RELATIONSHIP BETWEEN PROGRESS OF RETARDED SUBJECTS IN AN EXPERIMENTAL PROGRAM AND SELECTED INDIVIDUAL CHARACTERISTICS

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CHAPTER I

INTRODUCTION

Historical Trends in Treatment of the Mentally Retarded

Man has dealt with the mentally retarded in various ways throughout history. In ancient times, Spartan parents exposed their handicapped offspring to the elements to perish. In the Middle Ages, the retarded were exploited as "fools" or jesters for the pleasure of the lords and their ladies (9). In some countries, the afflicted were regarded as persons to be honored and almost worshipped, since they were believed to be possessed by abnormal or powerful spirits. In later times during the Protestant Reformation, most people thought the handicapped and retarded were "possessed with the devil", and therefore, the common treatment was to "beat the devil out of them" (9, 14).

Prior to 1800 the church provided a sanctuary for the handicapped and retarded. Most religions of the world emphasized compassion for the less fortunate. The churches of Europe began to systematically provide asylums for the less fortunate members of society, including the mentally handicapped, from the thirteenth century on (9, p. 14). In these

asylums no attempt was made at treatment or education. The "asylums" were provided only as a shelter from a harsh and competitive society.

The treatment received by the retarded prior to 1800 was influenced by the philosophy of most professional persons of that day. The major consensus of professional opinion was that heredity was the major cause of retardation, and that it was incurable. The belief was generally held that attempts to educate the feebleminded, to teach them useful skills, or even to train them to care for themselves were for the most part wasted. "Idiots were uneducable" (20, p. 217). This point of view, which seems pessimistic by today's standards, precluded treatment and education of the retarded. A retarded person was given no opportunity to change his intellectual and social status. Professional persons completely ignored the intellectually subnormal; the only care during this period was provided by the church (9, p. 14).

One of the first professional persons to deal with the field of mental subnormality was Jean Itard. Itard was a French physician who had been deeply influenced by the teachings of John Locke and Jean Rousseau (9). This school of thought was the opposite of the "hereditarians" and "naturalists." Its followers were "environmentalists" and "sensationalists." The philosophy which Itard embraced rejected

the view of the "naturalists," who had emphasized the extreme importance of heredity and innate ideas in the development of human knowledge. Instead, Itard believed that learning came only through the senses, and that all persons could develop the ability to learn if given adequate stimulation. The tablua rasa doctrine proposed by Locke and held by Itard denied the existance of innate ideas and asserted instead that all knowledge derived from experience (6, p. 17).

Itard was able to put his philosophy into use in 1800 when a boy was captured in the forest of Aveyron. The physician Pinel diagnosed the boy as being severely retarded. Itard taught the boy intensively, attempting to promote changes in his behavior. Although the boy was never able to reach the level of achievement to which he had been urged, marked changes in the boy's behavior did occur. The "Wild Boy of Aveyron" was able to dress himself, use table implements, and perform other simple tasks after the intensive education undertaken by Itard. While Itard viewed his experiment as a failure, he did succeed in bringing the nature of mental retardation to public attention and in initiating a great deal of interest in the problems of mental retardation (21). Students in the field of retardation regard Itard's work as the first scientific attempt at training a

retarded child (9). This work demonstrated that a low grade mental defective could acquire a few useful habits.

The work by Itard served to stimulate a movement away from custodial care of the retarded by the Church. The emphasis changed from concentration on protection and custodial care to that of treatment and education. Several schools for the retarded were established in Europe, and the prevalent theory at that time was that mental defect and subnormality were amenable to education.

One of the most important of these schools was founded by Edward Sequin, who had studied with Itard (20). Schools developed by Sequin in Paris were based on the concept that mental defect is amenable to education. He recognized that it could not be the same type of education given to normal children in their schools, but a special kind of education adapted to the needs of the retarded.

Sequin established the first residential school for the retarded in Paris in 1837 (9). The school was used to test his complex and systematic techniques for training the retarded. The method was called the "physiological method" (20). In 1848 Sequin came to America, where he encouraged the establishment of schools for the retarded and the use of his system of training.

By 1900 residential schools were established in most of the states of New England and others scattered throughout the country with a total number of patients approximating 14,000 (9). "At the beginning of this movement, it was strongly believed that the expansion of residential institutions was the ultimate solution of the problems presented by the retarded" (12).

The institutional schools were originally developed for the purpose of providing relatively short-term educational and training programs for all but the most severely retarded (12). It was believed that these specialized and modified educational programs would enable the majority of the retarded to make an adequate social adjustment. It was soon discovered that these individuals could be taught simple skills and useful habits, but each individual had intellectual limits beyond which he could not progress. The education and training provided in these institutional facilities could not add anything to original endowment. The retarded could not be "trained out of their backwardness".

At about the same time that the above discovery was made, an important genetic study appeared. The Jukes was a study of the social adaptation of a family for five generations (21). The author of the report, Dugdale, concluded

that "crimes against society" were transmitted along family lines, but he did not believe that this transmission was necessarily on a hereditary basis (21). These findings were unfortunately overgeneralized, and society concluded that hereditary transmission of mental retardation had been proven.

Professional workers and the general public both held many misconceptions during this period. Some of them were "that mental deficiency was a disease; that delinquent and criminal behaviors were a direct consequence of mental deficiency; and that mentally retarded individuals should be kept in prisons or homes for paupers" (21, p. 12). "Subnormals came to be regarded as dangers to society both directly in being responsible for many social ills such as crimes and indirectly in threatening to overwhelm the world by their apparent reproductive fertility" (42, p. 16).

The combination of unsuccessful attempts at restoring the retarded to complete normality and the popular misconceptions concerning the social and hereditary nature of retardation led to a sharp rise in the construction of institutions. There was a gradual abandonment of educational and training programs within the institutions already in existence. Most of the retarded were placed in institutions for eugenic reasons, and little provision was made for their special education or training.

The program of most institutions during this period became one of providing long-term custodial care; training was aimed at making the retarded useful around the institution. "Institutions were no longer viewed as training schools but as establishments for permanent custody" (7, p. 146).

Recent Trends in Institutional Care of the Mentally Retarded

Only within the last two decades or so has the role of the institution once again begun to show some wide-spread change. In the early part of the Twentieth Century, some attempts at differentiation in the segregation and treatment of the mentally retarded began to appear. Institutions and special schools again began to become interested in the education and training of the mentally retarded. Hutt (21, p. 12) suggests that "much of this more desirable attitude was made possible by the development of intelligence tests". The wide-spread use and acceptance of intelligence tests made the measurement and detection of mental retardation more accurate.

The use of intelligence tests during World War I and their increased use in surveys of school populations served to stimulate both controversy and research regarding the nature of intelligence and the meaning of the term "feebleminded." The country was shocked to learn that almost one half of all the army recruits had a mental age of twelve years or less.

The surveys of school populations yielded the same results (21, p. 13). It soon was recognized that the test results were invalidated or confounded by many conditions such as educational and cultural experiences. It was also realized that the intelligence quotient alone was not an adequate measure of mental retardation.

Research led to the redefinition of old ideas about the inheritance of mental capacity. Many previously held conceptions were proven invalid and were discarded. The previously held concept that intelligence was a unitary trait transmitted on a Mendelian heriditary basis was discarded (21, p. 13).

The overall increase in research concerning mental abilities and mental capacity led to a significant gain in understanding the nature of mental retardation. An increased number of specialized provisions were made for training mentally retarded individuals, especially in public schools. Attitudes and concepts in regard to mental retardation were reorganized. The most significant change in this period was the establishment of adequate provisions to meet the unique problems that retarded individuals present (21, p. 14).

