

THE EFFECT OF HORTICULTURE THERAPY AND ANIMAL-
ASSISTED THERAPY ON SERIOUSLY EMOTIONALLY
DISTURBED ELEMENTARY STUDENTS
IN A PUBLIC SCHOOL SETTING:
AN ETHNOGRAPHIC STUDY

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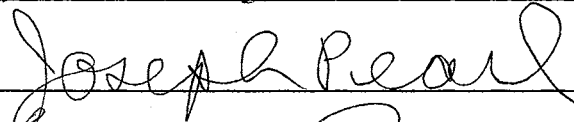
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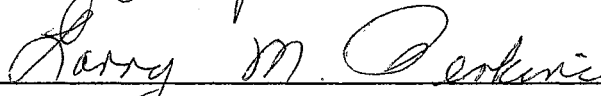
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CHAPTER I

THE EFFECT OF HORTICULTURE THERAPY AND ANIMAL- ASSISTED THERAPY ON SERIOUSLY EMOTIONALLY DISTURBED ELEMENTARY STUDENTS IN A PUBLIC SCHOOL SETTING: AN ETHNOGRAPHIC STUDY

Introduction

It has been suggested that schools are a microcosm of society, and from that perspective the turmoil that has been in evidence in school during recent years should not be a surprise. School assault and battery cases are up 58% since 1970. School robberies are up 117% for the same period. In 1973-74, 25% of the seventeen-year-old students in the United States did not graduate (Epstein, Rothman, & Sabatino, 1978,).

Lotsof (1978) researched estimated ratios of suicide attempts or gestures to actual suicides among students that ranged from 50:1 to 150:1. In 1972, a total of 178,432 young people were arrested in the United States for running away. The total number of estimated runaways can be estimated anywhere from 6 million to 1 million a

year (Lotsof, 1978, pp.162-163). Lotsof also indicates the prevalence of alcohol/drug abuse, battered/abused children, and the breakdown of the nuclear family and community have risen dramatically and contributed to the problems young people are now experiencing.

There is considerable evidence to indicate that more and more children are experiencing serious emotional distress in today's society. Over the past few years, the educational system's responsibility for troubled children has expanded rapidly. Consequently, special education programs have become thrust into the business of assessing, placing, and developing alternative programs for children with serious emotional and behavioral problems. (Apter and Conoley, 1984),

The ambiguity in definitions of emotional disturbance makes it very difficult to estimate the numbers of disturbed children at any one time. The President's Commission on Mental Health (1978) stated, "For the past few years, the most commonly used estimate is that at any one time, 10 percent of the population need some form of mental health care...There is new evidence that this figure may be nearer 15 percent of the population" (p.8). Estimates of the number of disturbed children ranges from 2 percent to 30 percent (Bower,

1969; Cowen, 1978; Rubin & Balow, 1978) of the school-aged population. Translated into numbers, this means somewhere between 1 million and 15 million school-aged children are experiencing problems coping with the ups and downs of everyday life. These figures are even more concerning when one considers that none of the figures includes youngsters believed to be mildly or moderately disturbed (Apter & Conoley).

Regardless of which studies of prevalence one uses, it is obvious that more children need service than are currently being supplied in the public schools. It is also apparent that the task of judging human behavior for appropriateness and inappropriateness is a complicated and extremely difficult one (Reinert & Huang, 1987).

In recent years it has become commonplace to hear comments in the news media concerning the sense of alienation, isolation, and loneliness experienced by many persons, including the young, in a rapidly changing technological society (Bronfenbrenner, 1973; Ferkiss, 1974; Fox, 1980). Despite humanity's ever increasing power over nature, despite the immeasurable increase in our comfort and wealth for the past fifty years, our feelings of security have not grown commensurably. Paradoxically, the reverse appears to be true (Levinson,

1980).

When considering the status of seriously emotionally disturbed students, these feelings of isolation and alienation are particularly burdensome. Students currently placed in programs for Seriously Emotionally Disturbed (SED) youth in public school settings represent a wide array of psychological conditions. Individuals with anxiety disorders, various levels of depression, aggressive tendencies, and attachment difficulties are common. It is unfortunate that many of these students are not receiving therapy outside of the school setting. Additionally, the amount of contact Seriously Emotionally Disturbed students have with either a guidance counselor or school psychologist differs greatly from one school system to another. The severity of emotional problems and lack of consistency in providing psychological resources suggests that additional on-site programming is necessary to ensure these students make optimum progress toward re-entering a regular classroom setting.

The issue of special education programming for very young children with behavior or emotional disorders has emerged during the past several years. Early intervention with handicapped and at-risk children holds promise for prevention. Gelfand and Peterson (cited in

Reinert & Huang, 1987) have noted that, at any early age, many types of learning are taking place rapidly and simultaneously, which may potentiate the effects of an intervention program. The premise of this research is that innovative programming for Seriously Emotionally Disturbed elementary-aged school children utilizing horticulture and animal-assisted therapy techniques may produce more positive behavioral changes than typically recorded in traditional special education programs.

Statement of the Problem

The purpose of this research is to examine the impact horticulture therapy and animal-facilitative therapy have on the educational experience of Seriously Emotionally Disturbed elementary students, grades K-5. The term "impact" is loosely referred to since there is no research data available describing the effect of these combined modalities with regard to the population and setting selected for this study. Ethnographic fieldwork will attempt to discover relevant variables and build a thorough, rich, and detailed account of the daily interactions between students, plants, and animals. Such an account will add to the knowledge base of horticulture

and animal therapy as applied to Seriously Emotionally Disturbed school children. An ethnographic approach that includes detailed accounts of this program's development, descriptions of behavioral interactions, interviews with students, staff, family, and other pertinent data will hopefully lead to other studies in this field.

Seriously Emotionally Disturbed will be defined as in P.L. 94-142 (Oklahoma State Department of Education, 1989):

(I) The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree, which adversely affects education performance:

- A. An inability to learn which cannot be explained by intellectual, sensory, or health factors;
- B. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers;
- C. Inappropriate types of behavior or feelings under normal circumstances;
- D. A general pervasive mood of unhappiness or depression; or
- E. A tendency to develop physical symptoms or fears associated with personal or school problems.

(II) The term includes children who are schizophrenic. The term does not include children who are socially maladjusted, unless it is determined that they are also seriously emotionally disturbed.

According to the American Horticultural Therapy Association (undated factsheet), horticulture therapy is "a process utilizing plants and horticulture activities to improve social, educational, psychological, and physical adjustment of persons thus improving their body, mind and spirits."

Animal-facilitative therapy is often referred to as pet therapy, animal-assisted therapy, and the human-animal bond. For the sake of clarity, these terms will be collectively defined as any treatment in which interaction with an animal is used as part of the healing process (Cusack, 1989).

CHAPTER II

REVIEW OF RELATED LITERATURE

Animal-Assisted Therapy

Animal-assisted therapy is often referred to as pet therapy, the human-animal bond, and animal-facilitative therapy. Since the early 1970's there has been a growing awareness of the social roles played by pets and the social and emotional benefits which may result from contact with animals. This awareness was triggered by Levinson's work entitled Pet Oriented Child Psychotherapy (1969), but quickly grew to include the possible benefits for people with special needs, such as the mentally or physically handicapped, emotionally disturbed, or severely neurotic or schizophrenic (Veevers, 1985).

Levinson's study (cited in Bensel and Robin, 1985) stated companion animals are an important part of the healthy emotional development of children. Animals play different roles for children at each stage of development. The period of childhood encompasses a number of developmental tasks--the acquisition of basic trust and self-esteem, a sense of responsibility and

competence, feelings of empathy toward others and the achievement of autonomy--that can be facilitated for children by a companion animal. Levinson also stated the constancy of animal companionship can help children move along the developmental continuum and may have an inhibiting effect toward mental disturbances. Bensel and Robin (1985) report the security of companion animals may encourage exploratory behavior, especially in unfamiliar situations. They also state that animals may serve as a bridge or facilitator toward relationships with other children.

The human-animal bond can be defined as a mutually beneficial association that occurs between people and animals. James Harris, a veterinarian from Oakland, California, has noted that this relationship includes physical, emotional, intellectual, and philosophical aspects. He notes, however, that this bond is not limited to companion animals nor does it necessarily involve direct contact with the creatures. Organizations such as Greenpeace go to great lengths to protect various sea animals and the environment they inhabit. Naturalist Dian Fossey waged a non-stop battle against poachers to save her beloved mountain gorillas. She was eventually murdered for her intense efforts (Cusack, 1989).

The human-animal bond can involve any furred, finned, or feathered creature. The longest running bond, however, and arguably the most varied and versatile is the bond between dogs and people. This unique association predates recorded history and has involved canines in virtually every facet of the human experience (Cusack, 1989),

When the first international conference on the human-animal bond convened in Philadelphia, Pennsylvania, in 1981, few in attendance were surprised at the findings. The research studies discussed at that conference confirmed what animal lovers have thought for years. Namely, that interacting with our dogs makes us happier, healthier and more able to cope with the typical stressors of day to day living. Even the skeptics took note, however, when University of Pennsylvania studies revealed that physical contact with animals lowers people's blood pressure, even in those who have hypertension. Petting one's dog is not just fun, it is actually healthy. Studies indicate that talking to other people raises blood pressure, while talking to dogs lowers it (Cusack, 1989).

In his article, The Human-Animal Bond, Cusack states the psychological benefits of dogs and pet ownership are

as dramatic, if not more so, than the physical ones. He notes a University of Minnesota study in which pet owners cite companionship, love and affection, pleasure and protection as the primary advantages of pet ownership.

Autistic children, for example, have shown marked improvement in a number of instances where "pet therapy" has been utilized (Arehart-Treichel, 1982; Levinson, 1980). Levinson (1980) concluded from his pioneering work in treatment of autistic and other severely emotionally disturbed children that pet therapy is "specifically useful for the nonverbal, severely ego-disturbed child" (p.75).

The use of "animal-assisted therapy" has proven effective with children and adults in a variety of institutional settings, such as psychiatric hospitals, geriatric wards and nursing homes (Corson & Corson, 1980; McCulloch, 1982). Their findings indicate that animal-facilitated approaches often reach individuals who do not respond to other types of interventions.

It has been noted that teenagers, as well as younger children, seem to benefit from associations with pets. In the case of emotionally disturbed and delinquent youth, it has been found that frequently the sole love object of these children has been a pet

(Arehart-Treichel, 1982).

In recent years, scientists have begun to find proof for what was once only suspected, that contact with animals has specific and measurable effects on the body and mind. Simply being in the presence of animals can increase a sick person's chances of survival and has been shown to lower heart rate, calm disturbed children, and get uncommunicative people to initiate a conversation.

Humeston (cited in Blue, 1986) states that another important aspect of comfort lies in a pet's ability to function as a "living security blanket" (p.86). Archart-Treichel and Levinson (cited in Blue) state that the emotional support provided by a companion animal can serve a young child's need for a "transitional object"--the bridge between oneself and the outside world (p.86). The presence and comfort offered by a pet may serve to lessen stress and anxiety children experience as they approach normal developmental tasks.

Exactly how animals exert their effects upon health and well-being is still largely mysterious. But the growing body of evidence that pets make a difference has spawned various organizations to research and provide service programs involving animals. The Latham Foundation in Alameda, California promotes interest in

the human-animal bond through seminars and publications. The Delta Society in Renton, Washington, awards grants to scientists and is an umbrella organization for more than 2,500 people involved in animal-assisted programs across the country--up from fewer than 50 in the late 1970's (Burke, 1992).

Burke (1992) noted scientists suspect animal companionships are helpful, because, unlike human interaction, it is an uncomplicated process. Animals are nonjudgemental, accepting, and attentive. Animals do not talk back, criticize, or give orders. They provide people something to be responsible for and offer a nonthreatening outlet for physical contact. Burke also discussed a review of twenty-five studies on the effects of pets on nursing home residents. Residents exposed to pets consistently smiled more frequently and were more alert than their non-animal counterparts. Physically aggressive residents became noticeably more calm toward people standing near them when an animal was in their presence.

Burke also notes the results of college students visiting emotionally disturbed children at the Julia Dyckman Andrus Home in Yonkers, New York. College students, accompanied by a dog or cat, made weekly

visitations to emotionally disturbed children over an eight week period. Researchers noted that by the end of the experiment, children in all age groups were acting out less often than when the study began. She cites the study's director as stating these results run contrary to expectation. Normally, emotionally disturbed children are more, not less, disruptive once they get to know visitors. The director, psychologist Stephen Daniel, believes animals contribute a sense of predictability and therefore increase children's self-control.

Blue (1986) poses a major question we must ask: "How can we help children establish a greater sense of security, trust and belief in themselves?" (p.85). She states one viable answer may be through providing more opportunities for establishing and strengthening children's relationships with nature in general and animals in particular. Although the value of a child's association with a pet has long been recognized, her examination of recent literature suggests that the potential role of animals in children's lives is possibly more significant than previously thought.

Although companion animals cannot adequately substitute for caring and loving parents, it has been observed that a pet can provide many opportunities for

the nurturance of love and affection. Both humans and animals need to be touched, especially during their infancy (Montagu, 1987). According to Fox (1980, p.8), it may be that "touch and love are synonymous, for both animals and people." Fox states that a pet such as a dog can offer a child feelings of closeness and warmth since stroking, petting, cuddling, and other forms of bodily contact are a normal part of the relationship with an animal. Considering the hectic lifestyle many individuals lead, some children may have an unusually high need for the love and comfort a pet is able to provide.

Sam Ross, director of Green Chimney Children's Services in Brewster, New York, has also seen children achieve success through working with animals. At Green Chimney's, emotionally disturbed children and adolescents experience a farm-like environment that integrates a variety of animals and gardening into their daily activities. Most of the children Ross encounters have had very poor experiences relating to siblings, peers and adults. He has found that animals are more accepting of these children and are far less challenging. Residents at Green Chimney can relate to animals without the same fears that might arise from trying to relate to people.

Ross finds that this relationship with animals enables the children to begin opening up, to be less depressed and more easily engaged by staff members. He has found that youngsters who were once described as impatient, unresponsive, depressed, or aggressive often begin to blossom when given responsibilities around the farm (Kale, 1992).

McCulloch (Beck, Katcher, Eds., 1983) in an article entitled, Animal-Facilitated Therapy: Overview and Future Direction, listed various benefits to individuals involved in animal therapy programs:

PSYCHOLOGICAL BENEFITS

1. Positive affective state (elation)
2. Affiliation
3. Humor
4. Play
5. Self-esteem
6. Need to be needed
7. Independence
8. Increased motivation
9. Education
10. Sense of achievement
11. Stimulus to be active (busy)

SOCIAL BENEFITS

1. Catalyst effect
 - "Social lubricant"
 - "Widening circle of warmth"
2. Social cohesion
3. Cooperative play
4. Increased cooperation with caregivers

PHYSICAL BENEFITS

1. Recovery from illness
2. Coping with illness
3. Neuromuscular rehabilitation
4. Life expectancy ?

Horticulture Therapy

The mental health benefits of gardening have been recognized in the United States for nearly two centuries, but only in the last decade has horticulture therapy flourished as a distinct discipline. In 1812, Dr. Benjamin Rush, a Philadelphia physician and signee of the Declaration of Independence, noted the benefits of gardening. Although a number of therapeutic gardening programs were created over the next 125 years, the major impetus for horticulture therapy did not occur until the

1940's, when the Federal Government established new veteran hospitals to care for wounded soldiers. Horticulture was used as a form of occupational therapy with thousands of patients (American Horticulture Therapy Association, 1990).

In 1971, the first undergraduate program in horticultural therapy in the United States was offered at Kansas State University in the Department of Horticulture and Forestry, in cooperation with the Menninger Foundation (Tereschkovich, 1973). Currently more than fifteen colleges and universities in at least fourteen states offer degrees through the master's level or certificates in horticulture therapy.

Horticulture therapy uses foliage, food plants, and plant-related articles as therapeutic supports in the lives of special-needs populations (Westbrook, 1989). Such therapy can be one element in a comprehensive psychological treatment program offered at the world-famous Menninger Foundation, or it can be the focus of a local community effort to provide vocational job training skills to mentally retarded young adults.

The dynamics of horticulture therapy involve specific ego functions and experiences that are activated and rehabilitated during therapeutic activities (Barber

and Stamm, 1978). These may be listed as follows:

- 1). Planning (i.e., what to grow, where to grow, what materials to use, etc.)
- 2). Preparation (i.e., obtain materials, prepare soil)
- 3). Measuring (i.e., proper amount of food, water, sun etc.)
- 4). Regularity (i.e., tend plants on schedule)
- 5). Frustration Tolerance (i.e., coping with circumstances that are out of the student's control.
- 6). Impulse Management (i.e. learn that change is gradual)
- 7). Response to Success or Failure (i.e., does student externalize blame or brag about success, consumption of products)
- 8). Creativity (i.e., individualistic, or participation in group tasks)
- 9). Anxiety and Tension Reduction (i.e., lessening of tension allows more receptive attitude toward dealing with problems)
- 10). Response to Basic Instincts (i.e., reaction to life, death, nurturance issues, etc.)

Part of the success of treatment with horticulture therapy appears to result from an individual realizing a plant requires his/her care. Plants need constant

attention, but respond silently and reliably to careful watering and feeding, to constant interest and thoughtfulness (Burlingame and Watson, 1960).

In his book, Horticulture for Disabled and Disadvantaged, Olszowy (cited in Fine, 1988) discussed various benefits of horticulture therapy to one's intellectual, emotional, and physical development. Intellectually, children can learn about plant life cycles, different classes of plants, or the geographic origin of various plant species. Emotionally, children learn patience in maintaining their plants, develop a greater sense of control over their environment and their own actions, and learn to interact within a group setting. Physically, horticulture therapy activities can promote physical exercise and manual dexterity.

Tereschkovich (1973) states horticulture is both a science and an art. He considers horticulture to be therapeutic to many people and relates that working with plants has a healing quality that is both relaxing and satisfying.

Dr. Mihaly Csikszentmihalyi, in his book Flow: The Psychology of Optimal Experience, suggests that gardening is an activity, which when done correctly and skillfully, with the main focus on the activity rather than the

outcome, can lead to what he calls the optimal experience. Involvement in gardening with this outcome in mind has been proven to lower blood pressure, decrease heart rate, reduce oxygen consumption, increase alpha brain wave activity, and induces a feeling of calm and well-being (Aal, 1992).

A recent study by Doxon (cited in Morgan, 1993) of physiological measures of stress, found significantly lower blood pressures and pulse rates among developmentally disabled adults undergoing vocational training in a greenhouse compared to an adult training center.

Taloumis (cited in Morgan, 1993) noted there were fewer assaults among men in his prison garden program. Similarly, Cotton and Autry (cited in Morgan, 1993) found a lower rate of aggression in adolescents who participated in horticulture programs. They hypothesize that the decreased aggression may be the result of rechanneling aggressive feelings into positive behavior in horticultural tasks. At the Menninger Clinic, Stamm and Barber (cited in Morgan, 1993) found a reduction in tension and anxiety in patients and noted that horticultural activities enhanced their patients' receptiveness to being approached by others. Stamm and

Barber also noted that task orientation is ideal for persons with emotional problems since it allows them to enter gently into a relationship with another person without feeling confronted with interpersonal closeness too soon as might occur with traditional psychotherapy. Bunn (cited in Morgan, 1993) attempted to measure group cohesiveness in four to five-year-old children. Preliminary analysis of Bunn's data indicated a relationship between group cohesiveness, plant discovery activities in a group, and plant ownership.

In addition to the support one experiences within a horticultural therapy group, Morgan (1993) states gardeners have an opportunity to share their successes with friends, family, or other significant people in their lives. Whether it is a gift of a plant to a teacher, a corsage to a grandmother, or a small flower or vegetable garden in their neighborhood, the plants serve as a stimulus for interaction and recognition outside the group.

Other benefits derived from horticulture therapy activities are noted by Moore (1989). She states working with plants can have a calming and soothing effect in the following ways:

- (1) Plants soften the man-made environment.

- (2) Plants have a natural, predictable cycle that is comforting in our time of rapid and constant change.
- (3) Plants are stimulating as they change through growth and blossoming.
- (4) Plants are responsive yet "safe." A plant will not talk back or bite its handler, yet it will respond to the care given it.
- (5) Plants do not make judgments. They are not interested in who you are, what you are, or what you have done in the past.
- (6) Plants allow individuals to change their environment. Sometimes children feel they have lost control of what is happening in their world. By using plants, children can learn they can dramatically change their world.

Moore (1989) cited a study at Kansas State University showing that people in a greenhouse work environment versus a more traditional rehabilitation workshop, were more relaxed. An additional study at the University of Delaware indicated that simply viewing scenes of vegetation could significantly improve emotional states.

Castro-Blanco and Hoffman (1988) found that horticulture therapy conducted with a four-year-old boy

diagnosed as having speech-language impairment and exhibiting a variety of behavioral problems and depressed affect produced positive results. Conclusions were that the child showed marked improvement in his in-class behavior. Gains were also demonstrated in his improved affect and capacity to exhibit empathy and nurturance.

Taylor (1976) cited a study conducted in the Payne Whitney Clinic of New York Hospital where chronically ill mental patients were exposed to flowering plants during mealtime. Results of the study determined that patients spent more time at the dinner table, ate better, experienced more eye contact with other patients, and talked to each other more often.

Taylor concluded that emotionally disturbed individuals often suffer from loneliness, anxiety, boredom, and a feeling of not being needed. He stated that working with living plant materials and being stimulated by the color and beauty of plants leads to a realization that plants need them, as well as filling a pocket of time in a creative, fulfilling way that increases one's feeling of personal importance and worth.

Daubert and Rothert (1981) relate that horticultural therapy is valuable for most clients receiving mental health care. They state that horticulture is a vehicle

for several types of relationships. These are:

(1) Individuals involved in horticulture therapy activities develop a relationship with their plants. Emotional investment develops as the person cares for his/her plants. Watching it grow, responding to its needs and nurturing a living organism stimulates the individual's emotions and interests.

(2) A second relationship develops between the client and the therapist/teacher since they share a common interest. The therapist/teacher can direct the client/student's involvement with plants into an acceptable outlet for hostility, aggression, anti-social interactions, etc.

(3) A third relationship exists between the client/student and the environment. Plants offer individuals an opportunity to create, mold and change their surroundings.

Watson (cited in Tereschkovich, 1973) cautions that horticulture therapy should not be considered a direct therapy or one that would overshadow existing forms of therapy. It is one type of activity that has been used for treatment or prevention of illness and for the improvement of mental and physical well being.

Environmental Psychology

The link between integrating animal-assisted therapy activities and a horticulture therapy program into the daily curriculum of seriously emotionally disturbed students cannot be discussed without addressing the importance of environmental psychology and its impact on one's sense of well-being.

President Lyndon Johnson once said, "ugliness can demean the people who live among it. What a citizen sees everyday in his America; if it is ugly, it can demean his existence, if it is attractive, it adds to the quality of life." (p.3). In other words, a person's physical surroundings can effect a person's outlook and health in a positive or negative manner (Scarfone, 1993).

The premise behind environmental psychology according to Scarfone (1993) is that human well-being is fostered when physical surroundings provide moderate degrees of positive stimulation. This stimulation is defined as the degree to which human emotions and feelings are positively encouraged through a person's physical surrounding environment. This stimulation, if positive, can effectively hold a person's attention and interest without inducing stress. When one's environment

does not contain positive stimulation, it can lead one to focus inward, increasing his/her propensity for troublesome thoughts or worries and increasing stress levels. Certain types of environments appear to reduce stress and promote the mind to initiate healing.

Scarfone relates that previous environmental and behavioral research indicates stress and exposure to outdoor environments can be inversely proportional. Stress can be expressed through any number of physical and emotional indicators, such as anxiety, delirium, elevated blood pressure, and depression. Stress can also be expressed through such behaviors as verbal outbursts, social withdrawal, sleeplessness, and noncompliant behavior. He states that health care administrators do not often recognize the correlation between negative behavior and environment. The design of facilities should accomplish more than satisfying functional efficiency, codes, and budgets. Scarfone believes design should create environments that are psychologically and physically supportive. Such environments are thought to positively effect the overall behavior of an individual by encouraging relaxation and contemplation, which, in turn, encourages the body to rest and restore itself.

Studies of many cultures and religions point out

that people have both a spiritual and a practical bond with their environment. Native American lore is filled with references to these bonds (Nebbe, 1991).

Architect Ian McHarg (cited in Nebbe, 1991) is a pioneer in dealing with the issue of environmental design. In his book, Design with Nature, McHarg discussed how the environment influences people. He noted that the more dense and crowded a city becomes, the greater the instances of poor physical and mental health, the lack of smiling faces, and seemingly the less happiness. Conversely, at the edge of the city, the opposite is typically true. He believes an important factor in these conclusions is the lack of contact with natural surroundings in the inner city. In McHarg's architectural work, he includes plant life and small plant-filled courtyards in the buildings he designs. This, he believes, creates working and living environments that are more pleasant and healthy for people. It also demonstrates his belief that in our modern world, we must bring "nature" to people.

Although there have been numerous articles published concerning the observed effects of horticulture therapy or animal-facilitative therapy on various populations, this researcher is unaware of any studies combining the

two modalities in a public school setting for Seriously Emotionally Disturbed students. Additionally, the majority of articles reviewed to date have been descriptive studies rather than experimental designs.

The need for more formalized studies on the effects of horticulture therapy and animal-facilitated therapy is apparent. Although strong sentiment and anecdotal information leads one to believe relationships with animals can be beneficial, the actual data are sparse. Society is just beginning to understand the psychological effects of pets on individuals and the style of verbal communication and touch between people and pets (MuCulloch cited in Beck & Katcher, 1983). Existing programs could significantly increase the knowledge base concerning the value of animal-facilitated therapy if they were more carefully observed and documented. Even without formally designed control groups, accurate reporting would help document the frequency and persistence of favorable changes (Beck & Katcher, 1984).

CHAPTER III

DATA COLLECTION AND SETTING

Significance of the Study

Public schools in today's society are facing increasingly more complex and disturbed youngsters in their special education programs. Increases in drug and alcohol related births, reported cases of sexual, emotional, and physical child abuse, gang-related activities, and the gradual decline of the American family, are thought to be contributing factors to the severity of emotional problems witnessed in school systems today.

A review of the literature indicates research involving either animal-facilitative therapy or horticulture therapy and its effect with Seriously Emotionally Disturbed students is in its infancy. This review did not find any references describing studies combining both treatment modalities with seriously emotionally disturbed students in a public school setting.

This research will contribute new information that

will significantly add to the knowledge base in the field of emotionally disturbed children. It is hoped that the proactive approach provided through this pilot program will stimulate additional research into the use of plants and animals as therapeutic tools with Seriously Emotionally Disturbed children.

Design

This study utilized an ethnographic design with an intact group. Erickson (cited in Stainback & Stainback, 1988) defines ethnographic research more formally as qualitative field research. He states ethnographic/qualitative research involves: (a) intensive, long-term participation in a field setting; (b) careful recording of what happens in the setting by writing field and interview notes and by collecting other documentary evidence (e.g., memos, school records, examples of student work,); (c) analytic reflection on the documentary records obtained in the field; and (d) reporting the results by means of detailed descriptions, direct quotes from interviews, and interpretive commentary. Ethnographic research involves being

unusually thorough and reflective in noticing and describing everyday events in a field setting and identifying the importance of events from the various points of view of the people involved.

