what differences exist in specific youngsters.[63]

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[62] James L. Hymes, Jr., Effective Home-School Relations (New York: Prentice-Hall, Inc., 1953), p. 225.

[63] J. Murray Lee, "Individualized Instruction," Education, 74 (January, 1954), 279-283.

If good home-school relations are to be established, it rests with the professional educators to provide the leadership. The motivation already exists. It can be assumed that almost all parents have a consuming interest in their children. Teachers, it must be assumed, have this in common with the parents. As a basis for establishing good relationships Goodykoonz suggests five points upon which parents and teachers agree:

1. Neither group wants children to fail. Both agree that experiencing frequent failure is hard on children.

2. Neither group wants children to be pushed faster than is good for them.

3. Neither group wants children to be caught between the pressures of differing standards at home and at school.

4. Neither group believes that learning goes on only at school or only at home. They realize that the child is a product of his total environment, and that he is learning all the time, many things from many persons. Both groups want to increase children's receptiveness to new ideas and new skills.

5. Neither group believes that all that is worth while for children to learn is included in the school curriculum.[64]

What better bond could there be for bringing the two groups closely together? As has been stated, teachers must furnish the leadership. They must first of all really want to establish a working relationship with parents. They must

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[64]Bess Goodykoonz, "Parents Can Help Educate Their Children," National Parent-Teachers Magazine, XLVII (November, 1952), p. 6.

feel the importance of good home-school relations. They must be convinced of the necessity of cooperation with parents for the sake of the youngsters. Although teachers agree to this in principle, they excuse themselves on the grounds of lack of time, disinterest on the part of parents or administration, or lack of "know-how" to proceed. Parents on the other hand have still not lost their awe of the school and many still retain their fear of and antagonism toward the classroom which represents to them many unpleasant memories. Teachers need first to be convinced of the importance of involving parents and secondly, to acquire some skills in the how of the process of this involvement. The teachers day-to-day work is with children. It cannot be assumed that they will all necessarily be effective in working with adults. More and more teacher education institutions are recognizing this need. In some student teaching experiences they are offering opportunities for living in communities and working with parents both in school and community activities.

There are many ways in which teachers and parents can work together to establish a relationship between the home life and school life of the children. Parent-teacher conferences and home visits have already been mentioned. There is the more formal Parent-Teacher Association organization which exists in most schools today. Many teachers, especially in the elementary school, are finding room organization of parents

a way in which to reach these families with whom they are immediately concerned. Encouraging parents, both mothers and fathers, to visit school and help them to feel at ease by involving them in what is going on, is another sure way of building good relationships and furthering understanding. Parents can be involved in many more of the school activities. There are teachers who make resource files of parents' interests, backgrounds, skills, and competencies and call on them frequently to participate in activities of their interest where they can contribute. The kind of out of school social contacts the teachers have is also most important. Teachers must begin to realize their responsibility as community members and become involved in activities and organizations of the community.

Conclusion. The writer has attempted in this final chapter of the study to show how the individual longitudinal case inventory serves as a basis for curriculum development. The subject matter, grade placement type of program does not meet the needs or achieve the goals of modern education which are viewed in the light of helping individuals toward optimal development for living successfully in a democratic society. Gesell and others served a purpose by their general approach to child study from which they drew conclusions in terms of averages or norms. This approach, however, has been found lacking since the individual does not grow and develop consistent with these averages or norms. Since learning takes

place best when it proceeds from the needs and interests of the individual and is consistent with his ability then the individual must be studied if a curriculum is to be built which will contribute most adequately to his development and growth.

In showing how this might be done for Denton on the basis of the detailed data and its interpretation in light of educational implications for him, this study has fulfilled its purposes. The writer has pointed out continually how this may be achieved with Denton and how it may be applied to other children in the classroom. The specifics were meant to be suggestive only. No right ways or sure methods were meant to be inferred. Many more examples of good classroom practices and organization could have been given. There are many ways of achieving the goals of the child study approach. There is no <u>one</u> way--no <u>best</u> method. The writer would presume, however, that any of the various techniques and methods should be consistent with the principles of child growth and development as they have been described.

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