The Modern Institution

In 1962 there were an estimated 5.4 mentally retarded children and adults in the United States, representing about

three percent of the total population (27, p. 1).. Over five million of these individuals fall in the mild and moderate categories of retardation, and only a few hundred thousand fall into the severe and profound grouping (27, p. 1).

Residential institutions care for over 200,000 of the mentally retarded (27, p. 1). In 1960 there were approximately 160,000 retardates in 108 public residential institutions operating especially for the mentally retarded. About 43,000 were being taken care of in 279 public mental hospitals, and 10,000 of them were in some 200 private institutions (27, p. 131).

Gardner and Nisonger characterize today's state institution as

> . . . becoming a modern treatment, care and training center, with the goal of providing those programs which will result in the maximum development and care of each person for whom it is responsible. In addition to adequate care and supervision, the goal is to provide the multitude of experiences which will result in as useful and happy a life as the person's capacity will permit. For some, this will lead to independent community placement. For others, the outcome will be a better adjustment to a life of care and supervision whether this be in the home or in the institution.
>
> The modern program provides training and experience in all phases of living--learning to recognize and adjust to their handicap, learning how to work, make and keep friends, use leisure time, handle money and so forth. For the programs designed for those who potentially return to the community, there is developing a close integration of the institution and the community (12, p. 90).

Within today's residential institution, there are usually several different types of programs which may be offered (32). The bedridden patients, most of whom are severely and profoundly retarded, receive round-the-clock nursing care. The facilities and personnel required closely resemble those needed by a general hospital. Many of these individuals have severe medical problems which can be met only in an institution which has these facilities.

Another common institutional program is one of simple custodial care (32). These programs may involve little more than furnishing a safe place to stay, something to eat and wear, and minimal supervision. Little effort is made at rehabilitation or training; the goal of this type program is simple containment. Typically, much of the work is done by the residents themselves. The older patients perform labor which is of benefit to themselves and the institution. Important work is done, and those who participate gain a feeling of worth and accomplishment. Children who are too greatly retarded or too young to care for themselves are bathed, fed, and cared for by the older residents. These younger children may sometimes lie or sit all day, their vacant lives interrupted mainly by spoonfed meals and bedtime. Most likely, their single diversion is a television placed high on a wall, blaring out programs they cannot

understand constantly throughout the day. Although the quality of such care varies widely, at its worst, this sort of program is characterized by "unrelieved deprivation of stimuli; there is nothing to see; nothing to hear; nothing to feel" (32, p. 528). Under these conditions, the less severely handicapped children who could profit significantly from training will never have the slightest chance of gaining the skills needed for life outside the institution.

Two other programs are usually available within institutions. These are the therapeutic programs. One of these programs is termed custodial care in a therapeutic milieu (32). In a program of this nature, some effort is made to train children to take care of themselves to as great an extent as they can within the institution, with or without the goal of returning them to the community. The best of these programs provide recreational programs, bright and cheerful surroundings, and stimulation of many kinds. The efforts made in these programs have much more to offer the retarded child than the minimal custodial programs.

The second type of therapeutic program undertakes intensive rehabilitative and educational efforts with mildly retarded children, adolescents, and young adults (32). Programs of this nature aim to help its participants provide at least

partially for their needs and to return to the community to live with their families and elsewhere. Institutions which possess such intensive educational programs are usually called "schools" rather than "hospitals", "asylums", or "colonies" (42, p. 17).

Modern institutions are often engaged in numerous areas of research. State and Federal grants are often given to institutions in order to initiate and assess the effects of various therapeutic programs. The Foster Grandparent Program at Denton State School in Denton, Texas, is a recent program established to assist retarded children.

The Foster Grandparent Project

The President of the United States announced the first twenty-two projects under the Foster Grandparent Program on August 29, 1965 (40, p. 1). The program is administered jointly by the office of Economic Opportunity and the Administration on Aging (40, p. 1).

The general objective of the program as described by Thornton has been

> to bring two of the deprived elements of our society--old people with low income and dependent, neglected or impaired children--together for mutual assistance. This mutual assistance occurs through the hiring of low income individuals of age sixty or over to work with and for deprived children. Thus, the basic rationale of the program is that these children need

> someone to help them and that the aged need someone to help (40, p. 2).

In the Foster Grandparent Program, ninety-three older persons were employed to provide "tender loving care" for approximately 180 children by having each "grandparent" spend four hours a day, five days a week, with two children (11). In general, the function of the foster grandparents has consisted of talking, playing, and otherwise interacting with the children, and attempting to build a warm supportive primary relationship (11). The foster grandparents were given opportunities to engage in various types of training activities that included feeding, dressing, and other self-help activities as well as efforts directed at physical, social, and intellectual development. In each case the grandparent-child relationship was devoted to the specific needs of the individual child.

The Foster Grandparent Program at Denton State School is a pilot program. Because it is a pilot program, it is constantly in flux. No specific educational and training procedures have been made mandatory for the grandparents to follow. Instead, the grandparents acting singly or as a group have provided many suggestions for activities for the children. These activities have included singing, building bird houses, and even kite flying, along with walks, swinging

and other outdoor activities. Observations of the grandparents and their foster grandchildren suggest that these grandparent-child teams engage in the same sort of activities as normal children and their grandparents would.

As the grandparent project progressed, many more opportunities for the development of social skills became possible. The Foster Grandparent Project was given part of a building where indoor group activities could take place. The indoor sessions became times when the grandparents and their children could meet together as a group to sing songs or listen to stories or just visit.

Attempts to assess the possible effects of the program have been an integral part of the ongoing research concerning the Foster Grandparent Project. As a part of this general research effort the question arose as to the possible individual characteristics of those children who improved the most versus those children who improved the least after exposure to the "foster grandparent" experience.

Purpose

The general purpose of the present study was to ascertain if particular characteristics of mentally retarded children are associated with progress in terms of intellectual and social competence traits after inclusion in an experimental

therapeutic program such as the Foster Grandparent Project. More specifically, the research was aimed at two main objectives: (1) to establish the strength of relationships between changes in social competence and verbal intelligence as criteria, on the one hand, and selected individual characteristics of the children as predictors on the other, and (2) to determine the differences between children who gained most versus those who gained least with respect to certain individual characteristics such as chronological age, length of institutionalization, and age at institutionalization.

Survey of Literature

Although in the area of the study of institutional care descriptions have often been distorted by the purpose of the description, there is a body of literature which suggests that some institutions and institutional programs are more likely to retard than facilitate intellectual and social functioning. Abnormal social and psychological development has often been observed in individuals who have been deprived of adequate maternal care as a consequence of separation from the mother and placement in an institution (2, 5, 14, 15, 16, 17, 22, 23, 38).

There have also been investigations of the effects of institutional care on individuals of different chronological

ages, sexes, lengths of institutionalization, and initial IQ (1, 2, 8, 13, 17, 33, 39). These investigations have attempted to understand why the effects of institutional care are not uniform. Some individuals are affected by their institutional stay more than others.

Another area of research into institutions and their programs has been the establishment of therapeutic programs and the attempt to measure their effects (24, 26, 30, 31, 36, 41). Experimenters who work in this area usually pattern their therapeutic programs after suggestions made by authors both in this area and the study of institutional care described above.

Characteristics of Institutional Care

Much evidence has been gathered which indicates that children who are raised in an institution are often characterized by social and psychological problems. Little work has been done which attempts to compare the institution with an average home. This section is a summary of some of the research which has been done in an attempt to isolate factors which may differentiate the institution from an "average" home.

Yarrow (43) compares the institution with an ordinary home and finds the former to be characterized by less

mothering contact, less intellectual, emotional, and social stimulation, and a lack of encouragement or help in positive learning.