Qualitative research is well-suited for studies that are exploratory or descriptive and stress the importance of context, setting, and participants' frame of reference. Other contexts wherein a qualitative approach is suggested are mentioned by Marshall (1985a, 1987) and are listed as follows: (1) research that cannot be done experimentally for practical or ethical reasons, (2) research that delves in depth into complexities and processes, (3) research for which relevant variables have yet to be identified, and (4) research on innovative systems (Marshall, cited in Marshall & Rossman, 1989).

Qualitative methodology allows a researcher to gather a broad range and a variety of types of data and allows for the study of interrelationships among the data. Qualitative research also focuses attention on organizing the diverse and interrelated data gathered into a meaningful and understandable whole. Thus, qualitative research can contribute to the research capabilities in special education by providing a way to develop in-depth, holistic descriptions (Stainback and

Stainback, 1988).

Through a holistic approach, Stainback and Stainback believe a researcher has the opportunity to study the process or procedures inherent in an educational program or situation. Whereas most research focuses on the study of products, qualitative methodology, with its inherent flexibility, allows the researcher to investigate and gain an understanding not only of products but also of how a program developed, how it operates and why a program did or did not work.

The pilot program outlined in this research was appropriate for an ethnographic/qualitative research approach. Participant-observation is a key aspect of ethnographic research and was used extensively throughout this study. This researcher participated directly in activities related to the pilot program a minimum of four hours per school week over a one year period. In addition, informal and structured interviews were conducted with key participants (i.e., students, teachers, aides, principal, parents, etc.). Field notes constituted an important part of the data collection. More traditional quantitative methods, such as pre-post measures to determine changes in behavioral patterns and student attitudes were utilized.

The pilot program developed for this research has, to the best knowledge of this researcher, never been attempted in a public school setting with Seriously Emotionally Disturbed students. Important variables in this study could only be hypothesized and were unknown before the research was conducted. An ethnographic approach was utilized in order to provide a thorough and rich documentation of the entire project from its inception through the first year of operation.

When applied to the classroom or other educational settings, ethnography means that the researcher wants to understand what is occurring in the education setting, how it is occurring, what definitions of the event the participants hold about these occurrences, and what it takes to participate as a member of the various groups within and across these occurrences (e.g., peer groups, friendship groups, instructional groups, adult-child groups) (Green and Wallat, 1981).

In ethnographic research one of the data collection methods is participant observation. Lofland and Lofland (1984) defined this as "the process in which an investigator establishes and sustains a many sided and relatively long-term relationship with a human association in its natural setting for the purpose of

developing a scientific understanding of that association" (p.12). According to Fetterman (1989) it "combines participation in the lives of the people under study with maintenance of a professional distance that allows adequate observation and recording of data" (p.45).

The ethnographic researcher needs to work in the setting over a long period of time in order to "internalize the basic beliefs, fears, hopes and expectations of the people under study" (Fetterman, 1989, p.45). This also allows for copious, richly descriptive field notes to be amassed and patterns to emerge. Green et. al.(1981) stated that "the ethnographer describes what is occurring and after considering the recurring patterns of behavior in the environment, defines rules and processes for participation and membership" (p. xiii). It is reasonable to think that the study of holistic instruction and learning should be researched in a holistic manner as with ethnography.

Subjects

Subjects for this study consisted of students currently enrolled in the Seriously Emotionally Disturbed

special education program at an elementary school in a Southwest suburban setting. At the beginning of the school year there were five students enrolled in this program, two of whom had been in the same class the preceding year. Throughout the school year, the program's enrollment grew to ten students. According to the Policies and Procedures Manual for Special Education (1991) in this state, an SED program can have as many as ten self-contained students.

Data Collection

Data collection consisted largely of field notes, participant observation, student records and progress reports. Audio and video recordings, 35mm photos, and interviews with each student, teacher, aide, building administrator, and parent were conducted. The use of a variety of techniques to gather information (observation, interview, and physical evidence) is termed "triangulation" (Merriam, 1988). In Denzin's (1970) view "the flaws of one method are often the strengths of another, and by combining methods observers can achieve the best of each, while overcoming their unique deficiencies" (p.308). Foreman (1948) promoted the use

of triangulation as a means of determining validity, while Merriam (1988) encouraged its use in order to strengthen reliability.

The Western Michigan Classroom Observation Record Protocol was initially considered for use during classroom observations. This and similar instruments require an observer to pre-define behaviors for observation. In this research, behaviors and important variables were constantly emerging and were, at times, unpredictable. In order to develop a thick, descriptive feel for the students and their environment, extensive field notes were utilized. A mental checklist mentioned by Merriam (1988), was utilized to guide each observation period. This list included: (1) The setting: What is the physical environment like? What is the context? (2) The participants: Who is in the scene, how many people, and their roles. (3) Activities and interactions: What is going on? Is there a definable sequence of activities? How do the people interact with the activity and with one another? (4) Frequency and duration: When did the situation begin? How long does it last? Is it a recurring situation or unique? (5) Subtle factors: List descriptions of informal and unplanned activities. Discuss nonverbal communication. What does not

happen--especially if it ought to have happened.

Observation times and intervals were flexible, depending on the activities occurring and the researcher's schedule. The researcher's role changed depending on the needs of the teacher, the students, and the program. It was not unusual for the researcher to be a complete participant or leader in various horticulture or animal-assisted activities. In these instances, field notes consisted of only brief one or two word notations. At the end of each day, the researcher elaborated on these notes and made a full, descriptive entry on his computer. At other times, the researcher had the opportunity to sit and observe at length while entering more substantial field data into a three-ring binder. On most days, however, the researcher was what Gans (cited in Merriam, 1988) referred to as a researcher participant--one "who participates in a social situation but is personally only partially involved, so that he can function as a researcher " (p.93).

The period of data collection continued from September, 1992, through May, 1993. Merriam (1988) noted that there is no set amount of on-site time which is considered as ideal for the collection of data. She suggested that it range from an intensive initial period

through a gradual discontinuation when it becomes obvious that no new data is coming to light. That pattern was followed in this study.

Due to other responsibilities, it was not possible for the investigator to visit the school site every school day. The researcher visited the pilot site on a daily and sometimes bi-daily basis during the first two months of school. As other district-wide responsibilities increased, visitations were reduced to two or three times per week. The researcher observed over 200 hours of classroom activity across the nine month duration of the study.

Although observation during the first two months was directed toward a general description of the classroom and often extended throughout the school day, the majority of the observations were made during the afternoon hours between 1:00 p.m and 3:30 p.m. during which all students were attending school. In addition, the Affective Education portion of each day was included from 2:45 p.m. to 3:30 p.m.

Interviews were conducted with the program's teacher, aide, building principal, students, and parents of participating children. Although the researcher spoke to and visited with each of these individuals throughout

the year, formal interviews were not conducted until May and June, 1993. Although the interviews were guided by predetermined questions, each interview developed a style of its own depending on the type and quality of responses illicited from the interviewee (see Appendix K). A micro-recorder was utilized throughout each interview session to facilitate the researcher's listening ability and to assist with analysis at a later date. Responses were transferred to a computer file.

Student and program activities were videotaped and recorded through still photographs. This documentation allowed the school district to chronicle the evolution of the program and to prepare for future presentations concerning the project. The twelve hours of videotape produced was invaluable to the researcher when he was not present at the site or was involved as an active participant in the project and was unable to take field notes.

A "Happy Face" form was designed by the researcher to be a quick gauge of each student's mood at the beginning and end of each school day. Each form consisted of a continuum of seven faces ranging from one with a large smile to one with a large frown. On March 1, 1993, this form was simplified upon the teacher's

request. The latter form consisted of only three faces; a smiling face, a neutral face and a frowning face. The teacher or aide gave each student a form at the beginning and end of class with instructions to circle the letter of the face that best described how the student felt at that moment. Two forms per student per day were mailed to the researcher through the school mail service at the end of each week. The researcher made adjustments on each form that was received after March 1st to reflect the different alphabetical notations corresponding to the simplified forms. For instance, a face marked 'B' (neutral face) on the newest forms corresponded to face 'D' (neutral face) on the original forms. Faces marked 'C' on the newest forms corresponded to face 'G' on the original form (Appendix L). The researcher examined these forms during the first week each student attended school and every fourth week thereafter. Individual and class totals were analyzed and charted according to time of day and for each day of the week.

Each student's school behavior was monitored by graphing his/her daily point sheet. After the teacher determined each student's behavior point total (1-5) at the end of the day, a copy was mailed to the researcher. Individual and group totals were graphed and analyzed

(See Appendix M).

Each student's homework completion was monitored through weekly "stamp charts" mailed to the researcher (See Appendix M). Individual and group data was graphed based on the percentage of work completed for each academic subject. The completion rate for the first and second halves of the school year was compared. Quarterly attendance and report cards were collected and evaluated each nine week period. Pre and posttests were utilized to gather information on each student's self-concept, behavioral changes, and psychological/emotional well-being.

Instruments

Piers-Harris Children's Self-Concept Scale

The Piers-Harris Children's Self-Concept Scale was administered in September, 1992 for all students who began the program in August. The instrument provides T-scores and percentiles in areas measuring Behavior, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and

Satisfaction. Each student was administered a second Piers-Harris in May, 1993. Students who entered the program after September, 1992 were administered the same instrument as soon as possible.

Test-retest reliability coefficients for the Piers-Harris range from .42 (over an eight month interval) to .96 (over a three to four week interval) and internal consistency estimates for the total score range from .88 to .93 (Piers, 1984).

Test designers attempted to build content validity into the scale. Items were written to cover all areas in which children reported qualities that they liked or disliked about themselves. During the item analysis, however, items with low discriminatory power were dropped.

Self-concept may be less stable among younger children whose sense of self is still under development according to Harter (cited in Piers, 1984). Harter also states that low test-retest reliability in the lower age ranges may be partially due to the instability of the underlying construct rather than measurement error per se.

Inferred Self-Concept Scale

An Inferred Self-Concept Scale was completed on each student by the teacher. Pre and post dates were similar to the Piers-Harris administered. The Inferred Self-Concept Scale was particularly helpful for younger students who fell below the minimum age requirements for administration of the Piers-Harris.

Pearson product-moment correlation coefficients were obtained among counselors, teachers, and for counselors-teachers, combined. The coefficients of .8614, .8567 and .9026 are significant beyond the .01 level. These correlations indicate the instrument is internally consistent and items appear to achieve a satisfactory degree of homogeneity (McDaniel, 1973).

Test-retest reliability coefficients for students classified according to ethnic group, sex, birth order, family size, grade level, and for the total sample are all significant beyond the .01 level (McDaniel, 1973).

McDaniel (1973) states that item selection procedures resulted in content validation since judges who checked each item they considered to be useful for assessing self-concept as inferred by others were functioning in the same way as educators who may be asked

to evaluate items for an achievement test.

The Behavior Evaluation Scale. A Behavior Evaluation Scale was completed on each student by the SED teacher at the beginning of the school year and at the end. This scale provides standard scores in five areas that correspond to areas of potential eligibility for students displaying serious emotional problems. These areas include (1) Learning Problems (2) Interpersonal Difficulties (3) Inappropriate Behavior (4) Unhappiness/Depression and (5) Physical Symptoms/Fears.

The Coefficient alpha procedure was employed to measure reliability in terms of overlapping variance among scale items. The Coefficient alphas were computed based upon the performance of the entire standardization sample and were used to calculate the standard error of measurement for the subscale standard scores (McCarney, Leigh, & Cornbleet, 1983).

Test-retest reliability was conducted over an interval of ten days. Correlation coefficients computed between the two sets of obtained scores for each of the five subscales and for the total scale all exceeded .97 and were all significant at the .001 level. McCarney et.al. (1983) stated that studies involving teachers

using the scale earlier in the school year are needed.

Content validity was assured on the BES due to all items being originally devised and subsequently validated by a large sample of classroom teachers and special education personnel with direct knowledge and expertise in the area of school-related behavioral problems (McCarney et. al., 1983).

Criterion-related validity was determined by correlating the BES subscales with the Behavior Rating Profile Teacher Rating Scale. The correlation between the two instruments was .64, significant at the .001 level (McCarney et. al., 1983).

Personality Inventory for

Children-Revised (PIC). A PIC was completed by each parent on a pre and posttest basis. Each parent completed a 420 item version of the PIC that quantified concerns in the following areas: Achievement (ACH), Intellectual Screening (IS), Developmental (DVL), Somatic (SOM), Depression (D), Family (FAM), Delinquency (DLQ), Withdrawal (WDL), Anxiety (ANX), Psychosis (PSY), Hyperactivity (HPR) and Social Skills (SSK).

Test-retest reliability was determined utilizing responses of mothers with children being evaluated as

outpatients in a preadolescent clinic. Test-retest intervals ranged from 4 to 72 days with an average interval of 15.2 days. The average reliability coefficient for the 16 profile scales (included validity scales) was .86 (Wirt, Lachar, Klinedinst & Seat, 1984).

Internal consistency estimates for the clinical scales ranged from .57 for Intellectual Screening to .86 for Depression, with a mean alpha of .74. Obtained mother-father T-score differences averaged less than 5 points for 36.5% of the clinic sample and for 48.1% of the normal sample. The PIC profiles derived from the responses of mothers correctly predicted class placement for 73% of their children, whereas the responses of fathers correctly predicted class placement for 86% of their children (Wirt et. al., 1984).

Each standardized instrument in this study displayed adequate test-retest reliability over relatively short intervals of time. There is some question, however, concerning the reliability of the Behavior Evaluation Scale and the Personality Inventory for Children-Revised over longer intervals of time. There is also concern over the low reliability of the Piers-Harris (.42) over longer intervals of time (eight months) as well as the instability of self-concept for younger children.

SETTING

The study took place in an elementary SED (Seriously Emotionally Disturbed) classroom in a large Southwest suburban school district serving 10 children from kindergarten through fifth grade. Although the elementary school involved in this study was located in a middle-to-upper socioeconomic area, the SED program drew from a more diverse cross section of the community. In addition to this SED site, there were five others throughout the school district (1 elementary, 2 middle schools, 1 intermediate school and 1 high school). None of the other sites provided the type of animal/horticulture therapy offered at the research site. An elementary site was selected over a secondary one for therapeutic reasons. The researcher felt that a proactive approach with younger emotionally disturbed children would provide the greatest opportunity to improve their behavioral and academic standing. The elementary school chosen for this unique study was selected due to its physical layout. The existing SED classroom had a western exposure and was easily adapted to accept an adjoined solarium/greenhouse. Additionally, the west side of the school provided an ideal setting for

an outdoor garden and dog training facility. The surrounding tree-lined playground, jogging track, and city owned nature park provided an excellent therapeutic backdrop for the proposed program.

The 1992-93 school year began with five students participating in the pilot program. As the school year progressed, five additional students were determined eligible for the program. During the final months of the school year, the program contained two kindergarten students (1/2 day), one first grade student, two third grade students, three fourth grade students and two fifth grade students.

Room Arrangement

The SED classroom was located in one of four main halls in the school building (see Appendix N). Upon approaching the SED room, one immediately noticed a beautiful walnut and gold plated plaque that acknowledged the contributions of many individuals throughout the community. The following inscription was located at the top of the plaque along with individualized gold nameplates that recognized each contributor of funds, services or expertise to the program: "In recognition of

your outstanding contributions and support to the enhancement of lives of children with special needs in our community."

The teacher's desk was located close to the door of the greenhouse and next to the blackboard, while the aide's desk was situated close to the South wall of the room. The room was fully carpeted and had an adjoining door to a room next door. At one time, this doorway was kept open for free movement between the SED room and a Learning Disability lab. During the 1992-93 school year, however, a regular fourth grade teacher was moved into the adjoining room and the entrance was kept closed. There was also a bathroom located in the southeast corner for the convenience of the children and the instructor.

The students' job chart was located on the wall immediately inside the main doorway. Located on the job chart were several pockets with colorful laminated pictures that depicted various activities that were to be accomplished during the day/week. These included pictures for feeding the dogs (a.m./p.m.), grooming the dogs, walking the dogs, bathing the dogs, cleaning up after the dogs, watering plants in the greenhouse and outside, and sweeping the greenhouse. Each student had a popsicle stick with his/her name on it that was placed

into an appropriate pocket during each day. The student was responsible for checking the job chart and carrying out his/her tasks in an acceptable manner.

Located against the wall next to the blackboard was a 3-tiered grow cart the students utilized for growing African Violets from leaf cuttings, as well as other plants such as the "vicks" plant, "blue angels", and "shamrocks." The cart was set up on a timer system that provided the optimum amount of light for growing violets; 12 hours light and 12 hours of darkness. The other plants selected had similar lighting needs. Each tray on the grow cart was designed to utilize capillary matting. This matting set in the bottom of the tray and was kept slightly damp at all times. The plants were not watered from the top and received the necessary moisture they needed by drawing it upwards from their root structure. Students were responsible for the grow cart on an alternating basis.

Next to the teacher's desk was a U-shaped reading table the teacher utilized for reading groups or to help students on individual assignments. To the left of the main doorway was a long section of bookshelves. Overhead was a bulletin board used for displaying student work or seasonal themes. A guest book sat on the corner of the

bookshelf for visitors to sign as they visited the classroom.

To the right of the bathroom door was a small desk that an intern or volunteer could use when working with a student. At the corner of the bathroom, a long bookshelf extended into the room. A cozy area for reading on beanbags was created behind the bookshelf to give the students privacy when desired. Across from the aide's desk and along the wall adjoining the greenhouse was a long table and chair that could also be utilized by a volunteer or intern. An opening exercise chart was located on the wall to the left side of the greenhouse entrance. Each morning's opening requirements included:

- (1) Mark happy/sad faces
- (2) Turn in daily note and homework
- (3) Hang up coats and backpacks
- (4) Sharpen pencils
- (5) Clean glasses, take medication if necessary
- (6) Have paper and book ready to start work
- (7) Be in proper seat

A sixteen foot long banner was located above the entire glass entrance to the greenhouse. The computer printed and hand colored banner read: LET US PLANT FOR THE FUTURE, TODAY.

Desks were generally arranged in rows of two or three, depending on the behavior of individual students and whether one needed to be moved for a period of time. When free time occurred, students often pulled a bean bag into the greenhouse. Not only was the greenhouse an esthetic draw for the students, but it provided a quiet atmosphere to work or play in as well

The Greenhouse

Upon entering the classroom, one's attention was immediately drawn to the area directly across from the door...the greenhouse (see Appendix O). The greenhouse was approximately 16'x14' and was entered through a sliding glass door from the classroom. Three classroom windows were removed from floor to ceiling and replaced with three four foot glass sections, with the section on the north end being a sliding door. Hanging baskets and benches overflowing with flowers, tomatoes, and assorted plants could be viewed by all students from inside their classroom. Five eight-foot polyurethane benches were arranged inside the greenhouse, each being approximately three feet high for optimum use by the children. The greenhouse, which faced West, contained an evaporative

cooler on the South wall, a small child's size sink in the Southeast corner, and a hanging electric heater in the Northeast corner. A plastic covered, metal shelf, approximately five feet high, ran the entire length of the greenhouse on the West end. Sixteen hanging basket hooks were evenly spaced throughout the beams of the curved structure. The greenhouse contained two sliding glass windows on the West side. The floor was tiled with a drain located in the middle.

Therapy Garden and

Dog Facility. The therapy garden and adjoining dog training facility encompassed approximately 3,000 sq.ft.(see Appendix D). The area was against the west side of the school building and faced a greenbelt and playground which buffered a nearby housing addition. The garden and dog facility were enclosed behind a six foot chain-link fence, accessible by two 48" wide gates. The gates were locked throughout the evening hours, but remained open during the school day for various students to utilize during class projects or to simply enjoy during one of their recess periods.

The garden, which was designed by a local landscape architect, was beautiful and contained several

interesting features. Upon entering the garden, one's attention was immediately drawn to the aquatic garden, which had become a focal point of interest to all students. Several varieties of goldfish were present as well as numerous blooming water plants. A small running waterfall added a calm and tranquil touch to the pool.

The sidewalk leading through the garden made a large arch near the pool and was surrounded on either side by blooming plants such as lantana, begonias, marigolds, shasta daisies, ajuga, and periwinkles. Other than the daisies and ajuga, plants were replaced at various times throughout the year with appropriate seasonal color. Numerous shades of evergreen shrubbery were present that provided an interesting contrast to the blooming flowers (see Appendix P). A redwood bench sat prominently at the side of the water garden inviting visitors to sit and stay awhile.

A 30'x 7' raised garden bed was constructed across the exposed aggregate sidewalk from the greenhouse. During the Fall and Spring, students planted cool season vegetables to harvest and share with friends, teachers, and family. Along the fence next to this garden bed were seven individual planters filled with various scented herbs, verbena, Mexican heather, geraniums, and purslane.

During cooler months, these containers overflowed with beautifully scented pansies.

Surrounding the base of the greenhouse were numerous dwarf yaupon shrubs that would eventually grow to shield the exposed foundation. On the north side of the greenhouse were two 12'x 6' raised garden beds. On the ground around the beds was a thick mixture of pebbles called "expanded shale" which provided a nice contrast of texture and sound when walked on. The students planted various vegetables in these gardens and had most recently harvested peanut plants that were planted in May, 1993. Attached to one of the landscape timbers on the raised beds was a rain guage that children utilized in their science curriculum.

Continuing northward along the sidewalk, one entered the dog kennel and surrounding grounds. This grassy area was smaller than the garden, but was large enough to contain a 15'x 4' concrete dog run and attached living quarters, all of which were fenced. Inside the dog run was an automatic feeder and water supply. The dogs' living quarters was entered through a sealed door and contained a built-in windbreak to aid in keeping the animals warm. In addition, the quarters were built with a foam core between all walls, floor, and ceiling. The

top of the enclosed dog run was covered with a sturdy plastic tarp to shield the animals from the elements. Outside the run, in the larger grass covered area, was a sidewalk leading to the garden and a nearby gate. A newly planted red sunset maple tree helped provide shade for the dogs on hot, sunny days. On the opposite side of the fence from the garden and dog area were six newly planted bradford pear trees that would eventually provide shade for the entire facility. The pear trees have white blossoms during the Spring and will provide a nice display for the entire school to enjoy.

The school site was one of the most pleasant settings in the school district. All children enjoyed wide open spaces, a large playground and easy access to the nearby nature park.

CHAPTER IV

PLANNING, PREPARATION AND IMPLEMENTATION

Planning and Preparation

In September, 1990, I approached Dr. Gary Gerber, Administrative Assistant for Special Services, and head of the Special Services Department, with the possibility of designing and obtaining funds for a horticulture therapy and animal-assisted therapy project for elementary emotionally disturbed children. With Dr. Gerber's approval and encouragement, I began researching the area of horticulture and animal-assisted therapy and discovered there was little information regarding the use of either treatment modality with emotionally disturbed children. Furthermore, I did not locate any literature pertaining to the combination of both treatment modes and their application within a public school setting.

A summary of benefits and a cost analysis was forwarded to the Board of Education in November, 1990. Gathering cost estimates on everything from a \$20,000 solarium to pooper scoopers for the dog run was extremely time consuming and had to be accomplished

during the course of a typical work day or after hours (see Appendix A). The school board granted its approval for fund raising to begin with the understanding that the district's budget was tight and significant funding would have to be received from alternative sources. This was a breakthrough of sorts for our district since local business and corporate alliances had heretofore not been pursued.

Throughout December, 1990 and January, 1991, I mailed letters of inquiry to approximately twenty-five foundations throughout the state. My first positive response occurred in April, 1991, when I was contacted by Founders of Doctors' Hospital, Inc. to make a short presentation concerning my proposed project.

Feeling confident about my chances of receiving funding from Doctors' Hospital, I proceeded with arranging a two day in-service in July, 1991 with Dr. Richard Mattson, Professor of Horticulture Therapy at Kansas State University. I had become aware of Dr. Mattson's work and expertise in the field of horticultural therapy from my preliminary research. Issues he agreed to discuss were:

- (1). Program goals
- (2). Program design

- (3). Record keeping
- (4). Safety issues
- (5). Program evaluation
- (6). Materials
- (7). Curriculum writing.

The teacher and aide for the program, the building principal, assistant principal, Dr. Gerber, and another interested district principal and I attended Dr. Mattson's inservice. Dr. Mattson reiterated at the workshop that little research existed that related to horticulture therapy and its effects on elementary-aged emotionally disturbed children. He applauded our goals and urged us to continue in our efforts to provide innovative and quality programming to our students. After presenting a thorough background on horticulture therapy, Dr. Mattson utilized his remaining time to provide hands-on training with plant materials he had brought. Participants were instructed on root division, propagation techniques, stem cuttings, making dish gardens, and other activities appropriate to the age of our students. I left this first training experience feeling somewhat enlightened, but realized that the project I had envisioned was enormous and would require many more training sessions and endless hours of reading

than I had ever imagined.

On October 11, 1991 I received a letter from Founders of Doctors' Hospital, Inc. stating that my project had been awarded a \$17,000 grant. I literally ran through the hall to share the news with Dr. Gerber.

I continued to locate funding sources and began concentrating my efforts on local businesses and large corporations. With a sizable grant already secured, I felt that I might be able to make a greater impact on prospective donors. In late October, 1991 I contacted Shadow Mountain Institute, a private psychiatric facility that serves adolescents from our area. Harold Katz, Chief Executive Officer, invited me to visit with him regarding our efforts. I received \$1000 for our program from Shadow Mountain before the end of October.

At that point, the district had \$18,000 in hand and was committed to completion of the project. It was an exciting time with various meetings with the district's architect, Superintendent, Assistant Superintendent of Construction, the building principal and Dr. Gerber. Although I had provided estimates and designs for the project to the Superintendent's office, I was unaware of miscellaneous expenses that had crept in such as architectural fees, plumbing and electrical contracts,

and security lighting, just to name a few.

In November, 1991 I arranged to make a presentation to the general membership of a local dog training club. My goal was to explain the type of program I was designing and enlist their technical assistance with regard to type of breed, safety issues, training, and care of the dogs. I left the meeting feeling good and with a promise that the Board would discuss my proposal and determine to what degree, if any, they might become involved in my program. I received a phone message in December, 1991 from the public relations director of the club that the Board had agreed to support my program and would provide whatever assistance was necessary to make it work. I was told the club would waive its training fee if I and two other individuals could attend one of their 10 week training sessions. The club stated it would provide inservice at our pilot site. Needless to say I was ecstatic.

At a December 1991 school board meeting, the Board authorized a time schedule for the building of a solarium/greenhouse, installation of surrounding fences, and a small dog kennel (see Appendix B). I continued fund raising efforts, realizing that significant funding was still needed. In addition, I began contacting local

veterinarians, dog food companies, nurseries, etc. to firm up earlier interest in our pilot program. I was extremely pleased with the response I received from every person I contacted. Each of the veterinarians contacted was eager to participate by providing free vaccinations, neutering services, and medical checkups. One veterinarian, who also owns a kennel, agreed to board each dog in the program during extended vacations.

The complexity and magnitude of the project began to sink in. Not only did I not have enough money for the project, but I did not have a blueprint to follow to help guide me through the various elements of design, training, and curriculum development that was needed. I also had to deal with the looming knowledge that there was an element of individuals that was very skeptical about the project and had assumed that the district had pumped large sums of general budget monies into the project. Additionally, the entire concept of a garden and dogs on the premises seemed foreign to a select group of people. Little was known about why the project was being developed and I did not have the time to educate everyone about the positive things I hoped to accomplish. In addition to my regular job of being a practicing school psychologist, responsible for psychological

evaluations for referrals coming from twenty-one schools, reviewing all incoming psychological records, keeping a modest counseling schedule, performing Department Chair duties, and being available for consultation and trouble-shooting throughout the district, I was bombarded with a horde of details regarding the pilot program. The easiest way to present a positive message to the public and some of the staff concerning my hopes and aspirations was to provide information to the local news media. They printed numerous flattering articles that were invaluable in terms of bolstering my spirits and quieting unnecessary rumors (see Appendix C).

Preliminary research into the fields of animal-assisted therapy and horticultural therapy led me to urge the school district to apply for membership to several prominent organizations. Organizations that the district has maintained memberships in since the Fall of 1991 include The Delta Society, the American Horticulture Therapy Association and The Latham Foundation.

The Delta Society's educational and community service activities promote beneficial relationships between animals and people and funds studies on how animals affect the mental and physical well-being of people. The Delta Society publishes an informative

magazine called Interactions and Anthrozoos, a quarterly journal.

The American Horticulture Therapy Association promotes and encourages national and international interest in the development of horticulture and related activities as a therapeutic and rehabilitative medium. AHTA publishes a monthly newsletter called People Plant Connection.

The Latham Foundation was the first national organization devoted exclusively to humane education and is a clearing house for information about humane issues and activities. It is also a source for cost-effective audio-visual materials, promotes the well-being of people, animals, and the environment and publishes the Latham Letter and an assortment of books and articles.

Maintaining membership with these organizations was instrumental in my ability to proceed with fund raising and with communication with other professionals in the fields of animal-assisted therapy and horticulture therapy. These memberships also conveyed a message to the community that the district was serious about its involvement with this project and that we were not simply going to plant tomatoes in the ground and have a dog visit the classroom occasionally.

Community Resources

During the Spring of 1992 I continued my fund raising efforts by contacting additional foundations and community leaders in the area. From January to April, 1992 the following contributions were made:

<u>Source</u>	<u>Funding</u>
The Anne & Henry Zarrow Foundation.....	\$2,000.00
Sooner Federal Savings & Loan.....	\$ 100.00
QuikTrip Corporation.....	\$ 200.00
Public Service Company of Oklahoma.....	\$ 200.00
Bama Pie LTD.....	\$ 100.00
Amoco Production Company.....	\$ 250.00
Zebco Corporation.....	\$ 600.00
Total.....	\$3,450.00

Construction. Construction on the solarium/greenhouse and dog training facility began in February and continued through the end of the 1992-93 school year. April and May of 1992 proved to be an interesting time for the class and staff at the pilot school. Students from every classroom enjoyed watching the groundbreaking, greenhouse construction, and fence installation. Several of the students in the SED class

were able to help lay the floor tiles in the solarium and were quite impressed that they were trusted to do so. The first seeds of ownership in the project were planted for these students.

A small element of teachers at the school and within the district continued to be concerned about the financing of this project. With our district lagging behind in salaries as compared with neighboring districts, it was important to develop good public relations with the staff. Being a first-of-its-kind pilot, some teachers were excited about our venture, while others were jealous or felt it was a waste of money and would be an eventual eyesore if not properly maintained. One teacher, who was particularly vocal about funding for the project, did not want to have the dog run outside her classroom window and was subsequently moved to another location.

Partly because I am a hands on type of person and partly because of the scrutiny the program was under, I found myself at the construction site on most days. I felt a certain amount of pressure to make sure the site was constructed properly and with a minimum of errors. I was new to this role and was not entirely sure that it was my job to oversee any of this process but also knew

that, as in any construction venture, someone needed to be present a significant portion of the time in order to keep a watchful eye on things. I visited the construction site during the evenings and probably made a general nuisance of myself. I did not have a video camera at the time and relied on a 35mm camera to document the evolution of the project. The documentation paid dividends when I noticed construction problems with the dog run, the evaporative cooler and in other areas. These issues were brought to the attention of the architect and contractor and were eventually corrected to everyone's satisfaction.

Construction proceeded slowly through the end of the school year. At times it appeared that nothing was being accomplished and I became impatient. I was apprehensive that the solarium would not be completed and available for thorough inspection and inservice over the summer break. The solarium and fencing were completed shortly after school ended (May, 1992) with a few details still left to complete (i.e. shelving for plants, grow tables, hanging basket hooks, installation of the shade cloth, construction of the dog house, etc.). At that point, the district had a completed structure but no supplies or curriculum to proceed with.

In February, 1992, the school district became aware of IDEA-B Discretionary Grants up to \$30,000 available through our State Department of Education. Grant applications were due by April 17, 1992 and involved a lengthy application process. I began working on the application for a discretionary grant in late March and continued off and on for nearly three weeks.

Although \$30,000 was available for each grant application, I chose to apply only for \$14,394.65 that I thought was essential for the remainder of my project.

These funds were to be earmarked as follows:

<u>Horticulture Supplies</u>	\$588.89
<u>Dog Supplies</u>	\$522.09
<u>Misc. Supplies</u>	\$283.67
<u>Outdoor Therapy Garden</u>	\$4,000.00
<u>Curriculum Development</u>	\$5,250.00
<u>In-service Training</u>	\$3,750.00
TOTAL.....	\$14,394.65

The discretionary grant application was completed on April 16, 1993 and hand delivered to a regional office of the State Department of Education the same day. I received word from the State Department in late June that my proposal had been accepted for funding. This project was one of only a handful funded from throughout the

state. Although our district applied for three additional grants, it was only approved for one grant for the horticulture/animal-assisted therapy program.

The month of July, which is typically my vacation period, was a hectic time for me and others remaining in the Special Services Department. I worked in my office or from my home each day on implementing the discretionary grant in order to be ready for the first day of school in August. It was an exciting time but one which I resented from time to time because of the limitations it placed on family and personal time. It was also a continuation of extreme stress and pressure to meet deadlines, establish community contacts, and work with various departments within the school system to make sure schedules, paperwork, and materials were coordinated between myself and others.

The staff's need for personalized inservice was paramount during the month of July. I had made sufficient telephone calls in previous months to realize that horticulture therapists in general were fine for programs working with the physically impaired or those with vocational approaches, but practically no one specialized in utilizing horticulture for addressing the psychological needs of elementary-aged children. With

this is mind, I proceeded with arranging two short inservices on July 7 & 8 with local presenters who could address a "nuts and bolts" approach toward designing horticulture activities that children could relate to and learn from. At that stage I could not afford to be overly selective about the inservice topics that could be offered. School was quickly approaching and it was important that the staff at least felt that they were being inserviced.

An initial two day workshop was arranged with local individuals serving as presenters. Tina Lynn, Greenhouse Manager at a horticulture training center that provides vocational services for developmentally handicapped adults in our city, provided one session. Her role was to demonstrate how to care for and propagate African Violets. I planned for the students to become involved in growing African Violets from leaf cuttings and to show them at the State Fair. Growing violets is a slow and deliberate process-- one which I thought would benefit students who experienced difficulty delaying their immediate gratification needs. A second workshop was developed under the guidance of Lori King. I had contacted our local community college in May about the possibility of arranging a practicum setting for one of

their horticulture students. This type of partnership had never been arranged prior to this time and required some maneuvering on the college's part as well as substantial documentation from our school system. Lori's role during the inservice was to share ideas on seasonal and year-around activities that could be incorporated into our program.

Scott Williams, a local nursery manager, provided a third workshop. He demonstrated proper soil preparation, transplanting techniques, seasonal activities, and insect control.

The teacher, aide, principal and I attended each workshop and left feeling we had obtained a better idea of how to implement various horticulture activities. We were, however, still searching for a source to help us better understand why horticulture therapy is beneficial and how to design specific interventions for particular behavior/emotional problems.

During the month of July I worked nonstop to develop a more indepth two-day workshop that would bring in nationally known speakers in early August to address our horticulture and animal-assisted therapy needs. School began August 24 and I had begun to feel an intense sense of urgency. Ideally, I would have preferred to have had

the staff's training needs fulfilled several months prior to school beginning to allow time to reflect on what we had learned and begin thinking of ways to implement our new found knowledge. Unfortunately that was impossible and the staff and I found ourselves leaping from training sessions to the classroom in only a few short weeks.

During July I arranged for Dr. Gary Gerber and me to attend the 6th International Conference on Human Animal Interactions in Montreal, Canada. In addition, arrangements were made for the teacher and her assistant principal to attend The 20th Annual Conference of the American Horticultural Therapy Association at Ohio State University from August 9-12, 1992.

Attempting to determine a time between the AHTA Annual Conference and the Montreal trip to arrange a two day inservice in Broken Arrow was difficult. Numerous contacts were made with nationally known experts in the area of horticulture therapy and animal-assisted therapy to determine suitable speakers for an inservice. After considerable consideration and advisement, Mother Hildegard George, Ph.d. was selected for an August 4th inservice covering animal-assisted therapy. Richard Sackett, HTR and Barbara Shapiro, HTM were selected to present horticulture therapy workshops on August 5.

The trip to Montreal was exciting and invigorating. The agenda was impressive and truly had an international flavor with presenters coming from across the United States, Canada, Europe and Scandinavia. Mother Hildegard George presented an informative workshop and I was able to do some planning for her forthcoming trip to our state. Our meetings with experts in the field of animal-assisted therapy reinforced the fact that I was involved in a first-of-its-kind project in a public school setting, not only in the United States, but worldwide as well. The conference also reinforced the idea that little research had been accomplished to scientifically pinpoint the true benefits of animal-assisted therapy. Most accounts were anecdotal and the field was begging for more solid evidence. I realized that my descriptive, ethnographic research would not completely fulfill the wishes of many attending the conference, but I did feel it was noteworthy in the sense it involved a population of children that had heretofore not been addressed.

The 20th Annual Conference of the American Horticultural Therapy Association was a wonderful experience for the teacher and her assistant principal. The teacher and assistant principal returned from their

trip with a wealth of handouts, information sheets, and future contacts. Although other participants were reported to be interested in our project, they were said to be somewhat skeptical since those of us involved were not registered or licensed horticulture therapists. Both individuals stated what Dr. Gerber and I had experienced in Montreal--namely, that little, if any, research had been directed toward the emotional problems of children. Although many techniques, ideas, materials, and professional contacts were made, we left our respective conventions feeling we were charting new waters, and the feeling was, at times, an uneasy one.

The short time between the Montreal trip and the August 4-5 inservice was hectic to say the least. I officially arrived back at work on August 1, 1993. Numerous details remained before the inservice could begin. Last minute letters to neighboring school districts, veterinarians, horticulturists, and mental health professionals had to be mailed. Audio-visual equipment, airline schedules, hotel accommodations, ground transportation, refreshments, contacts with news agencies, and a host of other miscellaneous items were waiting to be finalized.

The August 4-5 inservice was well received by those

who attended. I was particularly happy that one of our more sizable benefactors was able to attend. In addition to providing everyone with a better understanding of our mission, we were able to allow a tour through our newly completed solarium/greenhouse. Although it was void of plants, tables, and did not have the cooling system in operation, everyone was quite impressed and expressed interest in seeing the project upon its completion. Several representatives of neighboring school districts contacted me within a few weeks requesting additional information in order to implement programs of a smaller scale in their districts.

My initial desire to obtain the dogs during the summer and have them trained did not transpire due to the inservices that were being arranged and the endless hours that had been devoted to this project. Instead, I focused my time on acquiring the three dogs we needed for the program a week prior to school beginning. That not only solved the problem of where to keep the dogs--since they could be kept at their quarters at the school once personnel began arriving--but it allowed them to get acclimated to their surroundings before being introduced

to the students when they returned to school.

One of the more active veterinarians in our program had stated he could obtain suitable dogs for us through the SPCA, of which he was a past president. He, Dr. Gerber, and I scheduled a visit to the SPCA on August 8, 1993. Prior to leaving, the veterinarian called to tell me about a Labrador-mix that another veterinarian had mentioned and wanted us to consider. We arrived at the veterinarian's office and were greeted by a rather timid, but beautiful, black Labrador-mix that was approximately one year old. The dog had been found wandering in a nearby neighborhood and was brought to the veterinarian's office. I was very impressed with 'Katy' but was concerned that she might be too large for the dog quarters we had constructed. The veterinarian assured me that she would not present a problem and we agreed to take her into our program. The veterinarian agreed to spay her and provide the necessary vaccinations at no cost to the school district.

Our next stop led us to the local SPCA office. The night before, I visited by phone with the SPCA president. We spent nearly an hour discussing the goals and operational issues surrounding our pilot program. I felt as if I had concluded an interrogation once it was

completed. I realized later that many individuals involved with the SPCA are more than just animal-lovers--they are fanatic about animal rights issues. After a brief meeting with the president, we leisurely walked through the kennels, stopping to pet and discuss various dogs we encountered. We eventually settled on a one-year-old Beagle named 'P.J.' and a three-year-old Pug-mix named 'Dibbs'. After signing the necessary paperwork (various fees were waived by the SPCA) the dogs were taken to their new home at the pilot school. Within a few days, each was taken to its respective veterinarian and neutered (P.J.) or spayed (Dibbs) and given their appropriate vaccinations and health check-up. Shortly thereafter, Katy was introduced to P.J. and Dibbs while they awaited the first day of school on August 24, 1992.

Dr. Gerber had been particularly impressed with a white Australian Shepherd-mix when we visited the SPCA. He approached me the following day about the possibility of having an office dog. We discussed the idea of including this dog in our upcoming obedience training and utilizing him as a therapy dog in buildings throughout the district with students with motivational/behavioral difficulties. I thought it was an excellent idea and we

picked up 'Dustin' the following day.

An early contact in December, 1990 with the owner of a well known pet store in town led to a phone call to the Bil-Jac dog food company. I kept contact with Bil-Jac throughout this time and arranged to pick up a free 35 lb. bag of Bil-Jac at the local Farmer's Co-Op when it was needed.

Dog obedience school began in August, 1992 and continued for 10 weeks. Each Wednesday evening for approximately two hours, I trained P.J., Dr. Gerber worked with Dustin, the teacher instructed Katy and her aide worked with Dibbs. We worked diligently with the dogs on basic commands such as sit, stay, heel, recall, and finish. We were also provided with homework which required approximately thirty minutes to one hour of each individual's time per week. Once school started, we were instructed to allow the students time to play with and care for the dogs, but they were not provided instruction time with the dogs until they each graduated in October, 1992.

During the few days that remained prior to school beginning, I concentrated my efforts on cataloging and storing supplies that had been ordered, installing greenhouse benches, installing hanging basket hooks and

shelving in the greenhouse, and making sure the African Violet grow cart was assembled and operational. Another important task involved making preliminary contacts concerning bids for the outdoor therapy garden. I realized that in many ways the garden would become a focal point for our project. Although the greenhouse was the most prominent expenditure, the garden would cover the most space and would be extremely visible throughout the year. In my mind it had to be esthetically pleasing and needed a professional design that I was not capable of achieving alone.

After the State Department accepted my discretionary grant application for funding, I contacted a local landscape architect to devise a suitable plan for the therapy garden. Scott Honeyman, who is a landscape architect, and I spent several hours discussing design needs and functional aspects of a good design. After several attempts, he convinced me that my need to have grass within the garden design was not only unnecessary, but was not practical or desirable given the amount of room available and the lack of time for maintenance. Scott also mentioned on many occasions that I should be aiming for function combined with esthetics. Scott was known throughout the community as a giving person and

agreed to donate a design to our project (see Appendix D). He also agreed to provide me a materials list and exact specifications for an exposed aggregate sidewalk, enclosed raised beds, bed preparation, aquatic garden specifications, redwood bench, and a detailed plant list (see Appendix E). He realized that I would eventually like him to bid on the construction and installation of his design but realized there was no assurance that his bid would be selected. During the next several weeks, I worked on finalizing specification sheets to provide to at least three landscape companies in the area for bids. The beginning of school was literally around the corner and many important details remained to be organized.

What had begun as a remote idea nearly two years ago would suddenly be thrust into the limelight of the school district when school began. When I took time to reflect on what had been accomplished and the huge undertaking ahead, I often felt overwhelmed. The eyes of the district were squarely on me and I hoped I was up to the enormous task that lie ahead.

Implementation

As the final pieces of the program fell into place, I looked upon the coming year with mixed emotions. On one hand, I was very happy to see that two years of my work was nearly ready to be shared with the children and staff at the pilot site. On the other hand, I could not remove the nagging thought from my mind that there was much unfinished business to tend to. I had hoped to enter the school year with a finished product that could be turned over to the school. Instead, I was painfully aware that groundbreaking on the outdoor therapy garden had not begun, development of curriculum for the project was lagging behind, and the refinement of student schedules for working with and taking care of the dogs and plants was not completed. Having never attempted an ethnographic research project, I was also haunted with the lack of structure I perceived with regard to the type of data and field notes I needed to collect during the school year.

My many roles of researcher, school psychologist, supervisor of the pilot program, and Department Chair for all of the district's SED programs was somewhat unsettling. My greatest concern dealt with finding a

balance between supervisor and researcher. I was accountable to the district for the manner in which the pilot program progressed. This meant that I would have considerable influence on its operation and refinement as the program continued during the school year. At the same time I felt a necessity to become a responsible and objective researcher who participated at times, but mainly stayed behind the scenes to report and document the events that transpired.

Classroom Management

The SED teacher's management style was fairly simple and straightforward. Her demeanor was low key and she rarely raised her voice when talking with her students. During the first two weeks of class she consistently reinforced the classroom rules, which are posted on the wall, by discussing them on a regular, but nonthreatening basis. A folder with school-wide and classroom expectations was provided to every new student to the program. These guidelines were also reinforced at Back to School Night at the beginning of the school year. Class rules were:

1. Follow directions the first time they are given.

2. Keep hands, feet, and all objects to yourself.
3. Only one person may talk at a time. No disruptions are allowed.
4. Have pencils, books, and papers at your desk ready to work.
5. Swearing, teasing, put downs, or obscene gestures are not allowed at any time.
6. Follow all school building rules.

The teacher's behavior point system worked as follows: Everyone started the day with 5 points. If a student chose not to follow the rules, the following occurred:

1st occurrence--warning and initials on board or on teacher's desk list--5 points remain.

2nd occurrence--Name on board or teacher's desk list--point total reduced to 4.

3rd occurrence--Check mark next to name combined with a period of time in the time-out area--point total reduced to 3.

4th occurrence--Check mark next to name and visit with the principal--point total reduced to 2.

5th occurrence--Check mark next to name and phone call to parents/guardians--point total reduced to 1.

Final occurrence--Call parents/guardians for send home.

Note: If at any time a student's behavior was disruptive to the point that learning had stopped or if the student was a physical threat to him/herself or others, the parent/guardian was immediately called to take the child home for the remainder of the day. If the behavior occurred after recess, the student was required to stay home the following day as well.

Students were heavily reinforced for appropriate behavior in the classroom. Based on behavior points accumulated and work completed, students earned tickets that could be traded in for special privileges and rewards such as free time, pop or popcorn parties, special time with the principal, movie afternoons, extra time with the dogs or other special class activities (see Appendix F).

Curriculum. My research, phone conversations, and conferences convinced me that, with the exception of physical therapy and occupational therapy needs, horticulture therapy activities are rather generic. My original desire to locate information that linked specific activities to specific psychological disorders (i.e., depression vs. anxiety) did not subside, but rather, gave way to the realization that the type of

information I sought did not exist. With this in mind, I began to concentrate on purchasing curriculum guides that linked horticulture activities to specific academic areas as well as psychological well being in general. Several guides were not received until late in the school year and would be utilized more during the 1993-94 school year. A list of curriculum materials and other resources is listed below (see Appendix G).

Curriculum:

- (A). Pets & Me: A thematic learning experience built on the relationship between people and animals
- (B). The Growing Classroom: Garden-Based Science
- (C). Growing Together: Activities to Use in Your Horticulture and Horticultural Therapy Programs for Children
- (D). Breaking Ground: A Guide for School and Youth Gardening Programs
- (E). How Does Your Garden Grow?
- (F). Pet Partners: Clinical Application of Animal-Assisted Therapy Workshop
- (G). A Child's Garden
- (H). Horticultural Therapy at a Psychiatric Hospital
- (I). Handbook for Animal-Assisted Activities and Animal-Assisted Therapy

- (J). Guide To Kids' Gardening: A Complete Guide for Teachers, Parents and Youth Leaders
- (K). Animals in the Classroom: Preschool, Primary, Secondary
- (L). Therapeutic Horticulture: Short Course Proceeding,
- (M). How To Start A "Pet Therapy Program"
- (N). A Dog Owner's Guide to Training Your Dog

Other Resources:

- (A). Nature as a Guide: Using Nature in Counseling, Therapy, and Education
- (B). Greenhouses: Planning, Installing & Using Greenhouses
- (C). Garden Pools & Fountains
- (D). Controlling Lawn & Garden Insects
- (E). Greenhouse Gardener's Companion: Growing Food & Flowers in Your Greenhouse or Sunspace
- (F). The Loving Bond: Companion Animals in Helping Professions
- (G). The Practical Guide to Dog and Puppy Care
- (H). PAT at Huntington: A Volunteer Program of Pet-Assisted Therapy Training Manual

Student Profiles. Each of the students is referred to by a fictitious name. Listed below is a brief profile of each student:

1. Larry was a Kindergarten student placed in the SED program in October, 1992. At Larry's previous elementary school, personnel described him as one who had no relationships with other children in school. He tended to isolate himself from others and did not seek their friendship. He was said to be a persistent liar, cursed frequently at adults and was occasionally observed banging his head when he became frustrated. Teachers and staff reported Larry's affect was consistently depressed. Teachers reported Larry was aggressive toward other children from the first day of school. He reportedly mentioned suicidal thoughts to his school counselor. Prior to his SED placement, Larry had been sent home on several occasions for severe behavior problems and was frequently in time-out. Larry's previous day care site also registered numerous complaints about his out-of-control behavior.

Larry was evaluated by an area hospital in March, 1991. He was admitted to that hospital in September and stayed until January, 1992. Presenting problems included:

- (1) physically and verbally violent
- (2) threats to physically harm others
- (3) noncompliance
- (4) high anger level
- (5) overly active
- (6) low self-esteem.

Larry was discharged with a diagnosis of Major Depression, Oppositional Defiant Disorder, ADHD, and Parent-Child Problem. Medication included Ritalin and Tofranil.

2. Fran was a Kindergarten student who had been in the pilot program since the 1992-93 school year began. She entered a local day-treatment program in September, 1991 with presenting complaints of:

- (1) sexual abuse, neglect and deprivation
- (2) temper tantrums
- (3) defiance of adults
- (4) extremely short attention span
- (5) motoric, distractible behavior
- (6) fine and gross motor delays
- (7) speech difficult to understand.

Fran had been in two foster homes, with the latest attempting to legally adopt her. Her biological mother attempted suicide with an overdose of Tegretol during her

pregnancy. Fran suffered from early childhood deprivation and manifested a failure to thrive syndrome.

Upon entering her most recent foster home, Fran was reported to have very little understandable speech, she ate with her fingers, put various non-edibles in her mouth and was not toilet trained. She was described as slow developmentally, socially and mentally in comparison to other children her age.

Prior to Fran's SED placement in the pilot program, she attended a preschool moderately handicapped program in our district. She was described as manipulative and bossy in the classroom. She continued to display a short attention span, exhibited anxious and impulsive behavior and had numerous somatic complaints (i.e., "my leg hurts," "I'm sick", etc.).

Her hospital discharge summary included the following diagnoses: Post-Traumatic Stress Disorder, Oppositional Defiant Disorder, ADHD, Parent-Child Problem, Developmental Articulation Disorder, Developmental Expressive Language Disorder, and Developmental Coordination Disorder. She takes Ritalin for ADHD.

3. Cody was a first grade student in the SED pilot program. He attended the SED program as a Kindergarten

student where he eventually split his time with the regular Kindergarten class when his behavior allowed. Prior to coming to this program he attended a preschool moderately handicapped program within the district.

Cody exhibited extreme behavior outbursts while attending the preschool moderately handicapped program. He exhibited severe cursing when upset, was easily frustrated, extremely oppositional, threw objects, was aggressive toward playmates, bit, hit and spit at adults. His behavior became so disruptive that a reduced week was implemented. He was physically restrained on several occasions and was sent home at various times. Cody was also known to be self-abusive when extremely upset.

Cody was removed from several day care centers in the area due to his behavior episodes. He was referred to a local hospital's Outpatient Pediatric Department after he was removed from their Day Nursery due to an exacerbation of aggressive and out-of-control behavior. He and his mother had been in outpatient psychotherapy for approximately one and one-half years without much improvement in Cody's behavior.

During Cody's time at the Day Nursery he was described as one with a flat affect, withdrawn from group activities, withdrawn from nurturance offered by adult

care givers, isolated from peers, irritable and lacked verbal responsiveness when addressed by adults and peers. He was eventually discharged from the facility with a diagnosis of Dysthymia and is not taking any medication.

4. Chris originally attended the pilot school as a regular education student and was determined to be eligible for the SED program in May, 1992. His actual placement began at the beginning of the 1992-93 school year as a third grader.

Prior to Chris's placement, he often refused to do school work, cursed at classmates and teachers and often stated he wished he was dead. Chris often made statements to his teacher that he was going to kill himself.

Chris was suspended in the first grade for striking his teacher. He was involved in self-abusive actions and received over three dozen discipline referrals for fighting, cursing, yelling and refusal to do assigned work.

His diagnostic impressions included: Dysthymia, ADHD, Overanxious Disorder and Oppositional Defiant Disorder. He was prescribed Dexedrine for ADHD.

5. Mark was a third grade student who entered our school district from a neighboring community. He had

attended nearly 10 schools and had never been placed in a special education program. The high number of schools attended was thought to have contributed to his lack of appropriate school-based services. Mark had been in several foster homes and resided in a therapeutic foster home that served only the most difficult children.

Mark was admitted to a local hospital in October, 1992 for depression, suicidal attempts and for extremely aggressive and impulsive behavior. He reportedly attempted to attack others with a knife and was involved in several fire-setting episodes. Mark was placed on Mellaril and further consultation with a neurosurgeon was requested.

He was admitted to another local psychiatric setting in December, 1992 for the following problems:

- (1) Threatening to harm himself and others at school
- (2) History of hearing voices in his head telling him to do bad things, particularly fighting and threatening to harm others.

Mark continued his explosive behaviors at that hospital, attempted to run away and had to be restrained on several occasions. His diagnoses at that time included Major Depression, unresolved grief, abandonment, and rage. Severe abuse and neglect were treatment

issues. Schizoid features were also being addressed.

When Mark entered our school system, he was placed in regular classes since no special education program had been initiated by the previous school system. He began to exhibit immediate behavioral problems, ran away from school on several occasions and threw objects in the principal's office. Mark physically assaulted the principal and school counselor on one occasion and was subsequently restrained and handcuffed by County Sheriff's officers. He was placed on a half-day regular education program while our district completed necessary testing. After he was determined eligible for SED services, he was placed on a half-day program at the pilot site with the intent of gradually increasing his time as behavioral improvements occurred. He began the pilot program in late February, 1992.

6. Robin was a fourth grade student who was placed in the SED pilot program in early September, 1992. She had attended SED classes in a neighboring district since the first grade. Behavioral observations over the years included problems with short-term attention, inappropriate behaviors and noises at school, disobeying rules, destroying property, blaming others for mistakes and engaging in self-stimulatory behaviors.

Robin relied heavily upon others to problem solve and to set limits for her behavior. Feelings of sadness and rejection were common and she had few interests shared by her peers. Her diagnosis was Adjustment Disorder with Mixed Emotional Features (Residual). No medication is currently taken.

7. Mary was a fourth grade student in her second year of the SED program at the pilot school. Mary was originally placed in this school's SED program in November, 1991. She was in an EMH (Educable Mentally Handicapped) program prior to this placement. Mary remained in the SED program until April, 1992, whereupon she was admitted to a local psychiatric setting along with her younger and older sisters. Mary returned to school in December, 1992.