In an attempt to discover exactly how the environment of a "typical" institution differs from a "typical" home, Rheingold (30) used a time sample method. She observed baby care in a well-run nursery as compared with the care of first-born infants in their own middle class homes. The latter babies were found to receive attention four and one-half times more often than the babies living in the institution.

Goldfarb (18) describes infant rearing procedures within infant institutions as often being the "obverse" of those prevailing in families. Goldfarb states: "The child is one of a large group of babies cared for by a baby nurse. The adult-child ratio is very low so that there is a minimum of adult stimulation. Ties with specific adults are described as casual and fleeting. Identifications are consequently relatively unformed. In addition, because of the requirement of group routine, the child's activities are completely regulated from without. He is not encouraged to participate in the formulation of his own day to day program" (18, p. 19).

In most institutions, the low adult-child ratio as described by Goldfarb (18) is effective in preventing sustained or fruitful adult-child interaction. The low adult-child

ratio prevents the institutionalized child from profiting from adult social stimulation and contact which the noninstitutionalized child usually receives.

Institutions are also characterized by emotional blandness and a lack of variation and feeling tone (32). Opportunities for learning and practicing new skills are very few. Frequently the young child is kept restrained in a bed or crib for much of the day.

Effects of Institutional Care

Non-Retarded Children

This section is a review of some of the literature which has found abnormal social and psychological development in normal children who have been institutionalized for some period of their life. Studies have shown that institutionalized children experience some sort of personality disorganization (2, 14, 17), experience difficulty in giving or receiving affection (23), exhibit conceptual problems (14), and have impairments in speech and language development (23, 28).

Bender (2), Goldfarb (14, 16, 17, 18), and Lowery (23) have found that children with a history of institutionalization exhibit a general intellectual and social retardation. Bender (2) in observations at Bellvue Hospital in New York over a ten year period traced the development of what she

termed "psychopathic personalities" to emotional deprivation in infancy. In most cases the emotional deprivation had come about as a result of a lack or serious break in the parent-child relationship. Bender observed that the most severe type of deprived, asocial, psychopathic personality deviations occurred in children who had been in institutions for the first two or three years of their lives.

Goldfarb (16) compared forty children who had spent the first two or three years of their lives in an infant institution with forty children whose total experience had been in foster homes. He found that children reared in foster homes after being reared in an institution showed a greater frequency of problem behavior than the similiar group which had received the continuous foster home experience. The institution children showed more problems involving the overt expression of anxiety and aggression and an affective impoverishment. Goldfarb inferred that the institution children were less secure and less capable of entering into meaningful human relations as a result of their early institutional experience.

Having noted that the activities of institution children often seemed diffuse and unreflective, Goldfarb (14) investigated this phenomena. Goldfarb looked for differences in abstract and conceptual activity in three groups of children:

institution children, foster home children, and home-reared, mentally retarded children. Using various tests of concept formation, he found that the institutional children handled the problems in a markedly concrete manner and often created patterns which they could not explain. When compared with the foster home children and the home-reared retarded children the performance of the institutional children was found to be inferior. Goldfarb also compared the patterning of the institutional children with that found in schizophrenic and brain damaged patients and found it highly similar. These results suggested that the institutional child is limited by a . . . "fixation on the most primitive levels of abstract or conceptual activity" (14, p. 125).

In another study utilizing Rorschach data, Goldfarb (17) identified a syndrome of intellectual and personality traits of children whose first years were spent in an institution. The institutional child was found to reason less well and be particularly deficient in the ability to perceive relationships and act according to the abstract attitude.

Lowery (23) studied twenty-eight children who experienced difficulties in foster home placement. He found that children who experienced difficulties had usually been living in an institution. The institution children in this study presented

certain common symptoms of inadequate personality development, chiefly related to an inability to give or receive affection. Other characteristic symptoms of institutionalization in these children were marked speech and language defects, feeding difficulties, aggressiveness, stubbornness and negativism. Lowery concluded that . . . "infants raised in institutions undergo an isolation-type experience, with a resulting isolation-type of personality characterized by unsocial behavior, inability to understand and accept limitations, hostile aggression, lack of patterns for giving and receiving affection, and marked insecurity in adapting to the environment" (23, p. 584).

Spitz (38) compared two institutions engaged in the care of children. One institution was a nursery where the child's mother was present. The other institution was a foundling home where the adult-child ratio was one to seven. Administering tests of development to both groups of children, Spitz found that all the children living in the nursery institution performed better on the tests the children residing in the foundling home.

In an intensive comparison of seventy-five infants living in institutions with seventy-five infants living in families, Provence and Lipton (28) found that at one year of age, the institutionalized infants showed a greater impairment in

1. their relationship to people--rarely turning to adults for help, comfort, or pleasure, and showed no signs of attachment to any person,

2. speech and language development,

3. the ability to delay the immediate gratification of needs.

The children also exhibited emotional apathy and impoverished and repetitive play activities. The authors suggested that the institutionalized infants, in comparison with infants living in families, failed to show the personality differentiation and learning which are thought of both as accomplishments of the first year of life and as the foundation upon which later learning is built.

Effects of Institutional Care

Retarded Children

This section deals with the literature which compares retarded children living in institutions with retarded children living at home. There is research evidence which suggests that retarded children living in institutions are likely to be more retarded on social and intellectual measures (5), on developmental measures (24), and in motor and speech skills than their non-institutionalized counterparts.

Most individuals admitted for the first time to institutions for subnormality are young. Goldstein (19) reports that the majority of first admissions are children under fifteen years old, and that this preponderance of young admissions seems to be increasing. Those individuals admitted prior to the age of six are more severely retarded and tend to be of lower intellectual levels than older admissions (42, p. 58). Windle (42, p. 11) indicates that more males than females are institutionalized as subnormal and suggests that the sex differential reflects the social and medical vulnerability of males.

Studies which attempt to compare retarded children living in institutions with retarded children living at home are often complicated by the problem of finding truly comparable groups. The findings of Windle and Goldstein cited previously indicates that institutional placement is often related to age, sex, and severity of retardation. Taking a random sample of retarded children living in an institution and retarded children living at home is not a suitable procedure for comparing the two groups because of the selective factors which influence institutional placement. Random samples collected in this way would differ on very important variables.

One approach to the understanding of institutional effects on retarded children has been to study the children before and after their admission to institutions. In studies of this sort the subjects serve as their own control group. Another approach has been to compare home-reared children with others who have been institutionalized during infancy because of routine medical advice or family emergencies (5, 22).

Centerwall and Centerwall (5) compared two groups of mongoloid children. One group had been placed outside the home soon after birth, and the other group had been reared in its own home until two and one-half years of age or older. These authors found significant differences between the two groups on measures of intelligence and social development. The group which had been placed in an institution soon after birth was generally lower on both of the measures.

Kugel and Regue (22) compared the development of twenty-one mongoloid children institutionalized before they were one year old with the development of thirty-four mongoloid children reared in their own homes. Those children who were kept at home acquired motor and speech skills earlier than the institutionalized group. However, in this study the presence of a greater number of children diagnosed as mildly

retarded in the home group make the interpretation of these results difficult.

Lyle (24) compared mentally retarded children living in institutions with similarly retarded children living at home. He found that institutional children were particularly retarded in all aspects of language, speech, and verbal intelligence when compared with the retarded children living at home. He found that institutional children were particularly retarded in all aspects of language, speech, and verbal intelligence when compared with the retarded children living at home. The relationship was also found to be true with personal independence, ability to dress themselves, manage their own meals, toilet, self-help and helping adults who were responsible for them. Lyle concludes that institutional care warps and stunts the development of already seriously handicapped children.