Prior to her SED placement, Mary was described as a youngster who did not respond well to authority, lied when confronted and displayed little remorse over wrong-doing. Mary was hospitalized for several months at a medical center in 1989 due to increased problems with mood swings and aggressive/abusive tendencies toward her siblings. Mary's mother stated she was aggressive toward her siblings, threw objects and attempted to strangle her mother with a sash on one occasion. Mary had been

observed in self-stimulatory activities at home and was said to possess an unusual interest in seeing what others' bodies look like.

There was a reported history of depression in the family. One grandparent was reported to have attempted suicide on two occasions. When Mary became uncontrollable, she threw tantrums, broke objects, hit and screamed.

Mary was diagnosed with Oppositional Defiant Disorder (moderate), Dysthymia and Overanxious Disorder. She was prescribed Prozac during the 1992-93 school year.

8. Paul was a fourth grade student who entered the SED program at the pilot school in January, 1993 from a neighboring community. His previous school served Paul in a self-contained SED program. He was initially placed in an SED setting in the first grade.

Paul was placed on a half-day program as a first grade student. His first grade teacher described him as having a short attention span, overactive, anxious, explosive, dominating, aggressive and quarrelsome. Personality testing stated he had poor self-control, displayed significant somatic symptoms and did not possess age-appropriate social skills. He was described as attention seeking and socially isolated with

developing antisocial behaviors. Sadness, withdrawal, sleep disturbances, excessive daydreaming and strange or peculiar behaviors were among characteristics often associated with similar psychological profiles. Previous school personnel stated Paul had been noted to blur reality with fantasy. He was prescribed Ritalin for ADHD.

9. Erin was originally placed in an SED program as a Kindergarten student in another district. She was dismissed from our district's SED program at the end of the first grade. She was re-evaluated at the end of the second grade and re-categorized as SED and began the third grade at the pilot school SED program. She started the 1992-93 school year in the SED pilot program as a fifth grade student.

Erin had a history of severe behavior problems dating back to age three. She had been in and out of counseling at various clinics and agencies. She was placed on Mellaril for approximately two years but had discontinued it. She had been taking Ritalin for hyperactivity since the first grade.

Erin's significant medical history, family turmoil and several separations from her mother contributed to her early difficulties. Tantrums, baby talk,

aggressiveness, and overdependency were all common behaviors. Her behavior reflected the presence of sadness and unhappiness according to reports. Moderate depression had been indicated by problems with sleeping, eating, excessive worry, self-blame and self-criticism. Erin's diagnoses included Dysthymia, ADHD, and Duane's Syndrome.

10 Joe was a fifth grade student in his first year in the SED program. Joe had experienced several years of school and home-related behavior problems. During the 1990-91 school year, Joe's aggressiveness escalated to the point that he was suspended after hitting his Learning Disability teacher. Joe was granted a transfer to another school within our district for the 1991-92 school year. The principal of that school stated that Joe's negative behavior and sudden mood swings increased throughout the school year. He was described as extremely angry, depressed and oppositional. Joe had no friends at school and viewed other children as adversaries. Joe was explosive, walked out of his classroom, kicked walls and furniture and often cursed at teachers.

Joe was referred for consultation to a local hospital in November, 1991. He was admitted due to

concerns regarding an apparent intent to engage in suicidal behavior. Hospital reports stated Joe commonly entertained thoughts of doing physical injury to others. He was described as exhibiting significant anxiety regarding interpersonal relationships and as having a specific phobia towards dogs. Joe was said to be likely to act out against others due to his anticipation of their violence towards him.

Joe had been diagnosed as Oppositional Defiant Disorder (Severe), Simple Phobia (Dogs), ADHD, Dysthymia, and Separation Anxiety Disorder. He was not prescribed any medication during the school year.

A TYPICAL DAY. A typical day for students in the pilot program began at 8:40 a.m. Opening activities were posted on the wall and included (1) Marking their "happy faces" (2) Turning in daily notes and homework (3) Hanging up coats and back packs (4) Sharpening pencils (5) Cleaning glasses and taking medication in the office (6) Having paper and book ready to start work and (7) Students being in their proper seats.

At approximately 9 a.m. the appropriate students checked the daily duty chart. One student collected the dog leash and choke chain hanging in the back of the room

near the "cubbies" and the other student got the pooper scooper, lined a small bucket with a plastic grocery sack and dished out a predetermined amount of Bil-Jac for each dog. The dog food, along with the pooper scooper, was kept in a sealed container near the back door of the school leading out to the dog kennel. A clear plastic measuring cup was marked with a black line as a reference point for the children. The student responsible for clean up was instructed to keep his/her hands clean and away from any mess the dogs had made. One of the students was provided the key to unlock both locks on the outside gate and the inner gate attached to the dog kennel. The students played with the dogs for a few minutes and then began their duties. At the beginning of the school year, the teacher, aide, or the researcher modeled the desired behaviors for the students. During the first few weeks their behavior was closely monitored. Older children generally accompanied the kindergarten children when doing their chores. As the year progressed the children completed their assignments without adult supervision. Once the pail and plastic bag was filled, the student took the bag to the dumpster and washed his/her hands upon returning to the room. The gates were left unlocked for the balance of the day. An automatic

feeder was installed but was rarely used. I felt that the more physical contact the children had with the dogs, the more emotional benefit they would receive. The automatic feeder was only used when there was a threat of rain. Prior to going to lunch, one of the children returned the dog to the outer area of the dog run. The other dog was brought into the class after lunch and remained there for the balance of the day.

The Kindergarten students were on a half-day schedule and did not arrive each day until 1 p.m. Each morning was generally spent working in small groups or individually on typical academic assignments geared to each student's ability level. Students who had progressed behaviorally/academically to the point where they could be mainstreamed for a few regular education classes left the SED room at various times throughout the day for those opportunities. Each student, other than the Kindergarten children, worked out of regular education texts that covered typical school curricula (i.e., Science, Social Studies, Math, Reading, Spelling, Language, Penmanship). Mainstreamed classes for each student are listed as follows:

<u>STUDENT</u>	<u>MAINSTREAMED CLASSES</u>
Fran.....	1-1 1/2 hours for calendar activities, centers, and pre-readiness activities.
Larry.....	Did not go out for regular class due to behavior.
Cody.....	Out for everything except affective education and 1 hour for support in core areas. Participated in all "specials" (i.e., art, music, and p.e.).
Mary.....	Art, Music, and P.E.
Chris.....	Art, Music, and P.E.
Paul.....	Art, Music, and P.E.
Robin.....	Art, Music, and P.E.
Joe.....	Art, Music, P.E., computer time with regular class and any other special activities occurring in his home-room.

Mark..... Stayed on 1/2 day schedule
after entering program.
Provided opportunities to
participate in special 5th
grade activities as earned.

Erin..... Art, Music, P.E., Math,
Spelling, Reading, English

As the school year progressed, the students began providing commands to the dogs as they walked them in and out of the classroom, while walking them on the school grounds or track, and upon visitations to other classes. Not until the end of October, 1992, when our 10 week dog obedience class was completed, did we begin allowing the students to have complete control of the dogs.

Once in the classroom, each dog was allowed to roam the room and generally do as it pleased unless it began to disrupt someone or destroy something in the room. It was not unusual to see students holding one of the dogs in their laps like a child when the teacher or aide was reading a story to them. Likewise, it was a familiar site for students to stop and pet one of the dogs as they went from place to place in the room or to call a dog to them while they were working at their seats. It was interesting to watch Paul and his interaction with Dibbs.

Dibbs frequently sat besides Paul's desk. As Paul worked at his seat, he almost subconsciously reached one hand to the floor and softly stroked the dog's back. Paul rarely looked at the dog or took his eyes off his work as he petted the dog. The dogs appeared to provide a sense of tactile comfort that was very reassuring to him. It was also very noticeable that students generally attempted to control their outbursts in class in order to keep from upsetting the dogs. During one interview session, Cody stated, "I don't like to yell and scream in front of P.J. because it scares him." (Student interview, May, 1993).

Throughout the morning or afternoon, one or more of the children either asked or was assigned to walk the dog outside for a break. At other times, students walked the dogs through the hallway or visited other classrooms while practicing the commands they were learning. It was very common for other children in the hallway or on recess to stop and visit with the SED students about their dogs and pet them. As the year progressed, the students made numerous new friendships with regular education children who would have otherwise not been as likely to speak to them.

From time to time, I directed or participated in

animal-assisted activities with the children either in the classroom or outside. In addition, I arranged for individuals from the community to visit with their dogs and to provide information on how their dogs help them on a daily basis. The teacher also used various pet-related or horticultural-related curriculum materials with the children as needed.

Visually, the SED room seemed to have a very calming effect for the children. The peaceful view of the greenhouse through the attached floor-to-ceiling windows, numerous plants sitting on shelves beside the greenhouse, and the grow cart overflowing with blooming African Violets, were all thought to be therapeutic in their own right. Throughout the day, students checked their daily activity chart and followed through with various horticulture-related jobs. Students filtered in and out of the greenhouse attending to watering, fertilization, and maintenance needs of individual plants as well as group projects. Although students were instructed on proper plant care and insect control, their plants were allowed to die if students neglected them or were overly sensitive to their perceived needs. Group projects, however, were treated differently and the students were urged to pull together to take care of each other's

plants.

Erin was a child that had never been on the receiving end of typical nurturing activities from her family. She lived with her father and was generally expected to take care of her father and brothers' needs. Although not necessarily an abusive situation, she was expected to do the majority of cleaning and cooking for the family. The lack of early nurturance by her mother and father is thought to be a large reason for her need to over nurture her plants. She seemed to see herself in the caretaker role and was constantly hovering over her and others' plants. This was most noticeable in her constant need to water plants. The teacher, aide, practicum student, and I worked with Erin on this matter, but not until her plants began dying did she start to readjust her thinking. As the year progressed, staff members commented that she was less overprotective of her plants as well as the younger children in her classroom (Teacher interview, May, 1993).

Students were responsible for planting and maintaining their outdoor garden. This included a wide variety of annual flowers, herbs, and cool and warm season vegetable plants. Students also maintained seven trees that had been planted around the outdoor garden

area. Initially the researcher watered the ornamental landscape plants, trying to assure that they got the proper care during their first year of growth. I turned more of this over to the children as the program progressed.

Students progressed throughout their day in a routine very similar to that of other classes. They went to and from art, music, and physical education classes as their behavior allowed. Students were instructed in all core curriculum areas, such as Math, Science, Language, Spelling, Reading, and Social Studies. The atmosphere of the program combined with additional responsibilities related to the students' animal and plant projects was what made this experience different and highly unusual compared to most regular or special education ventures.

Participants

The following is a representative sample of the planning and direction the pilot program took over the 1992-93 school year. Various anecdotes are included to give the reader a better understanding of the program's organizational development, student activities, staff involvement, and the researcher's role in the program.

Unless otherwise specified, all entries were taken from the researcher's personal notes and monthly logs.

Staff

Staff members primarily involved in the implementation of this program included the classroom aide, the practicum student, and the SED teacher. Lori King, a local college practicum student majoring in horticulture, was the driving force behind most of the horticulture activities accomplished throughout the year. She provided activities for the children twice each week during the first semester and once per week during the second semester of school. She generally worked in the greenhouse with 2-3 students at a time while the teacher and aide were in the classroom working with other students on academic tasks. Ideally, I would have liked the teacher to have observed more of what Lori did with the children. The class would not have the luxury of having the practicum student's assistance in the future and it was important for the teacher and aide to understand the various horticulture processes she used with the children. Throughout the year, Lori worked with the children on learning the basics of horticulture such

as transplanting, root division, stem cuttings, starting plants from seed, disease control, and general plant maintenance. She also introduced seasonal projects for Halloween, Thanksgiving, Christmas, and Easter. Other projects included making leaf rubbings, pressed-flower book markers, forcing bulbs, corncob figures, tissue art, May baskets, and potpourri.

In October, 1992, I arranged a meeting with my supervisor, Dr. Gerber, and the principal at the pilot school to discuss some of my concerns about the program. For some time, I had been perceiving feelings of unhappiness from the SED teacher. She seemed overwhelmed with her new role and felt that she couldn't live up to what she thought my expectations were for her and the new program. In some ways she felt as if she had lost control of her program since I was in and out of the classroom observing and monitoring so often. Another area of contention involved 2-3 notes I had left on her desk on occasions when I had visited the site after hours to see how construction, the greenhouse, and dogs were doing. Because of my hectic, and at times unpredictable schedule, I occasionally left an informative note if it appeared there was an insect problem we needed to address, if the dog run had been left unlocked at night,

etc. In my mind, there was no intention to upset her, but I realized it was perceived differently from the teacher. Another concern involved my perception of the teacher's willingness to let the practicum student plan and implement horticulture projects without any input or observation from the teacher. I wanted the teacher, and aide at times, to become more actively involved in order to feel knowledgeable enough to continue her work once she had completed her practicum hours.

The following plan of action was implemented as a result of this meeting:

(1). I took the teacher's class twice each week for three weeks beginning the week of October, 26. On Tuesdays I conducted animal-assisted therapy activities and on Wednesdays I arranged horticulture activities.

(2). The teacher utilized this time to plan activities that she was to conduct with the practicum student helping her. This also provided her time to work on animal-assisted therapy activities.

The school's Fall Festival was held October 30. The school was filled with parents and children enjoying the many activities and booths set up throughout the halls and rooms. The teacher and aide set up a table at the entrance of the SED room to sell some of the plants

the students had grown from cuttings since the beginning of school. Several of the teacher's students came by and proudly showed the plants to their parents and urged them to make a purchase. The event raised approximately \$45 for the program.

One day, near the end of November, the teacher stated that she had experienced the best day since school had begun. She said it was the first day that she had gone home feeling she had a good grip on the way things were going. I took this to mean that the time she was being allowed for planning was setting her at ease and that she didn't feel quite as unsure of herself as before. I began to understand that she was a teacher who needed to have lessons that were sequential and specific. Without this, she felt unsure of herself and worried about the upcoming day's events. These feelings were quite understandable, but unfortunately, with this type of program one needed to be able to evolve with it. There was not a blueprint or guideline to follow--we were making our own. I thought if we could get through the first semester, and definitely the first year, the teacher would become more relaxed and confident in her ability to implement the program.

I arranged another meeting with my supervisor and

the building principal on January 8, 1993. Areas discussed included:

(1) Nursing home visitations. Since the beginning of this project, I had felt that a nursing home visitation program would be extremely beneficial. I felt we should schedule visitations to the nursing home on a monthly or every other month basis. I understood that the staff and principal did not feel they had enough time to raise large plants within one to two months. My feeling was that the size of the plant was not important. The children did not even have to take plants every time they visited. The important component of the visitations was the sharing and giving that occurred. The students might be able to alternate monthly between taking the dogs and bringing plants to the nursing home.

(2) I set bi-monthly meetings with the SED teacher to discuss any programming needs or areas I could help with.

(3) My supervisor and I acknowledged to the principal that the animal-assisted activities were more difficult to define and implement than horticulture-related activities. Some impromptu ideas discussed included journal writing tied to animal themes, poetry, allowing students to take one of the dogs into their mainstreamed classes for demonstrations, and linking math activities

to daily animal and plant responsibilities (i.e., measuring of food, weighing dogs, story problems, charting plant growth and conducting experiments utilizing different amounts of fertilizer).

I arrived at the school on January 21 for an observation. As I walked toward the classroom, I noticed the class had constructed a chart labeled "Growth of a Bean" and hung it on the hallway wall. Each student had weeks 1-8 in squares and they drew the different size of their beans during each week it was observed. Students had begun to notice that those who over or underwatered their plants were not seeing the most positive results. I was happy to see these types of projects being integrated into the children's science curriculum. One of the regular fourth grade teacher's classes had visited the greenhouse and planted mint for one of their classroom projects. The aide reported that Cody and Joe had talked with the younger children and displayed appropriate interaction skills. The visiting class thought P.J. was adorable as he wandered from student to student for a treat or to be petted.

The SED class went outside to enjoy the garden as the aide read the book Beauty to them. Dibbs and P.J. were allowed to wander throughout the garden while the

students listened to the story. The students enjoyed sitting near the waterfall and on the newly installed redwood bench. It was a beautiful day and the children's behavior was wonderful (Aide's notes, February 1).

After the practicum student completed her presentation on garden pests to the children, I visited with her for awhile. She expressed concern over the lack of cleanliness and disease control in the greenhouse. She also stated that the teacher's aide appeared to be the driving force behind the implementation of the horticulture and animal-assisted activities. She continued to express concern that the teacher was not working with her, but rather, allowed her to completely take charge while she was there. I listened and assured her she was doing a magnificent job. I also told her I was working on these areas of concern, but that any major changes may take some time.

The aide in this program was a godsend. She was a take charge type of person and I could see that the teacher might be content to simply turn the pilot activities over to her. I would not have had any problem with the aide's level of involvement if the teacher had shown more interest in the plant and animal activities and shared more often in their development and

implementation.

The aide was very helpful to me throughout the year by taking videotape and writing personal notes on interesting activities the children were involved in. She phoned me quite often to request assistance on certain projects and kept me updated on the need for various supplies. The aide also helped by taking the dogs to their respective veterinarians when needed.

Other staff members throughout the school were generally complimentary of the program once it was in full operation. The teacher that asked to be moved away from the dog training area did not show any visible change in attitude, but other teachers asked to tour the facility, bring students into the greenhouse for demonstrations, and requested that P.J. and Dibbs be allowed to visit their classrooms. The lead custodian was originally resistant to my efforts for two reasons. One, she felt she would be required to feed and clean-up after the dogs. Two, due to limited space, some of her closet space was reduced to storage for the program's supplies. As the year progressed, the lead custodian became one of the program's biggest supporters. A visitor rarely entered the building who she didn't give a personal tour of the garden, greenhouse and dogs. The

new facility had become a focal point of her building and she was proud to show it to others.

Researcher

I noticed early on in this project that obtaining purchase orders from the administrative building was tedious, to say the least. The program often needed things immediately (i.e, extra dog collars, shampoo, seeds, etc.) and I began purchasing them with my own money to expedite things. These were not generally items that the district would gladly repay the staff for so I didn't request reimbursement. I felt there should have been a better solution to this since it was sure to become a long term problem. I didn't have the time to figure out a solution at that point, however.

I was not sure how to handle dog training in future years. Our obedience courses proceeded smoothly but it became obvious that the district could not expect the teacher, aide and me to go through this 10 week process every year with new dogs. I was hopeful that we might learn enough that we could provide rudimentary training at the school site. The dog training club did volunteer to train new dogs in the future without us being present,

but someone would still have to pick the dogs up, wait until the class was over and then bring the dogs back to the school one night each week. Dr. Gerber and I also checked on an arrangement with the Jess Dunn Correctional Center to allow its inmates to train our dogs for us, but this would take further consideration.

I conducted a parent information meeting on the evening of September 8, 1992. I was very pleased that every parent attended, as well as the teacher, principal, and Dr. Gerber. I provided background on starting our pilot program, research findings, goals, staff training, and displayed a picture of our proposed outdoor therapy garden. I also discussed the need for parental consent forms to be signed for my research as well as for the district to document the program through pictures and video tape. The releases would also cover media coverage in our area (see Appendix H). Every parent except Joe's eagerly signed the release forms. Joe's mother stated he was very uncomfortable with others recognizing him in a special program. She discussed it with him the following day and phoned me saying he refused to be photographed. She stated there was no problem, however, in including information about him in the research findings.

After reviewing the landscape bids that had just

been returned, I was convinced that taking the lowest bid items from each company would still leave me approximately \$1200 short for the outdoor therapy garden. With this in mind, I phoned one of the local foundations that had previously donated \$2,000 to our project. The following day a \$1200 check was mailed to me in order to complete the project. Needless to say, I was ecstatic!

I arranged for the students, teacher, student intern and the practicum student to come to my house on a walking field trip in order to gain experience working in an outdoor garden setting. Since the students' outdoor therapy garden was behind schedule, I thought the trip would give the students a good introduction. Each student took a sack lunch and we had a beautiful Fall day to work in.

Some of the activities the students participated in included:

- (1) Transplanting Shasta Daisies, Begonias, Impatiens, and Sedum.
- (2) Finding and planting acorns in cups.
- (3) Painting pumpkins.
- (4) Planting fescue grass in a styrofoam cup and drawing a face on the cup. When the fescue grew tall, it would look like hair.

(5) Making a colorful greeting card with Indian corn, paper and glue.

We were concerned about Larry's behavior going into the field trip. His last outing to the State Fair on October 9 was not successful. He was extremely unmanageable on the drive to the fair, bit a teacher, and had to be transported back to school. On the day of the outing to my house he arrived late to school, just as we were getting ready to leave, and had not taken his field trip form home or brought a sack lunch. We worked out these difficulties and decided to let him attend with the other students. My philosophy had always been that students need to be placed in normal situations as much as possible in order to help generalize the social skills they are learning to real life situations. Larry had a wonderful time that day and was content to hold my hand during most of the walk to and from the school. The only conflict noted was between Chris and Robin. I broke up their verbal disagreements on several occasions.

My classroom activity for the children on October 29 included a discussion and demonstration on how to make a crystal garden. The students and I also made hanging baskets out of ordinary carrots. I noticed that the teacher was sitting at her desk when I arrived that day

and seemed obviously cool toward my being there. Joe was in a bad mood prior to my arrival and did not want to participate with the other students. As I began integrating math into the crystal garden procedure by asking measurement questions, Joe became more interested and eventually participated with the aide's guidance. We also integrated limited science concepts into the activity by discussing how natural crystals are formed and how our artificial activity was similar or different.

I arrived at the school on September 3 to provide planning time for the teacher. It was raining and cold outside so I improvised an indoor animal-assisted therapy activity. I decided to utilize one of the dogs to discuss feelings for the day's lesson. After gathering the children in a circle on the floor, I asked them what was meant by the word, "feelings". After getting several positive responses, we began identifying different feelings, such as happy, sad, mad, afraid, lonely, uneasy, etc. Then, each student took a turn holding Dibbs and petting her. The purpose was to calm the student who was preparing to speak and to utilize the dog as a vehicle to speak through if necessary. I started with the feeling, "happy", and asked each student what he/she thought might make Dibbs happy. Then each student

was given an opportunity to tell the group what made him/her happy. After everyone had an opportunity to participate, I moved on to the next emotion, sad. I asked, "What makes Dibbs sad, what makes you sad?" We were only able to get through 3 of the 7 emotions identified because of the lengthy discussion that pursued. The children were extremely attentive and cooperative and appeared to enjoy this change of pace from their traditional affective education curriculum. Larry and Fran, the two kindergarten students, became rather restless. The student intern held Fran in her lap while I held Larry in mine for the duration of the activity.

Joe generally did not care to talk about himself and his feelings, but he opened up well during the exercise. As he held Dibbs, he said he becomes sad when he comes to school. My feeling, as well as others at the school, was that Joe enjoyed being at school but it was the process of separating from his mother that made him sad. Dibbs literally ran away from Chris when it was his turn to hold her. He tended to frighten her at times because of the way in which he physically hovered over her when he wanted to play with her. She seemed to fear that he might fall or hurt her in some manner, although he had no

intention of doing so. After several attempts to sit with Dibbs, she relented and settled down. I felt sorry for Chris. He approached the dogs as he did his peers--with good intentions, but in a way that was too intense for many to put up with. Chris opened up well in the group and said "Dibbs feels sad when she doesn't feel anyone loves her or will be there for her when she needs them." Chris's statement was very similar to the way he felt about himself. Students' comments during these sessions were noted and utilized in future affective education sessions.

I arrived for another class project on November 10. I turned my attention this time toward a horticulture and math related project. I arranged three trash containers containing perlite, vermiculite, and peat moss in front of the students. A measuring scale was brought into the room from the library. A small amount of each substance was poured onto a work table and the children were asked to make an educated guess as to which substance was the heaviest. In addition to developing math concepts, I was attempting to illustrate that this exercise amounted to a simple experiment, just like older students do in Science (i.e., develop a hypothesis, collect data, analyze results, etc.). We drew a chart on the board in order to

track each student's answer. Most students, probably because of the size of the perlite, assumed it would weigh the most. Each student, including the kindergarten children, took part by writing down information, measuring, or pouring substances onto the scales. The students found that the vermiculite was the heaviest, followed by perlite and peatmoss.

Afterwards, the students and I read the directions about mixing a soilless medium. We discussed the difference between dirt and our mixture and how plants could grow in our medium. According to our instructions, the medium needed 2 parts peatmoss, 1 part vermiculite, and 1 part perlite. The students took turns mixing a large quantity of the medium on a table top. Water was added and soon the students had a large bucket ready to begin filling 4" pots. The aide took cuttings from the wandering jew plant in the greenhouse while the students each filled their pots with the potting medium. We explained to the students that they were replenishing the greenhouse with starter plants to take the place of those that were sold at the Fall Festival. Afterwards, Fran entered the greenhouse and began sweeping the floor. The broom was taller than she and it presented quite a humorous site. The point behind her assisting with the

cleanup was to help build a sense of ownership in the project, develop a better sense of cause and effect relationships, (i.e., when a mess is made it needs to be picked up) and improve student responsibility.

While observing an animal-assisted activity guided by a representative of the dog training club, it became evident that the children were beginning to pull together as a group. I observed more willingness to help each other and students were becoming more patient while waiting their turn to work with one of the dogs. I believed that as the children began to see the dogs' behavior change and became more responsive, they would understand that, they too, could make behavioral changes in their own lives. This process would also drive home to them that behavioral change was not something that occurs suddenly and that it must be practiced and worked on--just like they do with their dogs. There have already been comments from the staff that certain students are experiencing faster results with the dogs than others because of their work ethic.

I arrived around 2:30 p.m. for each of my sessions with the children because that is the only time when all the students are there together. At other times, various students are gone to specials (art, music, p.e.) or

mainstream classes. On my last day to provide planning time for the teacher I decided to help the students make bird feeders. I enjoyed feeding birds at home and thought this would be something the students could take home and enjoy with their parents. I asked Joe if he would like to accompany me to my truck to get my supplies and tools. He eagerly agreed. Joe seemed to be in desperate need of a positive male influence in his life. On the way to get our tools, he asked what I would do if I was him and people would not play with him. The conversation grew into a discussion of his bi-racial identity concerns and which group he should identify with--blacks or whites. I found that the unstructured time I spent with the children was often the most productive in terms of talking about things that were on their minds.

Joe and I brought dowel rods, saws, screw drivers, screws, pie pans, and birdseed to the classroom. When we arrived, the practicum student was working with Chris and Fran in the greenhouse. They had cut their initials out of sponge material and planted herb seeds on top. The letters were placed under the artificial light of the grow table for the students to observe. Various students helped me cut dowel rods and drill holes. Each student

was allowed to install his/her own screws, attach the pie plates and put in an eye-hook to hang the feeder by. Since all students did not complete their feeders, some were allowed to finish theirs the following day. The teacher told me Larry was upset that he did not complete his feeder. I explained to him that I would return the next day and help him so that he could take it home.

Over the Thanksgiving holiday I decided a portion of the exposed aggregate sidewalk poured for the therapy garden would have to be removed. This was a touchy situation. The contractor was a friend I had known for several years. The subcontractor responsible for the sidewalk had done his best on the sidewalk but was not able to produce the type of product that was specified. The sidewalk would have to be jackhammered out as soon as possible.

This entire experience was quite a mental drain on me. I found I was caught in the middle of two roles. One, a supervisor of a project who tried to make sure the original vision was implemented properly. The other, a researcher who needed to get along with everyone in order to have good access and cooperation for collection of field data. At times these were extremely conflicting roles and were very hard to juggle.

I had hoped to have the outdoor therapy garden completed by the end of October in order to allow the children to utilize it before cold weather set in. As December approached, it appeared to me that it would be Spring before the project neared completion. Due to the unexpected needs that arose from time to time and my desire to eliminate any unnecessary delays, I began spending large amounts of my own money on various items. By the time the project was completed, I had spent between 350-400 dollars.

By mid-January I had noticed that the students had become so accustomed to the dogs in their room that they did not giggle and make a loud fuss over them any more. Any concerns that the dogs would actually be disruptive in the room had been dispelled. If anything, the children did their best to be quiet so as to not upset the dogs or attract the attention of the other students who may have wanted to get the dogs from them!

I arrived at the class on February 11 to begin an animal-assisted activity. Children present were Joe, Robin, Chris, Mary, Fran, Larry, Paul, Cody, Robin, and Erin. The teacher, aide, and student intern were also present. The students knew there was a possibility that Katy would not be allowed to stay with the program if her

jumping could not be controlled. Over the Christmas holiday Katy was given to a man who lived on several acres in the country. I visited with the class and discussed their feelings about Katy's departure. I gathered the students and Dibbs in a circle on the floor. I brought some photographs of Katy to help facilitate the discussion. After showing the pictures to everyone, I asked the following questions:

- (A). What are some nice things we remember about Katy?
- (B). Do you remember why Katy had to leave us? Why?
- (C). How did you each feel when Katy left?
- (D). Have any of you ever had someone you loved leave you? How did you feel and how did you deal with it?
- (E). Have any of you ever had to leave your family for a period of time to deal with a problem (i.e., in-patient hospitalization)?

I held Larry in my lap during the conversation due to his constant motion. His mother took him off his Ritalin some time ago and I am not sure it was in his best interest. Eventually, I had to have the student intern remove him from the group, with the understanding he could return whenever he felt he could keep from disrupting everyone.

Most of the students shared their personal feelings about Katy and situations when someone close to them had left. All but two students shared their experiences of being admitted to various hospitals for treatment of their emotional/behavioral condition.

I talked to the practicum student on February 23 about her concern with the lack of teacher involvement in her activities. Although things had been progressing well with regard to the pilot program, I admit I was rather disappointed that the teacher was not more outwardly excited about the project. This was partially my fault for not having seen this coming when it was decided to build this facility at her school. We should have matched the facility to a particular teacher or vice versa. I was dedicated toward continuing to build this enthusiasm, but felt at times that it was a losing battle. The SED teacher did an excellent job in a traditional setting, but the new elements of this program were not necessarily her cup of tea. Although this was still a "Cadillac" program, I was striving for a "Rolls Royce."

I made a presentation in February to the Master Gardener program to generate interest in our program. There were approximately 100 master gardeners present. I

was quite surprised at the turnout. I supplied almost 75 copies of my landscape plan and discussed the rationale behind my program. After answering questions I asked for anyone who would be interested in helping with our cool season vegetable garden to contact me. Before leaving I had 6-10 volunteers who supplied names and phone numbers. I arranged for five master gardeners to visit our site the following week.

I had become uneasy about the many urgent requests for services I had been making to the maintenance and grounds department over the last few months. It seemed that everything I got involved in with regard to this program was urgent and needed an immediate response. I felt as if people at the administrative building thought I was either disorganized or believed I thought they had nothing else to do but accommodate my needs. What I did not think people understood, however, was that I had little or no control over when services were needed. When people volunteered their time, services and products, it was hard not to go along with their time restraints rather than my own.

I went to the school one morning to begin laying stepping stones down the center of the 30'x 7' raised bed the Master Gardeners had recently helped to build. The

stones would allow the children a place to walk and work both sides of the garden. I thought this could be turned into an interesting math lesson. Chris, Mark (our newest student), and Robin accompanied me outside. We brought paper, pencil, measuring tape and one stepping stone to work with. First, I asked each student to make an educated guess as to how many stones might be needed. Then the students measured the length of the garden area and the length of the stepping stone. None of the students were sure how many inches were in a foot, so we spread out the measuring tape and found out. The students were not sure they could actually figure this problem out, but with a little guidance they came to the conclusion they needed 16 stones. The students determined the price for one stone and figured how much it would cost for all the stepping stones they needed. Chris exclaimed, "So that's how people figure out how much things cost!" Chris emerged as the leader during this exercise, with each of the others contributing in their own way to the solution.

The Master Gardeners and I completed work on the outdoor garden during April. They continued to come to the school as needed to assist the children in planting their Spring garden. Seven trees (6 Bradford Pear, 1

Sunset Maple) were delivered and planted this month around the garden and in the dog training facility.

I received a letter from the district's superintendent on May 10 requesting me to submit a proposal to present my project at the National School Board Association's annual conference in New Orleans in April, 1994. The conference was looking for exhibits that represented innovative and replicable projects in public schools throughout the nation. I was notified in July that my proposal was accepted. Dr. Gerber and I planned to take P.J. and Dibbs to the conference. I also planned to develop a video presentation for the meeting.

I was unable to get the aquatic garden stocked with plants and fish prior to the end of school. In early June, a member of an aquatic gardening club donated several gold fish and water lilies to our program. I installed these items and purchased other oxygenator plants, bog plants, water hyacinths, and water lettuce plants for the water garden.

During the remaining days of June I focused on planning for the district's first year of "extended school" this summer. This program was held at the pilot site and integrated animal-assisted therapy and horticulture therapy into the curriculum for

multi-handicapped, mentally retarded, and seriously emotionally disturbed students.

Visitors. Representatives from the dog training club arrived at the school on September 25 with two miniature collies, one German shepherd, and one standard poodle. The students were ecstatic as they watched the various commands and tricks the dogs accomplished. Presenters also discussed proper animal care, feeding, and grooming. At first, Joe did not want anything to do with the program. He visually hid whenever the video camera panned the room. He did not want to be associated in any way with children who he thought others perceived as different. As the meeting continued, he became interested in the large German shepherd and was able to pet it. Fran was in one of her clinging moods throughout most of the presentation and sat in the teacher's lap. Not until the guidance counselor entered the room did she climb down and begin interacting with the other children and the dogs. Chris stated the presentation was "cool" and it reminded him of his pet dog that had died.

Members of the dog club returned on October 13 to work outside with the children and the dogs. The teacher, aide and the researcher assisted when necessary

but were mainly observers in this exercise. Each student, including Joe who is usually rather sullen, was smiling and enjoyed him/herself. Erin, one of the more serious students, did an excellent job of heeling and getting the dogs to stop and sit on command. Paul was overheard saying to another student, "Wow, I didn't know I could do this!"

A woman from the dog club arrived on October 27 and took the dogs and children outside for an activity. The trainer gathered the students in a circle on the grass and had one of the dogs to sit with one child. The child across the circle was instructed to call the dog to him/herself. The children took turns calling, petting, and holding the dog. Although the children had the dogs in their room while the staff trained them, there had not been any organized activities up to that point. The rationale for the activity was to see how each student interacted with the dog and how the dog responded to a group in an unrestrained setting.

Joe continued to exhibit a strong bond with the largest dog, Katy. He continually wanted to be with her and kept an eye on anyone who worked with her. Joe was observed smiling more readily when he was around Katy and even volunteered for "poop patrol" at the end of the day.

I took photos of various students throughout the session directed by the dog club representative. That was the first day that Joe had asked me to photograph him, with the stipulation that he received the photograph. That was a good trade off and a sign that he was making progress. Katy may be able to be a strong motivator for Joe, Cody had difficulty keeping his attention during the session and had to be removed from the circle for a short period of time. The other students were delighted with their time with the dogs. We concluded the session by allowing each student to heel one of the dogs around pylons that were set throughout the school yard.

I met a woman over Christmas break who used a seeing-eye dog. She expressed an interest in bringing her dog, Yuri, to visit the children and we arranged a time on March 15. The children were rather awestruck with her and Yuri. She answered the children's many questions and demonstrated each of Yuri's commands. She showed the children how Yuri kept her from bumping into curbs, hitting overhanging objects, etc. She also demonstrated the verbal commands he follows. She explained how she became blind (mother had German measles) and what her life was like on a daily basis. None of the students had ever spoken to a blind person

before. It was good for them to see that there are others who have overcome or compensated for difficulties in their lives.

On March 17, four Master Gardeners arrived to begin preparing the garden for the children to plant in. A principal from a nearby district who wanted to observe our setting and a photographer with a local newspaper were also present. We tilled and mixed in soil additives as well as possible, but the soil was not up to the standards the Master Gardeners were looking for. We began bringing the children out in groups of two or three to work in various areas of the garden. Two of the gardeners worked with Erin, Robin, and Mary planting almost 80 pansies in a semi-circle around a yaupon tree. Joe, Larry, Paul, Chris, and Cody helped two gardeners plant rows of radishes, onion sets, lettuce, spinach, and carrots. Other students assisted with planting four tomato plants in "walls of water." These were plastic cylindrical materials with thin walls that are filled with water. The "wall of water" collapses around the newly planted tomatoes and acts as a wind barrier and solar heater to keep the plants safe down to 16 degrees above zero. This helped the students get a head start on tomato production.

I allowed Joe, Paul, and Chris to help me with the tiller. They enjoyed holding onto the tiller and thought they were really important for being asked to help.

Before the day was out, it began sleeting. I did not think anyone planned to put in this much work. I know I certainly did not. By the end of the day, we were still not through and several of us stayed to complete the job. We only managed to get part of one raised bed planted. All of the pansies were planted, however, and looked beautiful. We waited to check the weather to determine when we could get together to finish the job.

The Master Gardeners and I met again on March 18 to complete the planting with the children. The teacher remained in the classroom throughout most of this activity and was not actively involved in the children's gardening that day. All of the children's garden beds were planted except for the 30'x 7' ground-level bed. We decided to meet at another time and raise that bed above the ground in order to improve drainage and provide better soil. Initially, I was not very happy with that decision since it delayed getting all of our planting completed. I realized, however, that the decision was in the best long-term interest of the program.

The gardeners and I met over Spring Break and

constructed a 30'x 7'x 36" raised bed out of landscape timbers. Lou and Jim, the two retired gentleman that helped, were unbelievable. They not only donated an unusually high number of hours to the program but also put in hard hours of physical labor as well. It seemed as if I was constantly calling one of them for advise. I will always be appreciative of their efforts.

Three of the Master Gardeners arrived on a cold day in mid April and helped the children with their final planting of the school year. Joe, Larry, Chris, Robin, Erin, Fran, Paul and Cody, all contributed throughout the afternoon. Larry and Paul helped Lou plant corn, Robin hoed weeds in the smaller raised beds, Erin transplanted squash plants, and Chris planted green beans. Fran and Chris helped Paula, another master gardener, plant verbena in the whiskey barrel where the herbs had died from the frost. Larry helped Lou water when we finished. It was quite a site seeing Lou and little Larry watering together.

Joe helped plant black-eyed peas but did not seem overly motivated. He seemed to work better outside if only one or two other students were present. Joe and Larry helped Jim drill holes to mount a rain gauge on one of the raised planters. The aide planned to construct a

chart to help the students track the amount of precipitation that fell each day/week.

The pilot program's Open House occurred on the evening of April 26. I went to the school that afternoon to help get some of the students ready for the big event. Chris was selected to talk to people in the garden about the various plants the students had planted. I explained to Chris some of the peculiarities about various plants so he would have fun telling people about them. He has a great memory and did a wonderful job. I also helped Cody brush up on some of his commands with Dibbs. She had gotten out of the habit of sitting when someone stopped walking her. We worked on her heeling as well. Cody showed me that he could get Dibbs to stand on her back legs and beg for a treat. The guests loved the children's presentations.

I erected a display board, videos, scrapbooks, and reference materials for the Open House. The aide and I set these materials in the hall outside the door to the SED room. It looked very nice. The district's audio-visual director also video taped the event.

The Open House was an unqualified success! In attendance were school board members, Master Gardeners, SPCA representatives, veterinarians, the district's past

and present superintendent, various contributors, the teacher and her aide, several students and their parents, the principal, and journalists from two newspapers (see Appendix I).

After hearing introductory remarks, the guests were free to snack on various refreshments, view videotape, browse through the greenhouse and garden, and visit with the students and their dogs. We had many compliments and felt that everyone was pleased with the progress of the program.

Dogs. The dog training activities continued with P.J., Katy, Dibbs, and our office dog, Dustin, through the end of October, 1992. Their weekly homework assignments required nearly an hour each week of each trainer's time. It was always worth the effort, however, upon seeing how well the dogs worked with the children.

Our largest dog, Katy, continued to be a handful throughout the first semester of school. She was a beautiful dog but in some ways was too large and playful for some of our smaller students.

The dogs took their final test before graduation on October 29. P.J. and Dibbs passed with flying colors. Katy became restless during the test procedure and began

growling at another dog. The SED teacher decided against continuing with the test despite several requests by her instructor to continue. Dustin was unable to attend due to a serious illness in Dr. Gerber's family.

During the first month of school, the staff tried putting enough food in the dogs' automatic feeder to last through the weekend so I would not have to visit the school every Saturday and Sunday to feed the dogs. A couple of problems persisted, however. First, since the teacher only put enough food in the feeder to last for two days, all the food was gone by the time I arrived on most Saturday mornings and definitely by Sunday morning. I believe Katy ate most, if not all, of the food. At times, I witnessed her sitting in front of the feeder, growling in order to keep the other dogs away. At times, the children had to keep her locked in the kennel while she ate so that she did not eat the others' food. Second, the dogs were not able to leave their run and move around in the yard on the weekend unless someone let them out. Because of these problems, I decided to continue going to the school each weekend.

The SED teacher and I visited about a recurring problem she and the children were having with Katy. On occasion Katy bumped some of the smaller children with

her head as they leaned over to pet her. Since she was often inadvertently reinforced for jumping on and playing with the students, she did not learn that she would only be played with when she was behaving. I told the teacher I wanted to try and find someone from the dog training club to come into the classroom and work with Katy and the children. I explained that she did not jump on me--basically because I reprimanded her and she realized it was not appropriate when she was around me. I realized that the smaller children would have more difficulty trying to tell her "no" but it seemed like we needed to do something to salvage the situation. Otherwise, the staff would not allow Katy to come into the classroom on a daily basis like Dibbs and P.J. were doing.

In November, the principal began discussions about possibly removing Katy from the program if her barking did not decrease. Although her barking was not a problem during school hours, the principal had received a few calls from surrounding homeowners concerning her barking at night. The veterinarian who cared for Katy recommended a minor surgical procedure that would reduce the intensity of her barking. I discussed this with the principal and related that, in my opinion, we needed to

make a commitment to work on her other problem (jumping) before we decided to go ahead with the operation. The principal did not want to complete the operation unless I gave an assurance that someone could break her of her jumping habit. Although I felt confident, I could not promise that. I stated I hated to get rid of Katy without trying to do something to resolve the problem. I did not like the message it sent to the children that problem behaviors are either easily modified or they are ignored. Although my understanding was that Katy was being a problem outside, I was getting the feeling the teacher had told the principal she had become a problem in the classroom as well. It also appeared that the staff wanted all three dogs boarded over Thanksgiving since finding someone to check on them for a few days would be difficult. Since this holiday was only two days longer than a typical weekend, I hated to bother the veterinarian on short notice about boarding them. I preferred to wait and utilize this service over a more extended vacation such as Christmas or Spring break.

As I left the school on November 24, I ran into the teacher and briefly discussed the possibility of locating someone to work with Katy on her behavior. She did not mind as long as it was done somewhere other than at the

school. I visited with Dr. Gerber later in the day. He agreed with me concerning Katy, but was more pragmatic than I. He felt we were fighting a losing battle over Katy and thought we would have to give in and let the school find her another home. This went against my nature, but I agreed..

I arranged for the dog training club to present a dog show for all 1st and 2nd graders in the school as well as the students in the SED program. The idea was to get the entire school invested in the program and to develop a sense of comradery with the SED program and its dogs. Approximately 12 trainers and their dogs came for the show. The show was wonderful! The dogs did tricks, dressed in various costumes, and ran relay races. All the children laughed and had a great time. Several of the SED students were selected for demonstrations. This was a wonderful opportunity for these children to be seen as leaders and experts by others in the student body.

Prior to Christmas break I was told that Katy was being taken to a man's farm over the holidays. The staff thought this would give the prospective owner time to see how Katy would adjust to a new home and decide whether he actually wanted to keep her or not. Katy did not return to school after Christmas break.

On February 23 I videotaped a very cute, yet representative sample of how the children interact with the dogs in the classroom. Paul was sitting on the floor next to the practicum student answering questions she posed to the class. The entire time he stroked Dibbs very softly, almost unknowingly. At one point, Paul quit touching Dibbs and turned towards the teacher. Dibbs immediately moved closer to him and rolled onto her back so that she was actually touching him. A very sweet moment.

Mark came to class for the first time on February 23 and was understandably uncomfortable with the new surroundings. P.J. helped break the ice by immediately coming to him. Mark played with P.J. and smiled. He was ready for his first day. Later in the day, the class made "puppy chow mix" for the teacher to share in her department meeting that afternoon (Aide's notes).

I came to school on April 14 to watch a video with the students. Larry, Robin, Chris, Paul, Joe, Fran, and Cody were present. The teacher had asked Katy's new owner to make a video of her at her new home. I was very pleased that the teacher had thought to request a tape from Katy's new family. The children asked about Katy frequently and this was an opportunity for them to see

her. Most of the children thought Katy would be sad at her new home. They were surprised to see how happy and content she appeared. She had the run of several acres and had several children to play with. A discussion ensued concerning how a change in one's life is not necessarily a negative thing. Change can be positive and productive. At the end of the day Fran approached me and said, "I wish we had Katy. I miss her. She's sad, she's crying. She misses me."

By the time the school year ended, the staff and I had decided to keep P.J. and Dibbs for the following year rather than adopting them out and retraining new dogs as originally planned. Both dogs were very gentle with the children and loved to be held and played with. They each had grown to become an integral part of the SED program.

Students. Students responded well to the first horticulture activity of the year presented by the practicum student. Joe, who is known as a very anxious and teary-eyed child, was very excited about his first horticulture project. He chose the wandering jew plant to transplant because it had numerous blue flowers growing from it. He stated over and over that he wanted to make his plant pretty so he could take it to his

mother. It was interesting to note how Joe's diagnosed "dog phobia" affected him at school. Of the three dogs in our program, he was especially fond of the largest one, Katy. He was always very attentive to her needs and enjoyed hugging her neck.

Fran, one of the Kindergarten students, was very demanding, controlling, and somewhat of a perfectionist. Fran did not want anything to do with our first planting session. She stated, "I don't want to get my hands dirty!" I put some soil medium on my hand and asked the teacher to put her fingers in it. Fran watched as the teacher washed the soil off her hands and showed her how clean they were. F.W. then put her fingers in the soil, laughed and began planting with the other students.

Erin was similar to a mother hen. She hovered over the other children and always volunteered to help sweep or pick up things. She displayed little affect during any of our initial activities but became more animated as the year progressed.

The students remained excited about the practicum student's horticulture activities throughout the year. Upon arriving at the school one day in late October, I noticed students were taking stem cuttings from various plants to sell at the school-wide Fall Festival. Cody

ran to get his school picture and told me he wanted me to have one. After thanking Cody, I asked Fran if I could have one of her pictures. She responded with a resounding, "NO!" She was used to getting her way and was extremely oppositional at times. Before the afternoon was over, however, Fran sought me out and had a cute picture of herself to give me. Erin was the next student who came to complete her work in the greenhouse. As she worked I asked her what she liked best about being in the greenhouse. She responded, "I like to water and plant." When asked why, she said, "I don't know, it just makes me feel good." Soon thereafter, Chris entered and began complaining that Erin "always waters everyone's plants." He and I walked to his section of plants to inspect them. To his surprise, one of his mums was dry and in need of water. Without prompting, he apologized to Erin and said, "I guess I don't always look at my plants as good as I should." When asked what she could do to help Chris, Erin stated, "I need to just take care of my own things unless someone asks me to help them, like Fran"

I noticed that the students were more likely to open up when they were outside with the dogs or in the greenhouse. Although the greenhouse is an extension of

school, I think the students felt more free to discuss their feelings when they were not in a typical school setting.

By early November, I began noticing subtle changes in Erin. She still enjoyed helping others but I began to observe less hovering over the younger students. Slowly, but surely, I felt she was beginning to see that others related to her in a more positive manner if she did not try to mother them. I also noticed that Joe's demeanor changed almost instantly once he came into contact with one of the dogs. One afternoon while observing Joe feed and lock the dogs up for the afternoon, I noticed how much he smiled as compared to other times during the day. Joe entered the dog area and immediately began hugging Katy's neck. He quietly asked her, "How are you doing? Are you having fun out here?" As Joe and I walked back into the building I asked, "What makes you so happy when you are with Katy?" Joe responded by saying, "I don't know. I just like Katy. She makes me feel important." The staff noticed that Joe began coping better when he had to relinquish Katy from time to time and work with the other dogs. The woman with the dog club stated he was maintaining good eye contact with her and was learning to respond to positive comments about himself in

an appropriate manner.

Although Larry made impressive behavioral changes, he continued to experience difficulty concentrating and focusing attention on appropriate tasks. It was understandable that all the children were more excited when they went outside or were involved in a new activity. Paul's difficulties were compounded, however, by the fact that he did not take his medication regularly.

November 23 was the children's first nursing home visitation. The students began arriving around 1:30 p.m., each with a brightly wrapped "spider plant", also known as an "airplane plant." The aide entered with Dibbs, freshly washed, on a leash. Our host took the children to various rooms to meet residents she felt were willing and able to take care of a plant. The residents' faces lit up as the children marched into each room with their plants and with Dibbs. On one visit, one of the residents held onto Dibbs and did not want to let go. It was almost as if Dibbs unlocked rich memories of times gone by when a dog was an important part of her life.

Many of the students had never been to a nursing home before. Chris was the star of the visit. He was extremely patient and understanding with the residents

and even asked the host if he could backtrack to a resident that had reached for his arm in the hallway as he had passed by earlier. He was allowed to return and visit the wheelchair-bound woman and gave her his DARE bracelet he had worn. It was a very touching moment. Chris has always acted as if he was a victim. He seemed to have empathy beyond his years for the elderly people who lived here. Joe was the only child who seemed visibly unsure of the setting. He tended to hold back and had a worried look on his face. I asked him if he would like to wait with me outside, but he declined. Most of the children seemed to enjoy their visit and looked forward to returning to check on their new friends and the progress of their plants. Cody stated afterwards, "I feel sorry for those people. I wish they could be home where they have more friends."

I had the opportunity to act more as a passive observer in the SED room on January 14. The following reflections provide additional insight into a typical day in this program. I arrived at 1:15 p.m. on a cold and snowy day:

1:15 p.m....Robin, Fran, Cody, Larry, and Chris were watching video tape of themselves taken over the last few days while working outside with the dogs and inside the

greenhouse. The video showed various students feeding the dogs, walking them and working in the greenhouse. The children were sitting on the floor, with Robin holding Fran in her lap. The teacher, aide, and a new student intern for this quarter were in the room as well. P.J. and Dibbs both puttered around the room, going from child to child to be petted or talked to. Generally, only one of the dogs at a time was allowed in the classroom. Today, due to the cold, both dogs were brought in. Part of the video showed Fran taking P.J. to visit her kindergarten class. It was obvious she had received a lot of positive attention from her classmates. Those types of activities appeared good for her self-esteem and self confidence. Another episode of the tape involved the class attempting to bath both of the dogs in the greenhouse sink. The children were laughing and soap suds were flying everywhere!

1:25 p.m....The tape ended and Cody walked over to pet and play briefly with P.J. Fran left for her speech class with the aide. Chris walked over to me and said he liked Dibbs the best and stated she was better behaved than P.J. Robin overheard his comments and said she likes P.J. the best because he is a boy. That was no surprise considering how much she likes boys.

1:30 p.m....Cody worked individually with the teacher on his math. The student intern worked with Larry on penmanship. Robin played fetch with a bone with P.J.

1:35 p.m....The teacher asked Robin to sit at her desk and complete her math assignment. Robin readily complied. Joe came into the room from his mainstreamed 5th grade class. P.J. immediately greeted him and was picked up and carried to Joe's desk. This brought a smile to Joe's face, something that has become more and more familiar to see. The teacher told Joe he needed to finish the day's work so he could attend the Geography Bee at 2:00 p.m. He asked if he could attend with his 5th grade class rather than the SED class and was allowed to do so. After sitting at his desk, Joe petted P.J. again and whispered to him, "You're a good boy, you're a good boy" and hugged him. He let P.J. lick his face and smiled.

1:40 p.m....Larry continued tracing his name for the student intern and appeared to be doing a good job based on her positive comments to him. Cody completed his math and returned to his desk. Along his way, he kneeled to pet and rub both of the dogs.

1:45 p.m....The aide returned from taking Fran to speech. The aide mentioned that a 2nd grade boy from another

teacher's class had been having some discipline problems and was sent to the SED room for a cooling off period. That was the second time he had come to the SED classroom. The aide said he came in the room with an "ugly" look on his face but immediately changed his demeanor when he began interacting with P.J. We discussed the possibility of him earning Doggie Dollars (see Appendix J) as a way to connect improved behavior with time spent with the dogs.

1:59 p.m....Joe bent over in his desk and picked P.J. up and held him in his lap. Cody left the room to go to one of his specials (art, music, p.e.).

2:00 p.m....Joe and Robin sat at their desks and played keep away from P.J. with his rubber bone. Since they had completed their assignments and were being relatively quiet, they were allowed to continue. All the students but Larry went to the Geography Bee. He could have attended but it was not something that kindergarten students would generally enjoy. The aide and I were the only ones left with Larry. The aide rewarded his good penmanship with a piece of candy from a jar kept on her desk. He seemed pleased with himself.

2-2:30 p.m....I stayed in the classroom until 2:30 working with Larry and the aide. We both went into the

greenhouse and assisted Larry in repotting a baby's tear plant into a larger container. Afterwards, we cut plastic tape to put over the cooler vents in order to keep the cool outside air from entering the greenhouse.

While Larry played in the classroom, the aide and I discussed several of the students and the progress they were making. Larry did so poor at his previous school that his school counselor did not think he would be successful at the pilot site. He was still the least well behaved but had not been sent home at all for misbehavior in the classroom. He had, however, been sent home for serious misbehavior while on a field trip. The aide stated that as long as he had something structured to do he was fine. It was the unstructured time that created problems for him.

Joe was considered the most honest student with his feelings. He was not always the most talkative, but would generally tell someone what was on his mind when he did speak. He stated he missed Katy a lot. The aide and teacher have each noticed that Joe's affect is more upbeat and positive than it was at the beginning of the school year. Considering how poorly he behaved at two of our other schools, we feel he has made wonderful progress.

Erin continued to earn mainstreaming time during the year. Her most persistent problem, however, remained getting her assignments completed. She dawdled and daydreamed and often ended up with significant homework. Returning her work was also a problem. I have often wondered if she avoided completing her work in order to have a reason to not be able to clean and cook for her brothers and father. Considering her homelife, I am very proud of her progress.

Fran was considered uncontrollable during her most recent hospitalization, but won everyone's heart at school. She had her days, but began learning that her headstrong behavior denied her various privileges that the other children were earning. The aide thought she may need to repeat kindergarten due to poor readiness skills.

Chris continued having moody and negative days but was progressing as well. He was the only student that actually attended this school prior to being determined eligible for the SED program. I think the entire school was amazed at how quickly his behavior had been transformed. Prior to placement, he could not be controlled in the regular classroom, he had attacked a teacher and was suspended on several occasions. He did

not experience any of these types of behaviors during the 1992-93 school year.