Sirkin and Lyons (34) and Brandon (4) have noted the large number of children in institutions who have speech defects. Sirkin and Lyons (35) surveyed Newark State School, Newark, New Jersey, and found that sixty per cent of the patients who talked had speech defects, while seventeen per cent of the total population had no speech.

Brandon (4) studied eleven retarded children and concluded that their speech resembled the speech of younger children but with more articulation errors present.

Schlanger (34) matched a group of mentally retarded children living at home with another group living in an institution on the basis of sex, chronological age, mental age, IQ, and consonant articulation proficiency. The group living at home had a significantly greater output as measured by the mean length of sentences and average number of words used in a minute than those retarded children living in the institution.

Variables Related to the Effects of Institutional Care

Research covered in this section has dealt with the problem of differential effects of institutionalization. Research in this area has attempted to define the variables which play an important part in determining the reaction of the child to the institution. These studies have compared individuals within the institution on chronological age at admission (32, 2, 18), length of institutionalization (2, 5, 13, 23), intelligence (39), and other variables in efforts to define the important variables which may determine the effects of the institution on the child.

Schaffer (33) studied seventy-six infants under one year of age and found that the reactions to institutionalization and hospitalization varied with chronological age. Infants over seven months of age showed overt social and emotional reactions. Infants under seven months of age showed more global disturbances such as somatic upsets, blank facial expression and extreme preoccupation with the environment. Schaffer suggests that the more global disturbances are related to sensory deprivation while the social disturbances are related to maternal separation.

Bender (2) found that children who experienced institutionalization and separation from parents before the age of two were much more likely to develop personality deviations than children who remained with their parents and families during this period. Goldfarb (18) also concluded that the younger the child at the time of institutionalization, the more likely is subsequent retardation of normal intellectual and emotional growth processes. Gesell and Amatruda (13) suggest that in the development of the personality, the most important years are between one and two, and two and three years of age. In this period of life the child needs discriminating individual attention.

Results of research reported by Lowery (23) and Kugel and Regue (22) suggest that it is desirable for children to

remain in their homes for as long as possible before being exposed to the unique qualities of an institution. Lowery (23) indicates that children who are placed in institutions for short periods of time after the age of two do not develop the isolated type of personality or show the same behavior patterns as children who are separated from their homes before two years of age. Lowery also found that a child of twenty-nine months of age could be placed in an infants home, remain nine months, and not develop the personality and behavior patterns of younger children who experienced the same situation. Kugel and Regue (22) suggested that in the case of mongoloid children, it may be useful to have them remain in their own homes for at least five years before institutional placement. This length of time in the home would assure optimal development of language and motor skills and enable the child to profit more from his institutional experiences.

Most of the studies which have attempted to determine the effect of chronological age at admission on various indices of institutional effects have been complicated by the differences between individuals who are admitted at different ages. A study of first admissions to Pacific State Hospital from 1948 to 1952 revealed that those admitted prior to the age of six were more severely subnormal, had more superimposed

handicaps, were less often of minority races, and more often had parents of higher educational, vocational, and social status than those admitted when older (39).

The effects of length of institutionalization upon institutionalized individuals has also been studied. Gesell and Amatruda (13, p. 316) suggest that environmental retardation becomes most severe with the infant who stays from six months to a year in an institution. Badt (1) found a significant -.61 correlation between abstraction scores and number of years in the institution. Doll (8) in research aimed at establishing the validity of the Vineland Social Maturity Scale found a slight negative relationship between social age and length of residence in an institution.

Therapeutic Programs in Institutions

Another area of research has centered around the establishment of therapeutic programs and the assessment of their effects. The basis for these experimental therapeutic programs can be found in articles which attempt to explain which specific characteristics of the institution account for the reactions of children who are institutionalized.

Bowlby (3) in his important monograph written for the World Health Organization suggests that direct studies have indicated that when deprived of maternal care, the child's

development is almost always retarded. It is retarded physically, intellectually, and socially.

Slobody and Scanlon (37) have suggested that the mentally retarded child is no less in need of mothering than the child with a normal intellectual potential. If he is to realize his potential, he must receive the same kinds and amounts of emotional supplies as the average child.

Causative factors which lead to the special effects of institutionalization have been delineated by Bender, Goldfarb, and Spitz (2, 16, 17, 38). These authors have stated that the deprivation experienced in institutions is directly related to two factors: (1) the absence or inadequacy of emotional, social, or cultural stimuli, and (2) the absence of critical or repetitious breaks in an identifying, close adult-child relationship. These authors have suggested that the intellectual retardation, apathy, and lack of patterned behavior exhibited by institutionalized children is related to the deprivation of emotional, social, and cultural stimuli experienced within the institution. The absence of warm, consistent, continuous, day to day contact with an adult in the role of parent person is seen as being the source of institutionalized children's inability to identify with others or social concepts. Gesell and Amatruda (13, p. 317) suggest

that the excessive discontinuity in personal contacts and relationships results in an enfeebled sense of security and a blurred sense of identity.

The existence and nature of a relationship with the mother or parent is seen as the cornerstone of the child's grasp of himself, his relation to people outside the primary family group, his relation to the material world of things, his mode of solution of problems that may arise to meet him, his level of conceptualization, and probably even his simple perceptions (17). The development of thinking, of controlled behavior and of the capacity to relate emotionally to others are seen by Slobody and Scanlon (37) as all depending greatly on a close, satisfying relationship with an everpresent mother figure during the earliest years of life.

Suggestions for institutional programs and procedures which would tend to eliminate sources of deprivation within the institution are found in the works of Bender, Lowery, and Freud (2, 23, 10). Bender stated that corrective training or insight therapy has no place in the training of individuals whose behavior has been altered by institutionalization. Instead, she felt that these individuals can benefit best from small group interaction with well patterned social and educational activities.

Anna Freud in her experiences with young children in nurseries in England during World War II concluded that serious personality disorders in children might be prevented by creating a family-like situation in the institution (10). She suggested that this could best be accomplished with one adult relating herself closely with an expressed mother relationship to only two or three children.

Goldfarb (18) observed infants who were separated from their mothers as early as the sixth month of life. These children experienced a type of psychological shock which was often prolonged in nature and was not ameliorated by the simple satisfaction of hunger. A psychological relationship between child and specific adult had to be established before the infant's expression of complacency was again observed.

Lowrey (23) stated that if children must be reared in institutions, then they should remain for the shortest possible time. The institution should provide much intimate, personal, planned contact from at least one adult in order to avoid negative influence upon the social, emotional, and intellectual development of the child.

Perhaps the earliest research which demonstrated the intellectual improvements that came about as a result of altering the institutional environment was reported by Skeels

and Dye (36). In this study of moderately retarded children, it was found that introducing a number of older, brighter girls into the institutional routine of younger, retarded children provided stimulation which served to promote intellectual improvement.

A later study by McKinney and Keels (26) used twelve mildly retarded women as surrogate mothers for an experimental group of twenty-four severely retarded boys. The experimental group was matched with a control group on chronological age, extent of toilet training, social quotient, IQ, and number of years at the institution. The surrogate mothers spent a minimum of four hours a day with the boys. After four weeks, the experimental group showed significant, favorable changes on measures of purposefulness, verbal behavior, random activity, and asocial behavior.

Studying the effects of altering institutional routine on very young infants, Rheingold (30), compared sixteen subjects who had lived in institutions for the first nine months of life. Eight subjects in the experimental group received care from a single individual for seven and one-half hours every day. The eight subjects in the control group remained in the regular institutional routine. After eight weeks, the two groups were compared. The experimental group did not do

better than the control group on the Cattell Infant Intelligence Scale or on tests of postural development or cube manipulation. Rheingold noted that the experimental infants became more responsive to the experimenter at once and with the passage of time became more responsive to other people as well.