Robin reported that her sister recently tried to kill herself by slitting her wrists. I was not sure if that was accurate, but she continued telling everyone the story. If it was true, her response was interesting. She could not wait to get to school to tell everyone what had happened. She smiled and almost laughed as she related the incident. Her affect may have been a defense she used to deal with her feelings. We noticed that she was always smiling and rarely, if ever, expressed other emotions, even when they would have appeared to be appropriate. When I interacted with Robin I encouraged her to label others' feelings and emotions as a way to become more familiar with her own.

Cody was allowed to take Dibbs to his mainstream class recently for show and tell. His classmates thought he was "cool" because he knew how to get Dibbs to perform upon command. His class wanted Dibbs to stay for the remainder of the day. Cody continued to be mainstreamed more so than the other students. Cody was a perfect example of what could be accomplished when school and home joined together to correct a child's difficulties at an early age.

A new boy, Paul, entered the program on January 21. Chris and Paul were outside walking Dibbs around the track when I arrived. I walked out to visit them to see how Paul had settled in. The three of us walked several times around the track. Paul walked Dibbs while Chris explained the proper way to hold the leash and give commands. Paul stated he had a dog at home. Chris said he missed Katy. He then said his dog died and that he missed her, too. When I asked him how he felt when his dog died, he responded, "I was sad. I feel sad most of the time."

As we walked, 10-12 different students, some in groups, others alone, came up to pet Dibbs and talk to the two boys. They asked the dogs' names, the boys' names, and commented on how neat it was that they got to walk the dog. Several asked if they could bring Dibbs into their class. These types of interactions provided opportunities for the SED students to develop their social skills. Reflecting on this, I think the dogs acted as a social lubricant for these children. When they were with the dogs, the other children perceived them in a different manner. Although this school was very accepting anyway, the children were more apt to walk up to the SED students, ask questions and interact in a

positive way when they were with their dogs. This put the children in the role of expert or leader in the eyes of the other students. They were able to command the dogs in ways that many of the regular education children could not.

Upon entering the classroom with Chris and Paul, several students came into the greenhouse to help me take cuttings from the "vicks" plant that had outgrown its pot. The "vicks" plant was interesting to the children because its leaves smell like Vicks Vapor Rub. All of the students helped me prune the large vicks plant with the shears. The shears were sharp and were kept away from the students when not in use. We did not experience any problems with the students misusing any of the tools that they worked with. After helping me, little Fran began sweeping up. She did so without prompting. Since there was water on the floor, she made a muddy mess. The important point, however, was that she was trying to be responsible. When asked why she liked to help clean up, Fran responded, "I like to do a big girl's job."

Chris was invited to share his knowledge of dogs with his regular first grade class. He walked Dibbs to the classroom as the aide videotaped his presentation. His classmates asked numerous questions about Dibbs and

how Chris learned to train her. They asked several questions about the greenhouse operation as well. After Chris returned to the SED room, he gathered lettuce and tomatoes grown during the winter in the greenhouse and shared them with his other classmates. Chris talked about this experience non-stop for some time. He was so excited and pleased that his classmates took an interest and listened to him (Aide's notes, January 25).

I noticed on several occasions that students enjoyed reading in the greenhouse. It was especially noticeable with Mary. She seemed to be rather self-conscious reading aloud in the classroom. When she read while lying on a beanbag in the greenhouse, she was not as inhibited. This was very typical of the students in the program. They enjoyed the quiet, calming atmosphere the greenhouse provided.

Mary's absences became more frequent during the Spring. She was typically neither sick or emotionally upset. Her mother's inability to get up and around in the morning was the most common reason for her frequent absences. I was concerned that the truant officer would call on her mother if things did not straighten out. Paul's absences had also increased since Christmas. Part of his attendance problems appeared to be related to the

constant change of his primary caregiver. The uncertainty in his life was no doubt a contributing factor to his behavior problems.

The aide commented that, on average, the previous year's students maintained 70-80% of their behavior points. She felt that the pilot program students were averaging in the high 80 to 90 percent range. If that rate continued throughout the year, it would be much higher than what was typically seen in the SED program.

The teacher visited with me on February 23 about Robin. She said she did not know how serious Robin was taking the happy face activity. As an example, she related that Robin's cousin had been murdered the previous month. Robin came to school and preceded to mark a happy face for that morning. I told the teacher I looked at this as her perception of her feelings and not that she was disregarding the importance of the activity. Robin later told me, "I don't want to be sad on the outside" as a reason for marking her card in that manner.

The teacher, aide, principal, and I each felt the pilot program had helped to significantly reduce behavior problems during the course of the school year. Student responsibility, self confidence, and emotional stability seemed to have improved throughout the school term. The

class as a whole received more academic instruction, even with the introduction of horticulture and animal-assisted activities, because less of the teacher's time was taken up with behavioral issues. The staff and I looked forward to analyzing pre and posttest data to confirm some of our observations.

CHAPTER V

RESULTS

Students who participated in this research were administered pre and posttests at the beginning and end of the school term to determine self-concept levels. Each student's parent was asked to complete an extensive personality inventory at the beginning and end of the year. The SED teacher completed standardized behavior rating scales and a separate self-concept inventory on each child on a pre and posttest basis. Each student and his/her parent(s), the teacher, aide, and principal was interviewed during the last three months of the school year. In addition, daily behavior points were collected, work completion rates were analyzed, and attendance and grades were evaluated. Analysis of achievement test scores was not built into this study. Achievement scores were evaluated, however, on students who had been administered pre and posttests with the Kaufman Test of Educational Achievement.

Personality Inventory for
Children-Revised (PIC)

Each parent of children who started the school year in the program was administered a PIC during the month of September, 1992. Parents of other students who enrolled throughout the year were administered the PIC as soon as possible. Posttests utilizing the PIC were administered in May and June, 1993 (see Appendix Q). Figure 1 displays the percentage of students that exhibited a decline, increase or no difference on clinical subscales of the PIC after the standard error of measurement for each subscale was considered.

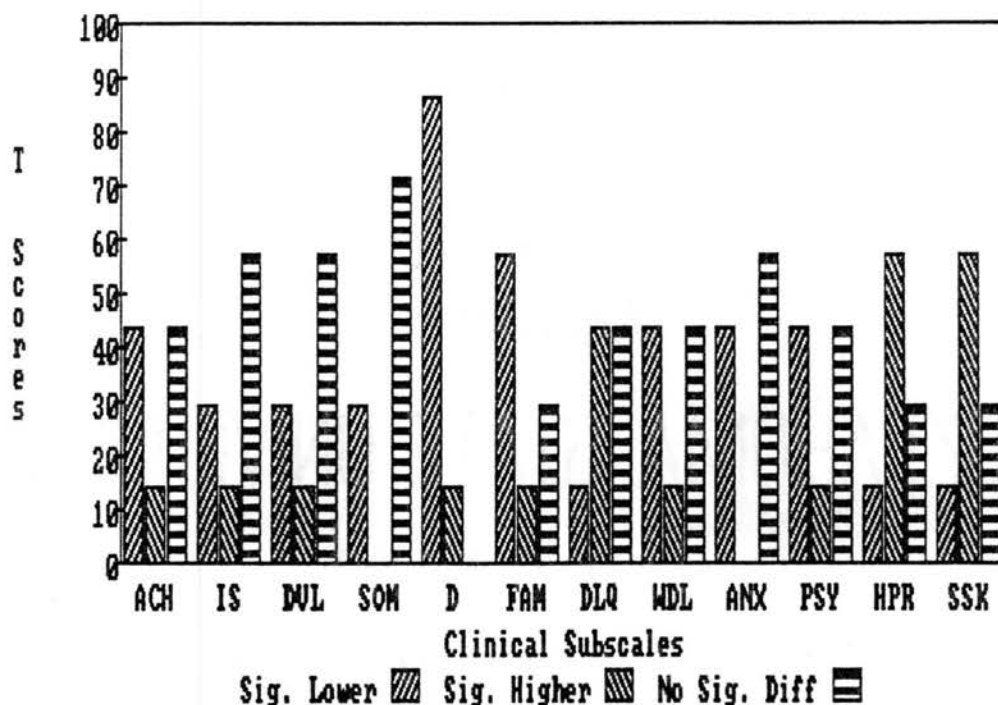


Figure 1. Class Change on the PIC

Seventy-one (71) percent of the parents who completed pre and posttests on the PIC indicated the frequency of maladaptive behavior for their child had decreased during the time the child was in the program.

Kaufman Test of Educational
Achievement (KTEA)

The KTEA is routinely administered in this district's special education classes to assess growth in basic academic skills (i.e., Math, Spelling, Reading). The two kindergarten students were not age appropriate to be administered the KTEA. One student had not been in special education classes long enough to have been administered a pre and posttest. One student had advanced from kindergarten to first grade and did not receive a KTEA in kindergarten. A final student transferred from another district and was not administered a KTEA until arriving at this school. Of the remaining five students, the most dramatic gains over a nine month period were noted in Reading, followed by Math, and Spelling (Figure 2).

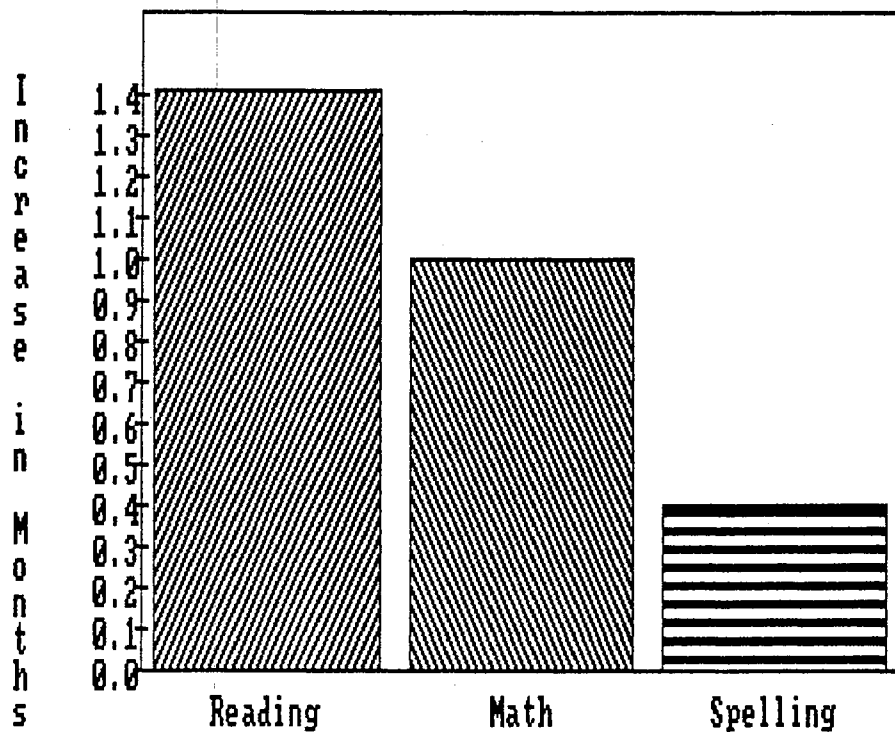


Figure 2. Class Change on the KTEA

Daily Points Earned. Daily behavior points were collected and analyzed weekly throughout the year the program was in operation. Each student began the day with five (5) behavior points, with points being deducted as infractions occurred. The class as a whole maintained ninety (90) percent (rounded to the nearest hundredth) of the possible behavior points each week throughout the school year. Individual ranking is shown in Table 1.

TABLE 1
BEHAVIOR POINTS EARNED

Student	Percentage	Rank
Robin	.987	1
Cody	.951	2
Erin	.943	3
Chris	.942	4
Mary	.938	5
Joe	.925	6
Fran	.918	7
Paul	.886	8
Larry	.814	9
Mark	.728	10

Work Completion. The percentage of work completed in each subject (at a level acceptable to the teacher) was logged throughout the year. The total number of weeks each student spent in the program was divided into equal parts. The percentage of work completed during the first half of the program was compared to that completed for the second half. The two kindergarten students were omitted due to the difficulty in accurately tracking their pre-readiness activities. The percentage of students displaying an increase in work completed by subject is noted in Figure 3.

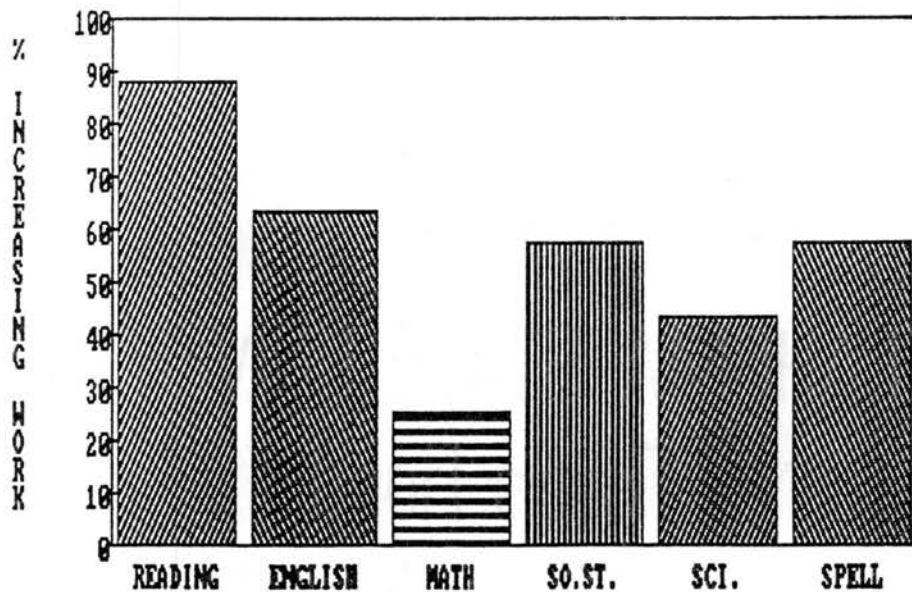


Figure 3. Work Completion

The following information should be considered when interpreting information located in Figure 3.

Reading...1 student's work completion declined but remained at 80%

English...1 student's work completion declined by 1%

1 student's work completion declined by 5%

1 student's work completion declined by 16%

Math...2 students' work completion declined but remained over 80%

2 students' work completion declined but remained over 90%

Social Studies...1 student's work completion remained steady at 100%

1 student's work completion declined by one point to 90%

1 student's work completion dropped by 11%

Science...1 student's work completion remained at 100%

2 students' work completion declined but remained at nearly 85%

1 student's work completion declined slightly to 97%

Spelling...1 student's work completion declined slightly to 94%

1 student's work completion declined by 6% to a 71% completion rate

1 student's work completion declined by 37%

Work completion rates for the year are listed by subject and by student in Tables 2 and 3, respectively.

TABLE 2
CLASS WORK COMPLETION BY SUBJECT

Subject	1st Half	2nd Half	Change	Ave.
Reading	81%	87%	Up 6%	84%
English	85%	85%	None	85%
Math	88%	85%	Down 3%	86.5%
Soc.St.	84%	89%	Up 5%	86.5%
Science	91%	93%	Up 2%	92%
Spelling	83%	81%	Down 2%	82%

TABLE 3
CLASS WORK COMPLETION BY STUDENT

Student	1st Half	2nd Half	Change
Chris	86%	93%	7% Higher
Paul	78%	85%	7% Higher
Erin	71%	75%	4% Higher
Robin	91%	95%	4% Higher
Mary	87%	91%	4% Higher
Cody	97%	97%	None
Mark	78%	75%	3% Lower
Joe	91%	77%	14% Lower

Behavior Evaluation Scale. The teacher completed a Behavior Evaluation Scale on each student at the beginning of the school year (September for most students) and as soon as possible for students entering the program later in the school term. A second Behavior Evaluation Scale was completed by the teacher in May, 1993. Mark's initial Behavior Evaluation

Scale was completed by his regular education teacher at another school in our district. Mark attended that school prior to being determined eligible for this program.

Raw scores were converted to standard scores for the purpose of establishing a clear and consistent basis for making comparisons among students. Standard scores from 7 through 13 are considered normal, or statistically average, while standard scores greater than 13 and less than 7 are considered to be statistically atypical. Specifically, scores greater than 13 indicate that the student exhibited few, if any, behaviors of concern on the subscale, while scores from 7 through 13 indicate that the student's behavior was similar to the behavior of the majority of students included in the normative sample on whom the scale was standardized. Scores less than 7 indicate that the student exhibited negative or inappropriate behaviors frequently enough to cause concern. The degree of concern generally increases as standard scores decrease, with scores less than 4 representing extreme statistical deviance. Standard scores on the BES have a mean of 10 and a standard deviation of 3.

The class average for each subscale is listed in Figure 4. Descriptors that correlate with each subscale are listed as follows:

Subscale 1-Learning Problems

Subscale 2-Interpersonal Difficulties

Subscale 3-Inappropriate Behavior

Subscale 4-Unhappiness/Depression

Subscale 5-Physical Symptoms/Fears

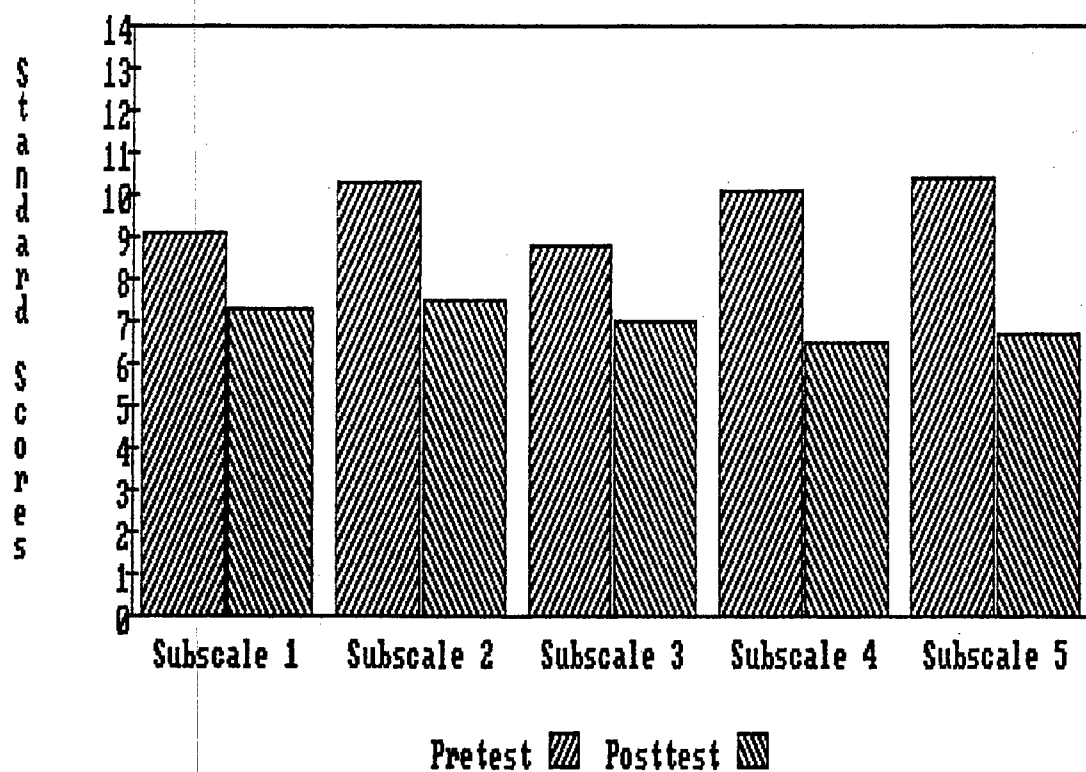


Figure 4. Classroom BES Scores

The class average on each subscale of the Behavior Evaluation Scale declined from pre to posttest. The standard error of measurement on each of the five subscales ranged from a low of .79 on the Learning Problems subscale to 1.47 on the Unhappiness/Depression subscale. Student scores on subscales 1-3, although lower than on the initial test, remained within the average range with scaled scores averaging between 7 and 8. Student averages on subscales 4-5, however, displayed the largest decrease. Scaled scores on subscales 4-5 averaged 6.5 and 6.7, respectively. Individual BES profiles are located in Appendix R.

Attendance. Attendance rates remained relatively high when compared to the school average (Table 4).

TABLE 4
ATTENDANCE FIGURES

	Entire School	Pilot Students
1st Qtr.	97%	98%
2nd Qtr.	95.5%	96.6%
3rd Qtr.	93%	91%
4th Qtr.	95.8%	92%

Please note that four students were responsible for the lower attendance rate during the 3rd and 4th quarters of school. In each case, neither illness or school-related problems contributed to their absences. Family-related difficulties affected each of the student's attendance.

Three students attributed for 27 days of absences during the 3rd quarter. Three students attributed for 23.5 days of absences during the 4th quarter of school.

Grades. Four students received no grade lower than a 'B' throughout each of the four quarters that report cards were issued. Fran's kindergarten report card was not available. She left the district and her report card was mailed to the receiving district. The other kindergarten student and the only first grade student did not receive letter grades due to district-wide policies. Of the three remaining students, only Mark received more than one 'C' on his fourth quarter report card.

Students received marks each quarter indicating whether they were "consistent", "progressing" or experiencing "concern" on various areas related to personal/work habits. With the exception of Mark, each student exhibited an increase in the number of areas

marked as "consistent" throughout the school year (see Appendix S).

Piers-Harris Self-Concept Scale. The Piers-Harris provides a total score which is an indicator of overall self-concept. The Piers-Harris also provides six cluster scales: I-Behavior, II-Intellectual and School Status, III-Physical Appearance and Attributes, IV-Anxiety, V-Popularity, VI-Happiness and Satisfaction.

Class average total score percentiles declined slightly from pre to posttest by three (3) percent. Subscales II, III, IV, and V increased slightly, while the other subscales experienced slight to moderate declines (see Appendix T).

Average scores on the Piers-Harris are usually considered to be between the 31st and 70th percentiles. However, the normal values for determining significant deviation from the mean (± 1 standard deviation) correspond to the 16th and 84th percentiles, respectively. Utilizing the more stringent standard of the 16th percentile as a cut-off for significant deviations, 5 of 7 students administered the Piers-Harris continued to place within the norm when total scores on the posttest were considered.

Inferred Self-Concept Scale. The two kindergarten students (Fran and Larry) and the only first grade student (Cody) were too young to be administered the Piers-Harris Self-Concept Scale. In order to provide a measurement of self-concept for the younger students, the teacher completed an Inferred Self-Concept Scale on a pre/posttest basis. She also completed the same scale on each of the other children.

The inferred self-concept score can be thought of as a point on a continuum between 30 and 150, with 30 representing a socially undesirable (or negative) and 150 representing a socially desirable (or positive) concept of self.

Fran did not have an inferred self-concept score at the end of school due to her being hospitalized prior to school ending. The SED teacher completed an Inferred Self-Concept Scale on each of the other students at the beginning and ending of the school year. Of the remaining nine students, four had self-concepts rated higher by the teacher, while five declined. Utilizing the publisher's data of 116.18 (standard deviation of 14.95) as a year-end score for all students in a random, normative sample, five of the remaining students scored

within the average range of the normative sample (Table 5).

TABLE 5
INFERRED SELF-CONCEPT

Student	Mark	Paul	Larry	Mary	Joe	Erin	Robin	Chris	Cody	Fran
Pre Test	82	112	84	110	89	125	125	100	126	120
Post Test	94	86	99	120	85	102	121	112	103	n/a

Happy Face Form. An analysis of the children's "happy face" forms at the beginning and end of each day indicates fewer negative faces (E,F,G) at the end of the school day than at the beginning. The percentage of positive responses (A,B,C) was greater at the end of school on Monday and Tuesday, with the trend being reversed on Wednesday, Thursday and Friday. Positive responses averaged 90.4% for morning responses and 89.1% for afternoon responses. Neutral responses (D) at the end of school were slightly greater than those at the beginning of the school day (Table 6). Individual responses are located in Appendix U.

TABLE 6
HAPPY FACE RESPONSES

	<u>A.M.</u>							<u>P.M.</u>						
	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZA	ZB	ZC	ZD	ZE	ZF	ZG
Monday	79	7.5	1.1	10	0	0	2.35	86.4	2.5	0	7.5	0	0	3.6
Tuesday	73.8	8.9	3.3	7.5	0	0	6.4	75	11.1	1.1	9.2	0	0	3.6
Wednesday	84.2	5	3.6	0	0	1.2	6	75	12.9	1.1	9.7	0	1.1	0
Thursday	83.1	5.7	2.9	6.6	0	0	1.7	82.4	5.7	1.7	7.7	0	1.1	1.4
Friday	85.3	8.6	0	5	0	1.1	0	84.9	5.7	0	7.7	0	0	1.7

Interviews. Formal interviews with the aide and teacher were conducted near the end of the school year. Other, more informal conversations were noted throughout the text of this report as necessary. Interviews were also conducted with each student in the program, their parents, and the building principal. Each interview was structured around the forms in Appendix K but varied depending on the topics that were discussed.

Teacher Interview (5/26/93)

The teacher stated her students had gained more responsibility throughout the year by having to take care of their plants and the dogs. Students displayed

tremendous satisfaction and pride as their plants grew and were always interested in taking them home. The students were very protective of the dogs. Students watched each other to make sure the dogs were not being abused or neglected.

Cody's behavior was much more calm this year than what was reported last year in the regular classroom. It was difficult for the teacher to judge how much of the behavior change was due to the pilot program and how much change would have occurred anyway.

Erin and Cody, two students who were in the program during the 1991-92 school year, received the most mainstreaming and therefore, were in the program the least amount of time. Each of their schedules, however, was arranged so that they could be in the classroom when specific horticulture and animal-assisted activities occurred.

All of the students enjoyed the plant and animal activities. Joe always spent time with the dogs, even on the many days that he came to school in a bad mood. His entire affect changed when he stopped to interact with either of the dogs. He became visibly more happy and energetic when he talked to the dogs. Joe's mother had even discussed trying to get a dog for their apartment.

That is something she would have never discussed before due to Joe's alleged dog phobia.

Erin, on the other hand, enjoyed the plant activities more than the dogs. At the beginning of the year she required significant guidance concerning her need to over water and over nurture her plants. She had gotten much better in this area by the end of the year.

Chris originally hovered over the dogs too much. He did not understand why the dogs tried to escape him when he only wanted to hug them. He displayed similar behavior with peers by encroaching on their personal space. That behavior drastically improved as Chris began learning to monitor his own behavior. Although Chris was mainstreamed only for specials (art, music, p.e.), he was allowed to visit the third grade "home room" to listen to speakers and go on field trips. Because of prior knowledge of Chris's behavior before being placed in the SED program, his home room teacher was hesitant to allow him to attend her class without the presence of an aide. By the end of the year, she welcomed Chris to any activity the class was involved in.

Comments from parents were nearly 100% positive. Since most parents had children who were in the program for the first time, they were extremely pleased with the

behavioral improvements witnessed at school. Chris's parents were particularly supportive of the program when they provided interviews for the newspaper.

Perceptions within the building changed for several teachers. Once certain teachers understood that the program was mainly funded through grants and private donations and not from monies that would have been available for regular classroom activities, they became more at ease. One of the 4th grade teachers asked to move at the first of the year because she did not want to be near the dog facility. Once Katy was removed, the problem subsided. There were several teachers who continued to have a philosophical problem with having dogs at school. Some still did not understand the SED program and what occurred within the classroom.

It was much more comfortable for the teacher by the third and fourth quarters than it was at the first of the year. She still felt that starting two new programs (animals and plants) was too much. She felt there were problems as to priorities in the beginning. She felt that the researcher's priority was getting the pilot program up and running while her priority was to get the new students acclimated to her structure and rules. The pilot program per se was secondary. The teacher felt

that no matter what she did, it was not enough to satisfy the researcher. She stated the biggest change in her attitude toward the program came from within. She did what she thought she had to do in her room and what she "could" do with the plants and the animals. She felt there was not enough reinforcement coming from the researcher. Near Christmas she consciously decided to say "to heck" with the researcher's expectations of the program and to do what she felt comfortable with. She stated this was a turning point for her in being able to deal with the researcher's expectations.

The teacher did not mention any programmatic changes to address for the 1993-94 school year. She did state, however, that she would have liked an exit door in the greenhouse that led to the outdoor garden. A door would have enabled the teacher and aide to allow more students to work outside unattended, knowing that they could quickly reach them rather than having to exit through the school building.

Aide Interview (5/18/93)

The aide felt convinced that the dogs had a calming effect on all of the students in the program. She stated

the students became more responsible in terms of taking care of their plants and the dogs. Students also became more responsible in the classroom with regard to completing assignments. Daily work was completed at a high rate in order to have the privilege of playing with the dogs or working in the garden or greenhouse.

The greenhouse was the most difficult aspect of the program for the aide to implement. She related that most children had been exposed to dogs before, but few had experience in a greenhouse. Another difficult aspect involved trying to balance the animal/horticulture activities with the children's academic requirements. The mainstreamed students did not get as much exposure to the animal and horticulture activities as those who were in the classroom more of the day. The aide, like the teacher, was more philosophically oriented toward a traditional academic approach than to an affective education approach.

In terms of division of responsibility between the aide and teacher, the aide saw herself as responsible for the majority of the plant and animal activities. She did not see this as a problem, but rather as an area she was more comfortable working in than was the teacher.

In past years, students from regular classes who

experienced occasional behavior problems, were taken to the SED room for a cooling off period. Until this year, that was looked upon as a negative experience. Now, the aide stated, although students may get in trouble, they realize they can spend time with the dogs or in the greenhouse if their negative behavior subsides in a short period of time. Students throughout the school visited the SED room with requests to walk the dogs on the track. On one occasion, a regular education student whose mother had contracted cancer, came to the aide in a despondent mood. They took a walk through the therapy garden and picked a bouquet of flowers for her to take home to her mother.

The aide expressed an interest in developing a level system the following year to determine which students are ready to participate in various animal and plant activities. She stated the system would be set up similar to a merit badge system with students being required to demonstrate their skill level in order to advance to a higher level of responsibility.

Principal Interview

(June 2, 1993). The principal stated that her time spent dealing with discipline issues in the SED program had declined dramatically when compared to past years. During the 1992-93 school year she was able to interact with the students in a positive way by working with them on their plant and animal activities. She felt that she was able to establish rapport with the SED students for the first time since the program was placed in her building five years ago. The principal felt there was less anxiety in the classroom because the setting did not have the feel of a typical classroom due to the introduction of the dogs and plants.

She stated the most difficult aspect of the program involved the lack of a set curriculum for the teacher to utilize. The principal realized that the curriculum would evolve as each school year progressed, but wished that more progress had been made during the first year of the program. Another concern involved the rate at which regular education students were involved in the program. This involvement did not begin in earnest until the last 2-3 months of school, but will hopefully increase significantly during the 1993-94 school term.

The principal considered the SED students an asset

to any regular education class that was interested in integrating plant activities into its curriculum. The SED students had established themselves as knowledgeable about various horticulture methods and techniques and she wanted them to begin sharing more of their skills with others during the next school year.

The principal ate lunch in the outdoor garden with various groups of regular education students as a reward for certain goals they had met. She and other teachers also utilized the outdoor garden for small group story time.

She thought the students seemed to thrive on the responsibilities that had been given them in their new setting. In the past, most of the SED students had not been trusted to be in charge of school activities. In the pilot program, however, it was essential that each student be given age appropriate responsibilities. She felt that the students' self esteem had risen. She did not see the depression and oppositional behavior that she had grown accustomed to seeing in past years.

In the past, the regular education students did not want to be associated in any manner with the SED program. This year, the principal observed a complete turnaround in their behavior. Students continually asked her if

they could go to the SED room to see what was growing in the greenhouse or to play with one of the dogs. They approached the SED students more readily on the playground or in the hall and seemed to be more at ease in their interactions with them.

Other building administrators within the district joked with the principal about her new program. Many had never visited the site. She felt other administrators did not have a realistic idea of how an SED program operated or to what degree the pilot program had been effective in dealing with students' emotional and behavioral problems. Those that did visit the facility were often envious and wanted a similar facility but did not want the type of students that went with it. She felt the district could have done more to spread the word about the benefits and goals of the program through its weekly principal and administrator meetings.

The principal's crown jewel of the program was Chris. Since he was in regular education classes at the pilot school prior to entering the SED room, she had many opportunities to observe his behavior. She stated his constant anger, tantrums, and physically aggressive behavior towards staff and peers had been completely unmanageable. Chris's parents were always cooperative

and attempted to implement any behavioral strategies suggested to them. Chris was placed on Ritalin to control his hyperactivity and entered counseling with little effect being noticed. She stated his progress in the horticulture/animal-assisted therapy program had been nothing short of phenomenal.

Parent Interviews

(June, 1993). Three parents did not complete interviews at the end of the school year. Mark's foster family moved out of state, Larry's mother did not respond to repeated attempts to contact her and Fran's mother was not interested since Fran was still in the hospital and was not expected to return to school the following year. A summary of various comments is listed below:

Joe's mother reported his anxiety level was much lower when compared to the first of school. His separation anxiety had been a constant source of difficulty in previous years, but was much better by the end of the current school year. She no longer had to accompany Joe into the building and take him to his class.

Erin's father stated Erin had shown improvement at home with regard to finishing her chores. He felt she

needed fewer reminders than before the school year began. He also related that Erin was more consistent about completing her homework on her own without his reminders. He thought Erin had made considerable progress during the past year as evidenced by reduced tantrums, increased signs of happiness, and more ability to express her emotions in an appropriate manner.

Cody's mother reported that his confidence level had risen throughout the school year. She said Cody talked nonstop at home about his plants and dogs at school. She stated he exhibited great pride about his knowledge of plants and his ability to train P.J. and Dibbs.

Cody's mother stated he had demonstrated improved responsibility at home since school began. He was more likely to help his mother or stepfather without being asked and responded to parental requests more positively than before. Prior to entering the SED program, Cody was considered very unsure of himself, prone to aggressive tantrums, and verbally abusive. Now, Cody more readily accepts time-out and will occasionally ask to go to time out without being requested.

Chris's mother appeared to have noticed the most significant changes as compared to the other parents interviewed. She stated Chris had learned techniques for

controlling his anger and responding to authority figures in an appropriate manner. She was used to daily problems with Chris, but now rarely experiences serious confrontations with him. Negative phone calls from Chris's daycare facility had all but disappeared during the course of the school year.

During the past school year she had not received any phone calls to take Chris home for serious misbehavior. During the previous two years at the pilot school, she was called on a regular basis for his behavior problems. She stated Chris had become more truthful with both parents. She said other family members, especially an aunt who never had anything positive to say about Chris, have noted significant changes in his behavior.

Student Interviews

(April & May, 1993). Mark was the only student who was not available for an interview during the last two months of school. Due to conflicting schedules and Mark's shortened school day, the researcher was not able to arrange an interview session. The other students were interviewed during the last two months of school.

Each student displayed appropriate knowledge of his/her responsibilities within the pilot program. One

by one the students were able to explain their duties throughout the day. As a whole, the students expressed more interest in animal-related projects but also stated they liked the horticulture activities with Ms. King.

Joe stated, "I like P.J. and Dibbs the best because they let me pet them and hold them when I'm mad." He continued by saying, " I think the best thing about going into the greenhouse is looking for bugs." Erin stated, "I like to tell Dibbs to sit and stay the best, but I like to take plants home to my father, too."

Paul made an insightful comment about the calming effects of the dogs in his classroom. He said, "When Dibbs is in the classroom and I'm frustrated, I usually pet her when she's right next to my desk to calm me down some." Paul displayed an excellent understanding of techniques used in his horticulture activities. It was obvious from listening to his comments that he had learned a great deal from working with Ms. King.

Chris was anxious to tell the researcher that his mainstream teacher had given him a model plane as a reward for "having very good behavior, helping kids, doing good things and being the best classmate in her class." He grinned from ear to ear when sharing this and was very proud of his accomplishment. He said he liked

the greenhouse and dogs "so much." "What is so neat, he said, is that I just don't know how a tiny seed can make such a big plant."

Chris talked extensively about his visitation to the nursing home. He was particularly talkative when describing how he gave his DARE bracelet to an elderly resident. He stated the woman did not want to let go of his hand because, "she hasn't seen a child in a long time. I was thinking, I wish these people weren't like this--hurt and stuff."

Chris stated it made him feel happy when he was with one of the dogs in the program. "I just love to play with them more than anything. Every time I pet them, it reminds me of my dog, Lady, that died."

When asked if he had noticed any changes in himself, Chris replied, "Last year my second grade teacher was always making me mad. I hated last year. I was always sent to the office and had to go home. Now, I don't fight. This year I haven't ever had to go home. If I'm real mad, I'll go to the bags (bean bags) and if P.J. is in the room, he'll know to come to the bags and lay down by me."

Mary had been back in the pilot program (after being hospitalized) for approximately one month prior to her

interview. She said she enjoyed walking the dogs around the school track and stated her favorite thing was holding P.J. or Dibbs in her lap. She said, "everytime I walk the dogs around the track, other kids come up and say, 'Mary, can I pet the dog?'" She did not think as many children would approach her and begin a conversation if she did not have the dogs with her.

Mary talked extensively about her bean plants in the greenhouse. She discussed in detail how the bean plant's growth is charted each week. Mary asked the researcher numerous questions about upcoming plans for the outdoor garden and seemed anxious to begin taking vegetables home to her mother.

Interviews with the other children produced similar comments. Each child spoke excitedly about various projects they had worked on during the school year. The older children exhibited more insight into changes in their own behavior while the younger ones simply thought it was "neat" to work with plants and dogs in the classroom.

CHAPTER VI

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Discussion

The purpose of this study was to provide the reader with an indepth understanding of the process involved in designing and implementing a horticulture/animal-assisted therapy program for seriously emotionally disturbed elementary school children. Another goal of the study was to provide a rich, descriptive analysis of the impact a horticulture therapy and animal-assisted therapy program has on this population of children.

Every individual involved in this unique program believed that the integration of horticulture and animal-assisted therapy activities into the daily routines of SED children was a positive and beneficial experience. The building principal stated on numerous occasions that the 1992-93 school year was the least problematic of any in memory for her SED program. The teacher and aide, although challenged by the rigors of implementing this program, stated the children were the best behaved they had ever worked with in an SED

classroom. Parents of participating children were more complimentary and involved during the 1992-93 school year than at any time in this researcher's memory.

It is impossible with the type of study conducted to determine a causal relationship between the introduction of horticulture/animal-assisted therapy techniques and improved behavior, classroom responsibility, and emotional well-being. It is possible to state, however, that the majority of students exhibited an unusually high level of appropriate behavior throughout the school term. Student interaction, when around their dogs, was typically calm and conducive toward work completion and/or solving personal problems. It is the researcher and staff's opinion that a daily behavior point rate of 90% throughout the school year is atypical for students with historical evidence of such severe emotional and behavioral problems.

Although more than half of the students who participated in the study exhibited a decline on the Depression, Anxiety, Psychoses, Somatic, Intellectual Screening and Family subscales of the PIC, most were not significant when the standard error of measurement for the instrument was considered. Once the SEM was considered, 86% of the students exhibited significant

declines on the Depression subscale while 57% showed significant declines on the Family subscale. Forty-three (43) percent of the students displayed significant declines on the Psychoses, Anxiety, Withdrawal and Achievement subscales. Only the Hyperactivity and Social Skills subscales reported a majority (57%) of students increasing in severity level. Over 50% of the students' scores showed no significant difference from pretest to posttest on the Intellectual Screening, Developmental, Somatic and Anxiety subscales. Chris, Paul and Cody exhibited the highest percentage of significantly lower subtest scores, averaging 58%, 50% and 50%, respectively. The only student who was close to having a majority of higher scores on the posttest was Mary with 50%.

The most stringent standard error of measurement figures reported by Wirt et. al (1984) were used to determine significant differences from pre to posttests. Utilizing either the Michigan Normal Sample or the Pennsylvania Normal Sample provided by Wirt et. al., the researcher could have noted several additional PIC subscales that declined from pre to posttest. The average interval from pre to posttest used by Wirt et. al. (1984) to determine test-retest reliability on the preadolescent sample was only 15.2 days. It is quite

possible that the SEM figures he utilized would have been significantly different if a longer test-retest interval was used.

It is important to note that Mary experienced the most significant decline on posttest scores. Of all students who were available for posttest with the PIC, Mary experienced the highest absentee rate. It is the researcher's opinion that Mary's high number of absences adversely affected the amount of positive changes perceived by her mother.

Students generally presented themselves as being in a happier mood at the end of the day as compared to the beginning. Many students maintained an extremely high percentage of Face A responses, both morning and afternoon. The researcher believes the calm and soothing environment created through the introduction of plants and animals into the students' classroom experience was a contributing factor in them feeling safe and "happy" about being in school.

The in-class work completion rate was consistently high (86% average) with completion rates in Reading, Social Studies and Science actually improving during the second half of the school year. Typically, work completion tends to decline as the school year

progresses.

Attendance rates for the children remained at 91% or above for the school year. It is very possible that the class attendance average would have remained higher than the school average if not for the unusually high absentee rate of 2-3 students during the third and fourth quarters of the school term.

Student grades were considered excellent during the course of the year. With the exception of Mark, each student continued to become more "consistent" in his/her study skills. The majority of students maintained an 'A' or 'B' average during the year.

As a class, measures of self-concept were rated lower by the teacher and by students on self-report instruments. Although three students (Robin, Erin, and Chris) made improvements on the posttest of the Piers-Harris, four others exhibited declines (Mary, Joe, Paul, and Mark). The standard error of measurement for total scores (4.39) as well as individual subscales (1.06-1.49) suggests that neither the increases or decreases are of a significant nature. Piers (1984) states a difference of individual scores that is significant at the .05 level would require a change of almost twice the standard error of measurement (i.e., a

change of over 8 score points). He recommends that individual changes in scores of less than 10 points be ignored.

It is the researcher's opinion that, other than Paul, the other three students are generally more oppositional than the three who displayed self-concept gains. Piers (1984) states that his scale is not recommended for use with youngsters who are overtly hostile, uncooperative, uncommunicative or prone to distortions. It is possible that any of these factors may have come into play at the time the class completed these self-report instruments. As mentioned in chapter IV, self-concept may be less stable among younger children whose sense of self is still under development. It is also possible that low test-retest reliability in lower age ranges may be partially due to the instability of the underlying construct rather than measurement error.

The teacher's lower posttest scores on the Behavior Evaluation Scale was surprising to this researcher. Although most student scores continued to fall within the normal range, their decline over a period of time may be related to a honeymoon period through the first month of school during which the first BES was completed. As the

teacher became more familiar with each student, and they with her, their behavioral and emotional deficits may have become more recognizable.

It is possible that any of the posttest measures administered near the end of the school year may have been affected by student and staff anticipation of the upcoming summer break, fatigue and/or disinterest.

Student achievement, as typically measured through district policy utilizing the KTEA, was only available for five of the ten students. Of these five, an average gain of 1 year, 4 months was noted in Reading. An average improvement of 1 year in Math was recorded. Spelling, which is typically a difficult area for these children, remained at predictable levels with an average gain of 4.5 months. SED students typically do not experience up to a year or more gain in academic areas of Reading and Math due to the severity of their emotional difficulties.

Teacher and aide comments during interview sessions were very positive. Other than feeling overwhelmed and occasionally pushed too hard by the researcher to integrate pilot goals into her daily curriculum, the teacher was very positive about the program. She described overall improvements in student responsibility

and was particularly impressed with behavioral changes in Joe and Chris. The teacher stated that faculty attitudes toward her program had become more positive as teachers became more aware of her program's goals and the manner in which the project was funded. The aide in the program was the driving force behind implementation of many of the horticulture and animal-assisted activities. She felt comfortable in that role but voiced concern over the direction the program would take without her involvement.

The building principal was very complimentary of the program and felt she had been personally able to develop more positive contacts with the SED students since the program was implemented. She stated less of her time had been spent on discipline issues and she felt the anxiety level of the students had declined. The principal agreed with the teacher that students in the program appeared more responsible than in past years. She was very interested in continuing to integrate more regular education students into the SED room to work on plant and animal-related projects. She believed the student body's perception of the SED room had completely changed, with students wanting to visit the room. In past years, most students did not want to be associated with the SED program or its students.

Although not all parents were able to be interviewed, several noted positive changes in their child's responsibility at home. Others spoke of lowered anxiety levels, improved self-confidence, and significant reductions in negative phone calls from school.

Limitations

This study was not designed to include experimental and control groups. It utilized an ethnographic model to provide an indepth view of the design, implementation, and daily activities of seriously emotionally disturbed children exposed to horticulture and animal-assisted therapy activities. The pre and posttest results gathered from this small sample cannot be generalized to other populations. Results may also be different for students of different geographic, socioeconomic, and ethnic backgrounds. Similar pre and posttesting and baseline data was not collected on the SED program prior to the implementation of the pilot program. Although past anecdotal records are to the contrary, it is possible that similar gains have been made in previous years and would have continued without the introduction of the horticulture therapy and animal-assisted therapy

activities.

The small sample included in this study made it possible for one or two students to skew the class-wide results in either a positive or negative direction. This occurred when analyzing attendance figures and may have also been a factor in other areas. The small sample was also adversely affected by students enrolling in the program late in the school year. Consequently, they did not receive the full benefit of the program, and their posttest results may have adversely affected the groups' total scores.

Conclusions

After thoroughly reviewing the events that transpired during the past two years, this researcher feels confident in stating the horticulture and animal-assisted therapy program was successful.

The ability to see a project from inception to completion was gratifying. Simply put, the goal of the project was to introduce animal-assisted and horticulture therapy projects into the daily curriculum for SED students and observe what occurred. The level of positive daily behavior obtained by the class as a whole

exceeded this researcher's expectations. Although the number of students sampled was relatively low, the gains recorded in basic reading and math skills were unusually high for this type of program. Work completion rates in most academic subjects remained high and actually improved in several areas as the year progressed. Quantitative and detailed measurements of various personality traits, as measured by the Personality Inventory for Children-Revised, were positive and indicated class-wide improvement in a number of important areas. Grades remained high throughout the year and attendance, at times, exceeded the school average.

Throughout the course of the school year, this researcher observed a number of positive changes that were not documented by tests or other quantitative instruments. As the year progressed, students in the program became more and more recognized and were accepted by others throughout the school. When the students were noticed walking or training their dogs, other students began approaching them and talking to them about their animals. This served as a social lubricant that "broke the ice" for the SED students. Other students started seeing the SED students in a different light as they began bringing their dogs into other classrooms to

display their skills. The same occurred when students saw them working in the garden or when regular classes were invited to the greenhouse to participate in a planting activity with them.

Within the SED room more group cohesiveness was noticed than in years past. Although students continued to have interpersonal problems from time to time, it became apparent that a greater sense of sharing and comradery existed. It was not unusual to see older students helping younger ones feeding the dogs, holding the younger students in their laps during story time, or lifting them up to water plants in the greenhouse. In a similar vein, the older students began talking to each other in more respectful tones and did not raise their voices as often while in the classroom.

An important aspect that was observed involved several students' increased ability to nurture. Rather than continually being viewed as individuals who need help, students began to understand that other living things depended on them. In response to the researcher's question about "why" she enjoyed working in the greenhouse, Mary responded, "because my plants need me." "If I wasn't here to take care of them they would die."

Students in an SED program often view themselves as

victims. They have often been neglected, abused, and pushed from home to home. In this researcher's opinion, the students gradually began to feel empowered and started to experience the joy of giving. Students constantly questioned when they would be able to take various plants home. They were also excited during special occasions such as teacher appreciation day since this gave them an opportunity to grow plants to give to teachers throughout the school. Students also benefited from their gift of time at and exposure to nursing home residents during the year.

Another positive aspect of this two-year journey has been the tremendous community support for this project. Individuals, small businesses, and large corporations have unselfishly provided their time, expertise, and money to support this program. The school district is known for supporting innovative special education programs and should be commended for supporting a proactive approach toward addressing the emotional needs of its elementary school children.

Areas of concern that arose from this project were few but should be noted. First and foremost, it is important that whoever teaches in the program should be in philosophical agreement with the program's goals. The

teacher in this program was not one who believed in "affective education first" and had more of a traditional academic orientation. Although considered successful, the program may have achieved higher goals if the teacher viewed the animal-assisted and horticulture therapy activities as classroom priorities rather than daily departures from traditional curriculum goals.

It is also important for the supervisor of such a program to be able to explain, motivate, and excite the staff about the possibilities of such a venture. The researcher feels he was moderately successful in this area, but realizes much energy was spent on developmental aspects of the program that could have been directed in other ways.

The teacher, aide, principal, and this researcher felt that student self-concept had improved over the course of the year. This was not quantitatively supported utilizing pre and posttests measurements of self-concept. Pre and posttest measures of five behavioral indices on the Behavioral Evaluation Scale did not correlate with data collected on daily point sheets, observations and anecdotal records. Other measurements in each area should be considered in future studies.

It is unrealistic for one person to undertake the

fundraising, development, implementation, and supervision of such a project. When one has other responsibilities within a school district, it becomes important to develop alliances and support prior to making such a substantial commitment of time. It is this researcher's hope that others who are interested in similar projects will build on the success and mistakes found within this body of research.

Recommendations

Instructor

It is extremely important to match the instructor to the program. When possible, locate an instructor that shares a similar vision and is as enthusiastic and energetic about the program as you are. Although this type of program can operate and be successful despite a "perfect match", it will never reach its full potential without it. Looking back, I developed a program and assumed that any teacher would be ecstatic to be involved in it. It was unrealistic on my part to assume that everyone would be as fanatical about my dream as I was. The instructor involved in the pilot program did an

excellent job in the more traditional aspects of this program (i.e., behavior management, affective education and academic curriculum). I am hopeful that her comfort level with regard to horticulture and animal-assisted therapy activities will increase as the program evolves.

Curriculum

There are several packaged curriculums available that relate to horticulture activities for children and humane education activities. Instructors who are uncomfortable if a "packaged curriculum" is not available, may be uneasy attempting to develop animal-assisted activities for their program. While horticultural activities are fairly common and can be adapted to the emotional needs of the children in the classroom, it takes an instructor with enthusiasm and creativity to improvise with what few packaged activities are available and to devise others throughout the year.

Time requirements. The process of designing, fund-raising, supervising, and participation in this project was extremely demanding and required this researcher to wear many different hats. It is important

for anyone contemplating such a venture to be provided time, as my supervisor did, to design, implement, and supervise the program properly. If possible, have one designated person coordinate the gardening and animal-related activities.

Funding. There are numerous ways to provide funding for a similar project. Depending on the scope of the project, a combination of large and small funding sources may be necessary. Sources to be considered are listed below:

- (1) Community foundations
- (2) Public school foundations
- (3) Community service clubs
- (4) Local businesses and corporations
- (5) State Department of Education
- (6) U.S. Department of Education
- (7) School PTA
- (8) School/class fund-raisers

Keep a complete record of all donations and grants received. Send thank you notes, letters or cards from the school children as well as from the school superintendent's office. Also consider designing or purchasing a plaque that recognizes contributors as well

as extensive volunteer services. Locate the plaque in an area where visitors to the school will notice it.

Location of Facility. From an esthetic, public relations, and safety standpoint, it is preferable to locate the facility in an area of high visibility to all students and their parents. There are obvious limitations. The design of each building and space available will, in many instances, dictate the location of the facility. If possible, attempt to locate the outdoor garden, aquatic garden, and greenhouse with a South, West, or East exposure. A North exposure should be avoided if at all possible. Large trees that may provide too much shade and constitute considerable clean up in the Fall should be avoided. Several small trees are needed to provide adequate shade for any animals involved in the program. Convenient water and electrical hook-ups should be available.

The location of the facility will help ease concerns about vandalism. Security lights are also appropriate. The most important aspect, however, involves the children's ownership in the project. If the entire school feels the project is important and is allowed to participate in some way, fewer acts of vandalism are

likely to occur.

Parent and Community

Involvement. Consider developing an advisory committee of experts and volunteers. They can help advise on technical matters and locate materials and supplies. Develop a strong network of community support during the development stage of your project and continue this link after the program is operational. Important contacts include area veterinarians, pet store owners, pet food distributors, horticulturists/nurseries, farmer's co-op, dog training clubs, SPCA, landscape architects, greenhouse/solarium distributors, and owners of fencing companies. It is also important to maintain a good working relationship with the school district's plant operations, maintenance, and purchasing departments. Larger districts may be capable of providing some of the labor involved in the project. Initiate contacts with local colleges and university intern programs. Determine if interns can earn credits through participation in your program. Contact local cooperative extension services. Master Gardeners must provide a certain number of community service hours and may be willing to participate in your program. Encourage

publicity about your program during the planning stages and after it becomes operational. Contact local television and newspaper sources to keep them abreast of your activities. Invite the School Board, Superintendent, and all contributors of funds and services to an Open House to showcase your facility.

Thoroughly document the evolution of your program. A complete record supported through photographs, scrapbooks and videotapes help to explain your program to potential donors and volunteers. These resources are also invaluable when speaking or setting up exhibits at conferences or professional organization meetings.

Summer Maintenance. A big obstacle for schools involves maintenance during summer vacations. Although individual teachers or other staff members may attempt to care for the garden and dogs during the summer, they often lose their momentum if not compensated in some way. One alternative is to connect the program with the school district's summer school or extended school year program. In this manner horticulture and animal activities can be integrated into students' summer school curriculum. Students and teachers are responsible for the upkeep of the facility. Another possibility includes

linking the use of the facility with that of community education classes. This would lend itself most easily to gardening related classes, but could also include courses on basic animal care and dog obedience classes.

Recommendations for

Further Research. (1) Further research utilizing experimental and control groups of SED students is warranted. An experimental design would safeguard against a possible Hawthorne Effect.

(2) Additional research in this area would be advised to collect several years of baseline data from an SED site prior to implementing a similar pilot program.

(3) Future research should focus on the separate effects of animal-assisted therapy versus horticulture therapy in the classroom.

(4) The amount of time each student actually spends on specific horticulture and/or animal-assisted therapy activities should be documented and compared when analyzing behavioral, emotional, and academic gains.

(5) Age and gender differences should be examined in future studies.

(6) The number of students and the severity of their emotional problems should be considered in future

research.

(7) The amount of time the teacher, versus an aide or other volunteers, spends in direct instruction with the students is an important factor to be considered in other studies.

(8) The number of years a teacher and/or aide has had working with seriously emotionally disturbed students may influence student gains and should be explored further.

(9) The teacher's philosophy (affective vs. academic) is of extreme importance and should be analyzed in future works.

(10) Similar research should consider implementing a mid-program assessment in addition to pre and posttests. A mid-program assessment utilizing objective measurements would help to define the point at which declines or gains in behavior, self-concept, and academics had occurred.