Rheingold and Bayley (31) reported a follow-up study on the same children in the previous study eighteen months later. In this study all of the experimental and control subjects had been placed in homes after having remained in the institution for an equivalent period of time following the experimental treatment. Again, no difference was found between the two groups on the Cattell Infant Intelligence Scale. Measures of social responsiveness also did not indicate any significant differences between the two groups. However, a significant difference was found between the two groups on measures of vocabulary and vocalization. The group of experimental children was found to have a higher amount of vocalization than the control group. The authors noted that these results suggest that verbal behavior of young children is more sensitive to changes in environment than other classes of behavior.

Results reported by Lyle seem to indicate that verbal development of older retarded children is also improved by

modifying their institutional environment (25). In this study, sixteen five to ten year old, moderately retarded children were matched with sixteen other children. The experimental group lived in a residential family unit while the control group subjects remained in the institution. After the experimental treatment, it was found that the experimental subjects had developed verbally at a significantly greater rate than their matched controls. Lyle also noted positive changes in social and emotional maturity, affective relationships, and social participation among the group of experimental subjects. The positive changes observed in the experimental subjects were believed to be due to a child-centered social organization in the residential unit. There was no special training program; the residential unit focused its attention on the social and emotional needs of the children.

A study by Tizard indicates that beneficial results can be obtained by altering the staffing ratios and methods of child care within the institution (41). In this study, Tizard found changes in social and emotional development of moderately and severely retarded children when they are reared in small units where they can receive more individual attention than they are likely to receive in a large institution.

Summary

Several generalizations may be drawn from the studies presented in the survey of the literature.

1. There is a great bulk of evidence which suggests that separation from the mother and placement in an institution is emotionally and intellectually damaging to both normal children (2, 14, 15, 16, 17, 23) and retarded children (4, 5, 22, 24, 34, 35).

2. There is also evidence which suggests that the presence of differential individual characteristics such as chronological age (2, 18, 33), length of institutionalization (2, 5, 13, 23), and age at institutionalization (2, 18, 33, 39) have been shown to play a large role in determining the effects of institutionalization upon the individual.

3. Studies which have assessed various therapeutic programs have shown that the debilitating effects of institutionalization may be halted or even reversed by altering traditional programs (25, 26, 30, 31, 36, 41).

Although the summary of the literature presented above was principally negative in nature, in that institutionalization generally results in depression of intellectual and social skills, it would seem reasonable to suppose that for some individuals the experience of institutionalization may provide

an atmosphere more positive than provided in the child's environment prior to institutionalization.

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CHAPTER II

METHOD

Subjects

The subjects were twenty-nine female and ninety-seven male mentally retarded students at the Denton State School, Denton, Texas, who had been enrolled in the Foster Grandparent Project for at least nine months.

The total number of subjects enrolled was 138; however, twelve subjects were discarded because of insufficient amount of time spent in the Foster Grandparent Project. Twenty-five subjects resided in nursing-service dormitories, and 101 subjects resided in cottage-life dormitories. The chronological ages of the subjects ranged from twenty-five to 213 months with a mean of 109 months. Two standardized test instruments were used in assessing progress of subjects who participated in the Foster Grandparent Project, namely the Vineland Social Maturity Scale and the Peabody Picture Vocabulary Test. Two tests were used because of differences in principle individual and behavioral characteristics of the two criterion groups. The Vineland scale was felt to be better suited for measuring social and intellectual competence of lower level retardates than the Peabody test.

Presented in Table I are the basic individual characteristics of the two criterion groups. It may be observed

TABLE I

MEANS AND STANDARD DEVIATIONS OF TWO CRITERION GROUPS ON THE VINELAND SOCIAL MATURITY SCALE, PEABODY PICTURE VOCABULARY TEST AND SELECTED INDIVIDUAL CHARACTERISTICS

Test	Chronological Age	Age at Institutionalization	Length of Institutionalization	Initial Test Score
Vineland				
Mean	103.63*	79.06*	24.59*	27.63**
Standard Deviation	37.55	32.21	17.34	11.57
n = 87				
Peabody				
Mean	120.95	92.44	27.95	42.69***
Standard Deviation	20.34	16.99	18.23	15.78
n = 39				

*months
**Vineland Social Quotient
***Peabody Intelligence Quotient

from the table that the thirty-nine subjects who were tested using the Peabody were greater in chronological age, had been

institutionalized at a later age and were residents of the institution for a longer period of time than the eighty-seven subjects who were tested using the Vineland Scale. The initial scores on the Vineland and Peabody tests suggest that the subjects tested using the Peabody were also at a higher intellectual level than subjects tested with the Vineland.

Description of Measures

Vineland Social Maturity Scale

This scale was developed over a twenty-year period by Edgar A. Doll at the Training School, Vineland, New Jersey (3, p. 1). The scale was constructed on the same principle that was used in the Stanford-Binet Intelligence Test. Each item was conceived as representing a general growth of social responsibility and competency. The scale was designed to provide a schedule of normal development which could be used to measure changes in observed behavior. The scale provides a social age score and a social quotient score in a manner similar to that of the Stanford-Binet's provision of mental age and intelligence quotient score.

The scale consists of 117 items which are arranged in order of normal life age progression. The general purpose of each item is to "represent some particular aspect of the

ability to look after one's own needs" (3, p. 7). The specific items attempt to sample such various aspects of social ability as self-sufficiency, occupational activities, communication, self-direction, and social participation. The items are designed to reflect progressive freedom from "need of assistance, direction or supervision on the part of others" (3, p. 7).

Subjects are scored on the scale by means of a parent interview, although any person who is familiar with the child's behavior may be used as informant. The scoring judgment concerning each item is made by the examiner after determining the subject's actual performance on each item. The examiner may assign full, partial, or zero credit to an item after determining if the subject fulfills the requirements demanded by that item.

Doll, using 123 test-retest administrations over periods of time ranging from one day to nine months, reports a reliability coefficient of .92 (2, p. 285). Bradway reports a test-retest reliability coefficient of .94 after testing 144 mentally retarded subjects (1, p. 6).

Peabody Picture Vocabulary Test

The Peabody test was designed to "provide an estimate of a subject's verbal intelligence through measuring his

hearing vocabulary" (4, p. 25). Since the test was originally published in 1959, it has come into widespread use with retardates in institutional settings (4, p. 29). Dunn cites evidence which suggests that the Peabody test has become the most frequently used psychological test on research projects in institutional settings (4, p. 29).

The Peabody test consists of a booklet which has three practice and 150 test plates. Each plate is divided into quadrants, and a single line drawing appears in each quadrant. Test scores are expressed in terms of mental age or intelligence quotient.

The examiner administers the test by reading the stimulus word and the subject responds by pointing to, giving the number, or otherwise indicating the picture which best illustrates the word. Subjects are not required to read. Since responses may be non-oral, the test is appropriate for subjects who are speech impaired. The style and design of the line drawings do not penalize subjects who may be partially seeing or possess perceptual impairment (4, p. 25). The test manual indicates that "the scale may be given to any English speaking resident of the United States between two years, six months and eighteen years of age who is able to hear words, see the drawings and has the facility to indicate 'yes' and 'no' in a manner which communicates" (4, p. 25).

One month test-retest reliabilities for forty-six institutionalized retarded subjects has averaged at about .87. One year test-retest reliabilities ranged from .54 to .88 (4, p. 31). Coefficients of equivalence using raw scores have ranged from .67 to .84 (4, p. 31).

Correlations between the Peabody test and the 1960 Stanford-Binet have provided congruent validity coefficients ranging from .82 to .86. Congruent validity coefficients with the WISC-F range from .30 to .84 (4, p. 33).

Procedure

The general procedure followed in the present study was to examine the permanent records of each subject who was included in the Foster Grandparent Project at Denton State School. Examination of the records of each subject was utilized to determine the chronological age, age at institutionalization, and length of institutionalization of each subject. The Vineland and Peabody test protocols were examined to determine the test-retest social quotients and intelligence quotients of each subject.

Subjects who had participated in the project for at least nine months were selected from the total project population for inclusion in the present study. Subjects whose

records indicated interruptions in their participation in the program (due to summer furlough, hospitalization, or various other reasons) were not included in the present study.

Examination of the records revealed that the Vineland and Peabody tests were administered on a test-retest basis on the six dormitories whose residents had taken part in the project. The tests were administered by two staff psychologists at Denton State School and four graduate students who were trained in psychometrics. The Vineland scale had been administered to eighty-seven subjects residing in four dormitories--5A and 25A (cottage life) and 12A and 15B (nursing service). The Peabody test had been administered to thirty-nine subjects residing in dormitories 8A and 9A, both of which were cottage life dormitories.

Subjects from dormitories 5A and 12A entered the Foster Grandparent Project in January, 1966. These subjects were administered the initial Vineland test in December, 1965. The retest was administered after a twelve-month interval in December, 1966.

Subjects from dormitory 15B had entered the project in February, 1966. These subjects were administered the initial Vineland test in March, 1966. The Vineland retest was administered in December, 1966 after a nine-month interval.

The remaining subjects who were tested using the Vineland scale were those residing in dormitory 25A. These subjects had entered the project in March, 1966 and were tested in the same month. The retest was administered after a ten-month interval in January, 1967.

The final thirty-nine subjects were tested using the Peabody test. Subjects in this group were living in dormitories 8A and 9A. These subjects had entered the project in February, 1966. Test-retest scores were obtained for these subjects over a ten-month interval from April, 1966 to February, 1967.

Looking at the above data from a general standpoint it may be observed that some variation in elapsed time between the initial test and retest did occur. Test-retest intervals of the Vineland data ranged from nine to twelve months. However, from the eighty-seven subjects tested using the Vineland scale, only six (6.9 per cent) subjects had a test-retest interval which was less than ten months. Forty-two (48.3 per cent) of the subjects tested in this group had been retested after a twelve-month interval and thirty-nine (44.8 per cent) subjects had been retested after a ten-month interval. The test-retest interval of all subjects who had been administered the Peabody scale was ten months.

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CHAPTER III

RESULTS

The present chapter consists of two main analytical divisions centering around the dual objectives of the study. The first division is concerned with the correlations between the measures of changes in social competence and verbal intelligence as criteria on the one hand, and individual characteristics of the children as predictors, on the other. The second division is concerned with the significance of the difference between the means of high and low improved subjects with respect to each of the selected individual characteristics. Each of the two divisions contains descriptions of the specific statistical procedures used and results yielded.

Correlations Between Criterion Changes and Individual Characteristics

The purpose of the statistical treatment presented in this section was to estimate for both groups separately (Vineland and Peabody) the relationship between

1. progress and chronological age;
2. progress and age at institutionalization;
3. and, progress and length of institutionalization.

At first glance, it seemed as if a simple Pearson product-moment correlation computed between the criterion and each predictor variable would serve to measure the strength of the relationship between the criterion and each predictor variable. However, many of the studies reviewed and presented earlier suggested that measures of change in the social and intellectual status of retarded children are likely to be confounded by their initial levels of intellectual and social competence. Studies which were reviewed concerning the relationship of age at institutionalization and length of institutionalization suggested that these variables were also related to initial social and intellectual competence levels. In order to remove statistically (or to control) the influence of initial intellectual or social competence, the technique of partial correlation as described by Ferguson was employed (1, p. 389). The partial correlations were tested for significance by use of the t test described by Ferguson (1, p. 390).

Partial correlations were based upon the total number of subjects in each of the Vineland and Peabody groups. The intercorrelations used in deriving the partial correlations for each of the groups may be found in Appendix A. The partial correlations were computed by correlating the post-test score

of the Vineland or Peabody as the case might be with the value of each specific predictor variable and statistically removing the effects of initial intellectual or social competence (pre-test score) from the correlation.

Presented in Table II are the partial correlations obtained between the measure of progress and the predictor variables of chronological age, age at institutionalization, and length of institutionalization. Accompanying each partial correlation is its respective t value. It may be observed in Table II that all partial correlations obtained from the Vineland and Peabody data failed to reach t values necessary for statistical significance at the P = .05 level. Partial correlations obtained from the Peabody data were generally not so low as those obtained from the Vineland data. These findings were interpreted as suggesting that the partial correlations obtained from the Vineland and Peabody data were not significantly different from population correlations of zero.

Mean Differences Between High and Low Progress Groups

The purpose of the statistical treatment described in this section was to investigate the significance of the difference between means of high and low progress subjects with

TABLE II

PARTIAL CORRELATIONS BETWEEN PROGRESS SCORES ON THE VINELAND AND PEABODY TESTS AND INDIVIDUAL SUBJECT CHARACTERISTICS*

Group	Statistic	Chronological Age	Age at Institutionalization	Length of Institutionalization
Vineland n = 87	Partial Correlation	.08	.02	.06
	t value	.121	.181	.545
Peabody n = 39	Partial Correlation	-.09	.28	- .26
	t value	.524	1.744	1.640

*P < .05. $t_{05} = 1.99$ (df = 84); $t_{05} = 2.03$ (df = 36).

respect to the individual characteristics of chronological age, age at institutionalization, and length of institutionalization. Subjects were placed in the high or low progress groups on the basis of residual gain scores derived from the pre- and post-test scores on the Vineland and Peabody test.

The means, standard deviations, correlation coefficients and standard errors of estimate requisite for computation of residual gain scores are given in Table III. Also contained in Table III are the actual gain scores used in partitioning the subjects into high and low progress groups. Residual gain scores were computed by correlating the pre- and post-test scores, then predicting adjusted post-test scores from the regression equation determined for each group. The difference between the adjusted post-test score and the actual post-test score was taken as the residual gain score and served as the measure of progress. This procedure produced a distribution of residual gain scores. The residual gain scores were ranked from highest to lowest for each test separately. Subjects whose gain scores were in the upper and lower quartiles were included in the high and low progress groups, respectively. It may be observed in Table III that subjects whose residual gain scores on the Vineland test were 5.00 or above were included in the high group. Subjects

TABLE III

VALUES USED IN COMPUTATION OF RESIDUALIZED GAIN SCORES AND DIVISION OF SUBJECTS INTO HIGH AND LOW PROGRESS GROUPS

Group	Pretest		Posttest		Correlation Pre & Post	Standard Error of Estimate	Quartile Value
	M	SD	M	SD			
Vineland	27.63	11.57	26.75	14.56	.86	7.54	Q_{75} = 5.00 Q_{25} = -5.30
Peabody	42.69	15.78	43.33	13.87	.66	10.37	Q_{75} = 7.74 Q_{25} = -4.60

whose residual gain score was -5.30 or less were included in the low group. Corresponding values for the high and low Peabody groups were 7.74 and -4.51.

Fisher's t for independent groups was employed to test the significance of the mean differences on the variables of chronological age, age at institutionalization, and length of institutionalization after subjects were divided into high or low progress groups. Contained in Table IV are the basic elements entered in the Fisher's t computational scheme. Table IV also presents the t ratios obtained in the analysis of the data. As shown in Table IV, there were no significant Vineland t ratios using a coefficient of risk of five per cent ($t = 2.02$). Interpretively, it was reasonable to suppose that the differences between high and low progress group means on the selected individual characteristics were not significantly different from those which might be expected to occur by chance.

Inspection of the data presented on the Peabody subjects in Table IV indicates that the high and low progress groups differed significantly on the variable length of institutionalization only. The obtained t ratio of 2.13 ($df = 18$) was significant using a coefficient of risk of five per cent. This finding was interpreted to mean that those subjects who

TABLE IV

MEANS AND STANDARD DEVIATIONS OF THE VINELAND AND PEABODY GROUPS FOR SELECTED INDIVIDUAL CHARACTERISTICS

Test	N	Chronological Age		Age at Institutionalization		Length of Institutionalization	
		M	SD	M	SD	M	SD
Vineland							
High	22	96.05	39.81	74.41	33.55	21.50	14.83
Low	22	96.59	30.83	76.00	27.74	22.64	16.49
Combined	87	103.63	37.55	79.06	32.21	24.59	17.34
Mean Difference (High-Low)		- .54		- 1.59		- 1.14	
t value		.050		.167		.235	
Peabody							
High	10	113.9	17.35	98.20	16.36	15.80	10.17
Low	10	124.10	15.71	93.00	18.62	31.10	18.97
Combined	39	120.95	19.38	92.44	16.99	27.95	18.23
Mean Difference (High-Low)		-10.20		+ 5.20		-15.30	
t value		1.31		.629		2.133*	

*P < .05. t_{05} = 2.02 (df = 40); t_{05} = 210 (df = 18).

were classified in the high progress group had been institutionalized for a shorter period of time than the subjects whose residual gain scores placed them in the low progress group. The remaining Peabody mean differences did not approach statistical significance.

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CHAPTER IV

DISCUSSION

For reasons of clarity and ease of discussion the correlation and mean difference data are combined under each of the two groups (Vineland and Peabody) rather than presenting them separately as was true in the preceeding chapter. Each of the two main sections to follow contains a brief statement of the findings, comparison of this study with other studies and an interpretation of the findings.

Vineland Data

Partial correlations between progress as measured by pre-post change on the Vineland scale and the individual characteristics of chronological age, age at institutionalization and length of institutionalization were generally low and nonsignificant. The highest of these correlations was .08. Statistical analysis of mean differences between high and low progress groups on the three individual characteristics produced nonsignificant t values.

These findings do not support previous studies reported by Schaffer (8), Bender (1), Goldfarb (4), and Kugel and Regue (5), who found that children who were institutionalized

at an early age were more likely to exhibit subsequent retardation of intellectual and emotional growth than children who were institutionalized at a later age. In the present study the small positive correlation between progress and age at institutionalization, although nonsignificant, appeared to support the position taken by the authors cited above. However, inspection of the mean difference data presented in Table IV reveals that the difference, although nonsignificant, was in the opposite direction from that suggested by the studies cited above. Subjects who progressed least were older at admission than those subjects sho had progressed most.

The present findings are also contradictory and ambiguous in relation to length of institutionalization. Doll (2) studied length of institutionalization and scores on the Vineland Social Maturity Scale. He found a slight negative relationship between social competency and length of institutionalization. Although the present study was primarily concerned with assessing change in social competency (progress), Doll's study suggested that similar findings could be expected in the present study. However, the correlation between progress and length reported in the present study was positive. Although it was positive, it was also nonsignificant and does no particular damage to the proposition that progress in a therapeutic program is likely to be negatively

related to length of institutionalization. This proposition is given further, although inconclusive, support when the mean difference data in Table IV is examined. It may be observed that the difference between means of the high and low progress groups provides some support for the proposition cited by Doll above. That is, in the present study those subjects who were in the high progress group had been institutionalized for a shorter period of time than those subjects in the low progress group.

Although only indirectly supported by the literature, it was felt that there would most likely be a negative correlation between progress in the Foster Grandparent Program and present chronological age. Statements by Gesell and Amatruda (3), Bender (1), and Goldfarb (4) suggested that the younger child would be likely to benefit most from a therapeutic program. These authors noted that the early stages in a child's development provide an important background for most future behavior. The child is pliable in the early developmental years and is most likely to profit from enriching experiences. The present study did not clarify the relationship between chronological age and progress in the Foster Grandparent Project. Both the partial correlation and the mean difference data were nonsignificant.

The consistent nonsignificant findings in the present section may be partially accounted for by a study reported by Rheingold and Bayley (7). These authors had altered the institutional environment of mentally retarded children by allowing the children to be cared for by one person alone for seven and one-half hours a day. Follow-up studies of this same group of children suggested that the verbal behavior of young children is more sensitive to changes in environment than other classes of behavior. The Vineland scale is only indirectly able to measure verbal skills and behavior. It is most directly aimed at measuring social competence. Thus, the nonsignificant results obtained using the Vineland test as the measure of progress may be related to the inability of this measure to evaluate changes in behavior which were likely to occur after a nine-month period.

Examination of the test protocols of the subjects tested with the Vineland also provided some partial explanation of the nonsignificant findings reported here. The pre- and post-Vineland tests were given by several different examiners. On all but a single dormitory, there was a difference between pre- and post-test examiner and informant. This inconsistency in examiner and informant may have served to further prevent the Vineland test from adequately measuring change in the subjects included in the present study.

In summary, the findings presented in this section were consistently nonsignificant and provided no conclusive evidence concerning the relationship between progress in the Foster Grandparent Project and the individual characterictics reported here. It is probable that the nonsignificant results were due to the inappropriateness of the test instrument for measuring those changes which other authors cite as being most amenable to change. It was also noted that inconsistency among the Vineland administration procedures could possibly account in some measure for the nonsignificant findings reported here.

Peabody Data

Partial correlations between progress as measured by pre-post change on the Peabody scale and the individual characteristics of chronological age, age at institutionalization and length of institutionalization were nonsignificant. The partial correlations ranged from -.09 to .28. The smallest of these correlations was between chronological age and progress. The correlation coefficients expressing the relationships between age at institutionalization and length of institutionalization with the progress measure were generally higher (.28 and -.26) and approached statistical significance at the $P = .05$ level.

Statistical analysis of the mean differences between high and low progress groups on the three individual characteristics were statistically nonsignificant except in the case of length of institutionalization. The mean difference between subjects who progressed most versus those who progressed least on the variable length of institutionalization was 15.3 months and statistically significant at the P = .05 level. The subjects who were in the high progress group had been institutionalized for a significantly shorter period of time than the subjects in the low progress group.

Both the correlational data and the mean difference data tended to support previous findings (1, 4, 5, 8) which suggested that more progress would occur in those subjects who had been institutionalized at a later age than subjects placed in an institution at an early age. The partial correlation reported in Table II suggests that subjects in the present study who exhibited progress tended to be older at the time of institutionalization than subjects who progressed less. Further support for this suggestion appears in the mean difference data presented in Table IV. Subjects in the high progress group had been institutionalized at a later age than subjects in the low progress group. However, the partial correlation and analysis of the mean difference yielded

statistically nonsignificant results. Therefore, this trend can only be inferred by the present study.

The mean difference data yielded the single significant finding in the present study. There was a statistically significant difference in the length of time spent in the institution between those subjects who had progressed the most versus those who had progressed the least. Subjects in the high progress group had been institutionalized for a shorter period of time than those subjects in the low progress group. Although statistically nonsignificant the negative partial correlation between length of institutionalization and progress also supports these findings. The -.26 correlation approached significance at the $P = .05$ level and suggests a trend toward a slight negative relationship between these two variables. These findings agree with past researchers who have indicated that as institutionalization lengthens its harmful effects are also likely to increase (2, 6).

The partial correlation and mean difference data involving the individual characteristic of chronological age were statistically nonsignificant. However, the mean difference data approached statistical significance, and suggest that subjects in the high progress group were younger than those in the low progress group. These findings, although inconclusive, are in accord with past research (1, 3, 4) which has

suggested that early life stages are important breeding grounds for therapeutic change.

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CHAPTER V

SUMMARY

The purpose of the present study was to investigate the relationship between progress in the Foster Grandparent Project and the individual characteristics of chronological age, age at institutionalization and length of institutionalization.

The subjects were 106 retarded students (97 males and 29 females) enrolled in Denton State School, Denton, Texas. All subjects had been enrolled in the Foster Grandparent Program for at least nine months. The subjects ranged in age from twenty-five to 213 months with a mean of 108.99 months.

The Vineland Social Maturity Scale and the Peabody Picture Vocabulary Test were administered to two groups of students on a test-retest basis. Eighty-seven subjects were examined using the Vineland scale and thirty-nine were examined using the Peabody test. The tests were administered by qualified psychometricians and scored according to standardized procedures.

Partial correlations were obtained between progress (residual gain scores) and chronological age, age at institutionalization and length of institutionalization. Partial

correlations were obtained separately for each of the two groups (Vineland and Peabody).

The subjects were also divided into a high progress group and a low progress group according to scores obtained on the Peabody or Vineland test. The high progress group was composed of the subjects whose residual gain scores fell into the upper 25 per cent of the distribution. The low progress group was composed of subjects whose residual gain scores fell in the lower 25 per cent of the distribution. The Vineland high progress group and the Vineland low progress group each contained twenty-two subjects. The corresponding numbers in the Peabody groups were ten and ten. The difference between the means of high and low progress groups were computed for chronological age, age at institutionalization and length of institutionalization.

The basic results of the study are as follows:

1. Partial correlations between progress and chronological age, age at institutionalization and length of institutionalization were generally low for the Vineland and Peabody groups. None were significant from zero.

2. Mean differences between high and low progress groups as measured by the Vineland were generally low. None were significant from zero.

3. Mean differences between high and low progress groups as measured by the Peabody test were generally not as low as those found using the Vineland. The mean difference between high and low groups on the variable age at institutionalization was not significant from zero. Although not significant from zero, the mean difference data on the variable chronological age suggested that the high progress group was slightly younger than the low progress group.

The mean difference between high and low progress groups on the variable length of institutionalization was statistically significant at the 5 per cent level. This finding suggested that the high progress group had been institutionalized for a shorter period of time than the low progress group.

APPENDIX A

TABLE V

INTERCORRELATIONS UTILIZED IN COMPUTATION OF PARTIAL CORRELATION COEFFICIENTS

Group	Pre	Post	CA	Age at Inst.	Length of Inst.
Pre-Vineland		.86	.11	.13	-.02
Pre-Peabody		.66	.22	.16	.16
Post-Vineland			.10	.10	-.02
Post-Peabody			.08	.31	-.22

APPENDIX B

Vineland Data

Code Number	Sex	Pre	Post	CA	Age at Inst.	Length
100	F	25	23	031	020	12
101	F	14	15	078	066	12
102	F	41	68	025	019	06
103	F	19	17	068	022	46
104	F	20	24	070	065	06
105	F	13	18	057	033	24
106	F	17	10	133	082	51
107	F	26	33	052	016	37
108	M	13	12	088	044	45
109	M	20	12	064	063	01
110	M	13	16	069	058	11
111	M	20	24	068	051	10
112	M	23	26	053	017	37
113	M	20	26	055	036	19
114	M	32	34	057	030	28
115	M	38	51	026	026	00
116	M	25	10	063	054	10
117	M	18	11	097	051	10

Code Number	Sex	Pre	Post	CA	Age at Inst.	Length
118	M	30	26	079	069	11
119	M	36	45	086	076	11
120	M	27	13	088	078	11
121	M	42	40	078	068	11
122	M	27	18	073	063	11
123	M	24	19	066	062	05
124	M	37	44	074	063	11
125	M	40	34	076	066	11
126	M	25	06	089	079	11
127	M	24	31	089	079	11
128	M	18	15	095	057	38
129	M	27	23	087	077	11
130	M	20	11	075	065	11
131	M	30	16	084	066	18
132	M	18	07	093	039	55
133	M	17	05	101	056	46
134	M	30	27	076	066	11
135	M	25	50	104	083	21
136	M	25	17	077	067	11
137	M	26	23	070	071	00
138	M	35	25	085	071	14
139	M	18	19	136	113	23

Code Number	Sex	Pre	Post	CA	Age at Inst.	Length
140	M	13	13	172	148	23
141	M	27	22	130	085	42
142	M	26	25	147	085	62
143	M	49	48	110	086	24
144	M	48	43	112	075	37
145	M	34	42	125	104	21
146	M	17	17	213	189	24
147	M	18	16	137	073	64
148	M	54	54	157	093	14
149	M	20	15	146	135	11
150	M	28	21	153	111	42
151	M	22	22	129	112	17
152	M	41	45	163	099	64
153	M	47	61	123	101	22
154	M	29	31	099	096	03
155	M	26	45	131	114	17
156	M	40	46	166	108	58
157	M	48	61	111	090	21
158	M	23	30	143	087	56
159	M	39	38	153	089	64
160	M	30	24	136	072	64
161	M	14	15	185	140	45

Code Number	Sex	Pre	Post	CA	Age at Inst.	Length
162	M	33	22	154	130	24
163	M	24	24	100	80	19
164	M	17	22	126	106	20
165	M	31	42	120	096	24
166	M	52	48	132	115	17
167	M	18	23	151	131	20
168	M	30	33	126	106	24
169	M	56	51	112	088	24
170	M	17	19	137	092	45
171	M	47	45	144	120	24
172	M	22	19	105	081	24
173	M	33	35	114	094	20
174	M	21	21	129	105	24
175	M	62	57	137	083	54
176	M	28	18	025	021	05
177	M	08	11	102	058	44
178	M	25	12	075	064	11
179	M	25	24	142	087	54
180	M	13	12	080	063	17
181	M	12	12	094	049	45
182	M	24	23	095	085	10
183	M	14	10	114	097	17

Code Number	Sex	Pre	Post	CA	Age at Inst.	Length
184	M	24	23	077	070	07
185	M	55	47	132	112	20
186	M	22	21	099	096	03

Peabody Data

Code Number	Sex	Pre	Post	CA	Age at Inst.	Length
200	F	41	25	133	073	60
201	F	37	46	118	077	41
202	F	62	64	137	118	19
203	F	56	51	118	099	19
204	F	57	68	124	120	04
205	F	51	58	132	112	20
206	F	49	56	106	070	36
207	F	40	45	088	085	03
208	F	62	58	136	092	44
209	F	30	12	082	068	14
210	F	48	42	084	074	10
211	F	64	59	138	123	16
212	F	48	42	101	084	17
213	F	26	23	134	116	18
214	F	50	20	127	083	44
215	F	55	46	140	087	50
216	F	44	42	104	087	18
217	F	65	49	110	090	20
218	F	17	22	134	116	18
219	F	15	12	133	083	50
220	F	35	21	135	075	60

Code Number	Sex	Pre	Post	CA	Age at Inst.	Length
221	M	31	36	088	076	12
222	M	21	44	092	079	14
223	M	38	48	157	123	35
224	M	53	54	140	083	57
225	M	61	51	153	078	52
226	M	36	35	129	094	35
227	M	28	50	097	096	01
228	M	47	50	136	114	22
229	M	50	43	125	108	17
230	M	72	49	128	118	10
231	M	17	33	125	070	55
232	M	19	42	136	113	23
233	M	19	27	114	095	19
234	M	46	53	116	097	19
235	M	74	62	128	073	55
236	M	32	37	140	079	61
237	M	37	56	112	093	19
238	M	32	53	087	084	03

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