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- Veevers, J.E. (1985). The social meaning of pets: alternative roles for companion animals. Marriage and Family Review, 8, 11-12.
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APPENDIXES

APPENDIX A
ESTIMATE OF EXPENDITURES

ESTIMATE OF EXPENDITURES

1.	Solarium.....	\$20,369.00
	a. Installation of sliding doors	
	b. 3, 2x8' greenhouse tables	
	c. 1, wire mesh growing ledge	
	d. 16, hanging basket hooks	
	e. Evaporative cooler	
	f. Exterior shade cloth	
	g. CoMingler air circulator	
	h. Electric heater	
	i. Labor	
2.	3-tier Flora Cart grow stand w/auto timer and grow light tubes.....	\$499.00
3.	Plumbing for solarium drain.....	\$300.00
4.	Horticulture supplies.....	\$588.89
5.	Fencing for dogs (dog run and enclosure)...	\$1,239.09
6.	Materials for movable work bench.....	\$202.44
7.	Cement pad for dog run.....	\$48.75
8.	Materials for enclosed dog house.....	\$87.31
9.	Dog supplies.....	\$522.09
10.	Training stipends and curriculum development.....	\$10,000.00
11.	Miscellaneous supplies.....	\$283.67
	TOTAL.....	\$34,140.45

APPENDIX B
CONSTRUCTION SCHEDULE

PROPOSED SCHEDULE

Begin Working Drawings	December 16th
Christmas	December 25th
School Break	December 23rd to January 6
Meeting to Review Plans	January 6, 1992
Mail Notice to Elmer Pense	January 7, 1992
Plans to State Department of Education--City Planner	January 7, 1992
Plans Ready for Contractors	January 10, 1992
Advertise	January 16, 1992
Open Bids	Thursday, 3 p.m. January 30, 1992
Approve Bids	February 3, 1992
Start Construction	February 28, 1992
Spring Break	March 23-27, 1992
Complete Construction	April 28, 1992
Submitted to Board of Education December 16, 1991	

APPENDIX C
NEWS ARTICLES

Some Students to Study Pots and Plants

By Marla Taylor
World Correspondent

Pets and plants are to become part of the curriculum for students with emotional problems.

Dr. Gary Gerber, director of special services

and school psychologist Gary Chronister have been given the go-ahead for a pilot program which will combine horticulture therapy and animal therapy to help students who are in classes for the emotionally disturbed.

Plant and animal therapies have been used in clinical settings in recent years with positive results, said Gerber.

Results include a reduction in behavioral outbursts, lowered anxiety levels, increased socialization, improved self-esteem, an increase in work productivity and development of a sense of responsibility, said Chronister.

"The program is designed to help the students become more

caring individuals, to help them relax and to help them form attachments," said Gerber.

The pilot program is scheduled to begin next fall

But first, a small greenhouse and an animal care area must be constructed at the school.

The school board authorized a construction schedule and accepted a \$17,000 gift from the Founders of Doctors' Hospital to help

cover the costs of the construction.

Shadow Mountain Institute has pledged \$1,000 toward the project and Gerber said several other foundations have been solicited for financial assistance.

"The great thing about this program is that we plan to pay for it completely with foundation grants and other donations. No money will come from the school district's general fund," said Gerber.

Local veterinarians, horticulturists, recreational therapists, greenhouse managers, pet store owners and the coordinator of a pet visitation program have offered assistance with the program. And the president of the Bil Jac dog food company has offered a year's supply of dog food, said Chronister.

The program is not only a pilot program for

It is also the first of its kind in the nation, said Chronister.

The program has been used in elementary school settings that are affiliated with another institution or university. But to the best of his knowledge, he said, plan is the first in a public school. If it is successful it will be expanded to the middle school and high school classes, he said.



World photo by Marla Taylor

Dr. Gary Gerber and school psychologist Gary Chronister discuss plans for the new horticulture-animal therapy facility

Plants, pets aiding students

Disturbed children in program

By DANTE ANG
The Tribune

Officials are using dogs and plants to help emotionally disturbed pupils overcome their problems.

Debbi is a special-education teacher

where six pupils from kindergarten to fifth grade are enrolled in the animals and horticulture project.

The project, a pilot program this school year, entails using plants and dogs to help children feel more serene and calm enough to work with other children and be less disruptive in class. Debbi who has been a special-education teacher for 10 years, said she already notices a positive effect in at least one pupil.

A girl has become attached to one of the dogs in class, following it around and giving it bones, she said.

The pupil benefits from acting motherly, Debbi said. The girl's caring for the dog has caused the dog to respond with affection, she said.

The children also care for plants, watering them and watching them grow, she said.

"They have a chance to nurture and see some of the positive (outcome)," Debbi said.

"It gives them a sense of responsibility," she said.

The program also is designed to help the children better cope with other pupils, she said.

Children with emotional problems have difficulty building relationships with others, she said.

Gary Chronister, the school psychologist who created the program, said he saw a difference last week, when he walked into the classroom and noticed the children working together, sharing tools and materials.

The program will be evaluated at the end of the school year, and success will be determined by showing whether the project helped decrease absences and foster an ability to work with others.

Teachers keep a daily record of the child's development that will be used in the year-end evaluation, he said.

The project, which took two

years to research and prepare, is unique, he said, adding that, "As far as I can tell, this is the first of its kind in a school setting anywhere."

He talked to about 100 people across the country and attended the International Conference of Animal Therapy in Canada earlier this year.

Through interviews and research, Chronister said he found that when animals interact with older people, "acts of aggression were noticeably reduced."

Studies have shown that when people speak to animals, their blood pressure goes down, Chronister said. "When we speak with other people, our blood pressure typically rises."

Furthermore, he said he hopes the animals will give the children with emotional problems a sense of responsibility and boost their self-esteem.

The dogs have to be fed, walked and trained, he said.

Plants seem to have similar therapeutic effects, he said, adding that a program like A New Leaf Inc. for physically and mentally handicapped clients, enlists horticulture.

If successful, the animal and horticulture project will be adopt-

ed at Northeast Elementary, Sequoyah Middle School, Haskell Middle School, South Intermediate High School and

Senior High School, Chronister said.

Funding for the program comes from private donations and state grants, which total about \$39,000, he said.

Many in the community have been lending support, including four veterinarians who are caring for the animals at no charge, he said.

Veterinarians alone have probably contributed services worth at least \$500 for shots and other treatments, Chronister said.

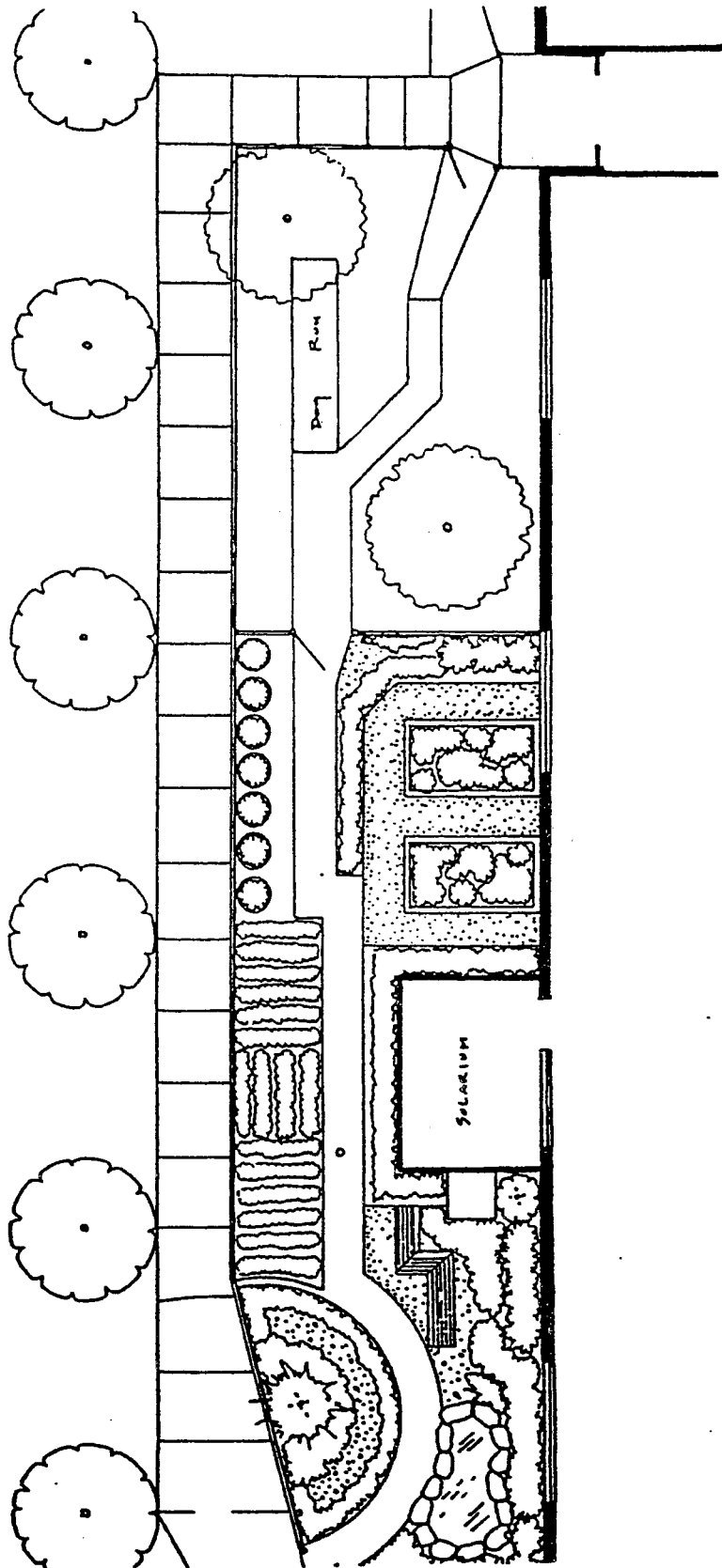
The dogs came from the Society for the Prevention of Cruelty to Animals, to which they will be returned at the end of the school year, he said.

The dogs, professionally trained in order to be manageable in the classroom, will have a higher chance of adoption through the SPCA after training, he said.

If the program continues next year, new dogs will be borrowed from the SPCA, he said.

The special classroom features a small greenhouse, and an outdoor garden is under development.

APPENDIX D
LANDSCAPE DESIGN



APPENDIX E
LANDSCAPE SPECIFICATIONS

SPECIFICATIONS FOR LANDSCAPING PROJECT
AT PILOT SCHOOL SITE

- Item No. 1: Specifications for Concrete Walks
- A. Bid to include all materials and labor.
 - B. Concrete to be a minimum of 4".
 - C. 3/8 rebar is to be installed at approximately 18".
- Item No. 2: Specifications for water-feature
- A. Size and shape according to drawing.
 - B. Depth to be 24-30".
 - C. Liner to be Little Giant Model PL-1620 20 mil PVC pond liner, 16'x 20'. Recommended for a finished pond size of 12'x 16'. Approximately 2,155 gallons of water.
 - D. Pool to be edged with Hackett Stone (24-30" diameter) with mortar between the stone and 2" under.
 - E. Pump: Little Giant, Dual purpose, 1/2" FNPT intake and 1/2" MNPT discharge ports. Polypropylene screen. Viton seal, Nylon volute and impeller. Thermally protected.
 - F. Power cord: Little Giant Model 3E-12R U/L listed 6' power cord.
 - G. Nozzle: Little Giant nozzle, Model FH-1170 with spray height of 3".
 - H. Pump Partner Filter Box: Little Giant Model FBK. Kit includes polypropylene filter box, removable monofilament filter pad, and two adapters. Unit is adaptable to six pump models. This compact box is easily removed from pond installation for quick and convenient cleaning away from the pond, protecting its clean water. Use of this filter box keeps pond water clear, saving wear on the pump, and preventing blockage of fountain jets.
- Item No. 3: Specifications for bench
- A. Bench to be constructed of 2 x 4 redwood set on edge with 1 x 4 redwood spacers between boards. Legs constructed of 4 x 4 redwood set in cement to a depth of 18".

- Item No. 4: Specifications for steel edging
- A. Steel edging is to be Ryerson Steel or approved equal.
 - B. Steel edging is to be installed between beds and expanded shale pathways.
- Item No. 5: Specifications for planters
- A. Planters are to be constructed of treated landscape timbers according to size indicated on drawing.
 - B. Planters are to be 24" high with a 2 x 6" treated cap.
 - C. Planters are to be lined with filter fabric and filled with topsoil.
- Item No. 6: Specifications for whiskey barrels
- A. Planters are to be standard whiskey barrels cut in half.
 - B. Planters are to be set according to plans and filled with topsoil.
- Item No. 7: Specifications for shale pathways
- A. Shale material shall be expanded shale available at Chandler Materials.
 - B. All shale pathways are to be layed out according to plans.
 - C. Filter fabric is to be placed under shale.
 - D. 2" of shale shall be top-dressed over all path areas.
- Item No. 8: Specification for site preparation and order of construction
- A. All bed areas are to be sprayed with Round-Up 8 days before work is to begin.
 - B. Transplant pine tree to desired location.
 - C. Sod is to be stripped.
 - D. Walks, water feature, shale paths, and planters to be installed.
 - E. Beds to be prepared and planted according to specifications.
 - F. Mulch to be top-dressed over all bed areas.
- Item No. 9: Specifications for bed preparation
- A. All bed areas to be top-dressed with peat moss and Back To Earth and rototilled to a depth of 6".

- B. All garden beds are to be top-dressed with peat moss and Back To Earth and rototilled to a depth of 6".
- C. All planters are to be filled within 6" of the top with sandy loam and top-dressed with peat moss and Back To Earth and hand tilled into the soil.

Item No. 10: Specifications for planting instructions

- A. All plants are to be carefully handled to insure no damage to root balls.
- B. Plants are to be installed and back filled with the top of root ball slightly above to even with grade.
- C. Plants are to be watered in and loose back fill compacted to remove air pockets.
- D. Transplanted pine tree is to be hand dug with a 30" ball and moved to location approved by school.
- E. All landscape beds are to be mulched with cedar mulch 2" deep.

Item No. 11: Specifications for clean-up of site.

- A. Contractor will be responsible for on-site clean-up at the end of each work day.
- B. All potentially dangerous materials will be secured and kept away from playground areas and walkways.
- C. Left over work-related materials will be removed from the site at the completion of the project.

Item No. 12: Specifications for Guarantee

- A. All plantings installed by contractor shall be guaranteed for 6 months.
- B. Any plant not showing proper growth within the guarantee period shall be replaced by the contractor at contractor's expense.
- C. No plants installed by owner will be guaranteed by the contractor.

APPENDIX F
CLASS GUIDELINES

Dear parents,

I am looking forward to a good school year and I am sure your child has much to contribute to my class. I believe all of my students have the right to learn and I have the right to teach. I believe all my students are capable of appropriate behavior in the school. In order to guarantee the best possible learning climate for all the students in my class, I am utilizing the following discipline plan.

My class rules:

1. Follow directions the first time they are given.
2. Keep hands, feet, and all objects to yourself.
3. Only one person may talk at a time. No disruption are allowed.
4. Have pencils, books, and papers at your desk ready to work.
5. Swearing, teasing, and put-downs, or obscene gestures are not allowed at any time.
6. Follow school building rules.

Everyone starts the day with 5 points.

1st occurrence--warning--initial--5

2nd occurrence--name--4

3rd occurrence--check--time out--3

4th occurrence--check--visit with principal--2

5th occurrence--check--phone parents--1

Final occurrence--send home--0

SEVERE BEHAVIOR--If at any time, a student's behavior is disruptive to the point learning has stopped or if he is a physical threat to himself or others, you will be immediately called to take your child home for the remainder of the day. If this behavior occurs after recess, your child will need to stay home the following day.

Students who choose to follow these rules will have an opportunity to earn special privileges and rewards such as free time, pop or popcorn parties, special time with the principal, movie afternoons, etc.

It is in your child's best interest that we work together to provide the best environment possible for his learning. I will be in close contact with you throughout the year regarding your child's progress. Feel free to contact me with any questions at 455-9060.

APPENDIX G
CURRICULUM AND RESOURCES

CURRICULUM MATERIALS

- Anonelli, M., Beck, A.M., Bennett, E., Bradley, E., Freeman, C.C., Fricke, S., Grippi, B., Detterer, D., & Sokoloff, H.J. (1991). Pets & Me: A thematic learning experience built on the relationship between people and animals. (Available from Pets & Me, 511 Harwood Bldg., Scarsdale, New York).
- Appel, G. & Jaffe, R. (1990). The growing classroom: Garden-based science. Menlo Park, CA: Addison-Wesley.
- Arkow, P. (undated). How to start a "pet therapy" program: A guidebook for health care professionals. (Available from The Latham Foundation, Latham Plaza bldg., Clement & Schiller street, Alameda, CA
- Daubert, J.R. & Rothert, E.A. (1981). Horticultural therapy at a psychiatric hospital. (Available from the Chicago Horticultural Society, Glencoe, IL 60022).
- Delta Society. (1992, March). Animals in the classroom: Preschool K-12. (Available from Delta Society, P.O. Box 1080, Renton, WA 98057-1080).
- Delta Society. (1992, May). Pet partners: Clinical applications of animal-assisted therapy workshop. (Available from Delta Society, P.O. Box 1080, Renton, WA 98057-1080).
- Delta Society. (1992, July). Handbook for animal-assisted activities and animal-assisted therapy. therapy. (Available from Delta Society, P.O. Box 1080, Renton, WA 98057-1080).
- Doty, W.L. (1990). A child's garden. (Available from William Doty, 490 Spring Grove Rd., Hollister, CA 95023).
- Mattson, R.H. (Ed.). (1986, June). Proceedings of interactive horticulture therapeutic horticulture short course. (Available from Department of Horticulture, Kansas State University, Manhattan, KS 66506).

- Morgan, B. (1989). Growing together: Activities to use in your horticulture and horticultural therapy programs. (Available from Pittsburgh Civic Garden Center, 1059 Shady Avenue, Pittsburgh, PA 15232).
- Ocone, L. & Pranis, E. (1990). Guide to kid's gardening: A complete guide for teachers, parents and youth leaders. New York: John Wiley & Sons, Inc.
- Palmer, J. (1987). A dog owner's guide to training your dog. Morris Plains, NJ: Tetras Press
- Shapiro, B. (undated). How does your garden grow? (Available from The Menninger Clinic, Box 829, Topeka, KS 66601-0829).
- Tidd, D.E. (1986). Breaking ground: A guide for school and youth gardening programs. (Available from San Francisco League of Urban Gardeners, 2088 Oakdale, San Francisco, CA 94124).

OTHER RESOURCES

- Arkow, P. (Ed.). (1987). The loving bond: Companion animals in the helping professions. Saratoga, CA: R & E Publishers, Inc.
- Edney, A. & Mugford, R. (1987). The practical guide to dog and puppy care. Morris Plains, NJ: Tetras Press.
- Nebbe, L.L. (1991). Nature as a guide: Using nature in counseling, therapy, and education. Minneapolis, MN: Educational Media Corp.
- Pfau, H. (1990). PAT at Huntington: A volunteer program of pet-assisted therapy, training manual. (Available from Huntington Memorial Hospital, Pasadena, CA)
- Putnam, C. (1991). Greenhouses: Planning, installing & using greenhouses. San Ramon, CA: Ortho Books, Chevron Chemical Co.
- Roth, S.A. (Ed.) (1987). Controlling lawn & garden insects. San Ramon, CA: Ortho Books, Chevron Chemical Co.
- Roth, S.A. (Ed.). (1988). Garden pools & fountains. San Ramon, CA: Ortho Books, Chevron Chemical Co.
- Smith, S. (1992). Greenhouse Gardener's companion. Golden, CO: Fulcrum Publishing.

APPENDIX H
PARENT RELEASE FORMS

PARENT PERMISSION FORM

STUDENT PARTICIPATION IN MEDIA COVERAGE

Date _____

I hereby grant permission for my child, _____
(Student name)
to participate in media coverage planned by area
newspapers, television stations and school district
documentation. I understand that the filming and/or
photographs may include views of my child which show
his/her face or otherwise make him/her identifiable to
others. Permission granted on this form is for this
particular occasion and does not preclude denial of
participation in future media coverage.

Signed:

Parent or Guardian

Current Date

Parental Consent Form

Your child's special education class will be the focus of an exciting and innovative pilot program during the 1992-93 school year. As many of you already know, horticulture therapy and animal-facilitative therapy will be included as an important part of the affective education curriculum in your child's school program.

I am asking for your help in analyzing the results of this project. I will be describing and analyzing changes in behavior, student interaction, and self-concept. I will be contacting you to complete a 420-item, true/false instrument called the Personality Inventory for Children (PIC). I will need one PIC completed at the beginning of the pilot program and another completed at the end. In addition, I would like to conduct a short interview with you toward the end of the project.

With your signed consent, your child's teacher will be asked to complete a Behavior Evaluation Scale and your child will complete a form that assesses his/her self concept. I will conduct a brief informal interview with your child to determine his/her feelings about this program. I will also conduct periodic interviews with other school personnel (i.e., Principal, Assistant Principal, Teacher, and aide) concerning their attitudes and experiences with this pilot program. All inventories, forms, etc. involved are ones currently being used by the school district for initial evaluations and three year re-evaluations.

The results of this study will be reported in a doctoral research study at Oklahoma State University. No state agency or other group is connected with this study. No personal information will be presented in reporting the results. Any identifying information regarding you, your child, his/her teacher or school will be kept confidential and will not be revealed in the research findings.

You have the right to request that your data not be used in the research project. You or your child may also make a request to discontinue your participation in the research project at any time, with no penalty, by contacting Gary Chronister at 258-5545 or Dr. Paul Warden at 1-405-744-6036. You may also contact University Research Services, 001 Life Sciences East, Oklahoma State University, Stillwater, OK 74078, 1-405-744-5700.

I have read and fully understand the consent form.
I sign it freely and voluntarily. A copy has been given
to me.

Date: _____
Time: _____ (a.m./p.m.)

Signed: _____
(Person authorized to sign for student)

"I certify that I have personally explained all elements
of this form to the student's representative before
requesting the representative to sign it."

Signed: _____
(Research director)

Sincerely,

Gary L. Chronister, NCSP
School Psychologist

APPENDIX I
OPEN HOUSE INVITATION
AND NEWS ARTICLES

*You are
cordially invited to attend
an Open House
in the
Horticulture/Animal Assistive Therapy Program
located on the campus of
Elementary School,
6801 South Third Street,*

*on the twenty-sixth of April,
nineteen hundred and ninety-three,
at 6:30 o'clock in the evening.*

RSVP to Linda , Phone 455-9060

Horticulture Therapy Settles Students

Chris is a different kid this school year. Everyone has noticed the difference - his teachers, his parents and even Chris himself.

Last year, when Chris was in second grade

he said he "got suspended all the time for fighting." This year Chris enjoys going to school and he said he doesn't get into fights.

He gives credit for the turnaround to his new classroom.

He's in horticulture-animal therapy classroom at And he said he loves it.

Chris has Attention Deficit Disorder or A.D.D. This makes it hard for him to focus on anything. He tends to want to go from one thing to another very quickly,

When he was younger, he was kicked out of several day care centers and one kindergarten, said Chris's father.

Even after he started school

Chris continued to have problems in the regular classroom setting, he said.

"He was always in trouble and we didn't know what to do with him," said

When Chris's second grade teacher suggested putting him in class for third grade, his father said he told her, "Yeah, we'll try anything."

classroom is set up like a regular classroom, but has extras that help the students learn about responsibility and how to control their behavior.

A greenhouse is attached to the classroom and the students have planted a garden and several flower beds inside a fenced area outside the classroom.

The students take care of the plants. They also have two dogs in their classroom that were rescued by the Society to Prevent Cruelty to Animals.



Chris right, tells School Board President Carl White about the flowers he planted in the garden outside Elementary School.

World staff photo by Marla Taylor

Chris said he loves to work in the garden and with the dogs. He spends more time outside at home now, too, said his father.

"Before, he never wanted to go outside," his father said. "He'd stay inside and play by himself. Now he likes to go out and play with the other kids."

said she's seen a change in Chris since the beginning of the school year, too. He's learned to monitor his own be-

havior because he knows if he gets his work done he can play with the dogs, she said.

In the past, the school principal, counselor or teachers were calling him two to three times a week about discipline problems, said Whittaker.

This year things are different. The number of calls has gone down dramatically.

"The last call was about something good."

APPENDIX J
DOGGIE DOLLAR



APPENDIX K
INTERVIEW FORMS

STUDENT FORM

Form E

Date _____
Respondent _____

1. What do you think about working with plants in the greenhouse?
2. What do you think about working with the dogs in this program?
3. What activity in the greenhouse is your favorite? Why?
4. What activity with the dogs is your favorite? Why?
5. What do you like least about working with the dogs?
6. What do you like least about working with the plants?
7. Have you ever had an animal at home? If so, what kind? Do you have an animal at home now? If so, what kind?
8. What do you do at home with your dog or pet? What responsibilities do you have at home with regard to your pet?
9. Do (does) your parent(s) garden at home? If so, are you involved? Do you enjoy gardening at home?
10. How do you feel when you are working with plants?
11. How do you feel when you are working with dogs?

TEACHER/AIDE FORM

Form F

Date _____
Respondent _____
Title _____

1. Please describe any positive benefits you feel have been derived from this program.
2. What changes in behavior, if any, have you observed in the students involved in this pilot program?
3. Please describe any feedback you have received from your students regarding the pilot program (either direct or indirect).
4. What have been the major difficulties you have experienced implementing this program?
5. Describe your students' general demeanor while involved in activities with plants and animals.
6. Do you notice any differences in student motivation depending on whether they are involved in plant or animal-related activities? Describe.
7. Describe the daily operation of your program. What responsibilities are divided between you, the aide/teacher and volunteers?
8. Please share any comments or concerns you have received from students' parents.
9. Compare your feelings now with those you were experiencing at the beginning of the program.
10. What reactions have you observed from your colleagues? Have these reactions changed since the beginning of the program?
11. Do you have an animal at home? If not, have you in the past? What kind?
12. Are you currently involved in gardening at home? If so, what kind? If not, have you in the past? Describe.
13. What aspect(s) of this program need(s) to be re-evaluated for the next school year?
14. Are there any other concerns, comments, or questions about the program you would like to share?

ADMINISTRATOR FORM

Form G

Date _____
Respondent _____
Title _____

1. How has this program affected you as a building administrator?
2. What have been the most difficult aspects of this program to administer?
3. Please describe any positive benefits derived from this program.
4. Describe the general reaction of your staff to this program.
5. What changes in behavior, if any, have you observed in the student involved in this pilot program?
6. What comments have you heard from other building administrators?
7. Please share any comments, concerns, etc. you have received from students' parents--both in and out of the pilot program.
8. Do you have other comments, questions, or concerns regarding this program you would like to share?

PARENT FORM

Form H

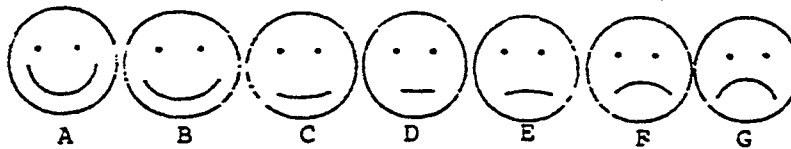
Date _____
Respondent _____

1. What comments has your child made to you regarding this program?
2. Have you visited the program? If so, what is your impression?
3. Did you have an animal when you were growing up? If so, what kind? Do you have a pet in the family currently? If so, what kind?
4. If you currently have an animal in the home, describe your child's interaction with it. What responsibilities, if any, does your child have with regard to your pet?
5. Were your parents involved in gardening when you were growing up? If so, were you involved in their gardening activities?
6. Do you garden now? To what extent is your child involved in your gardening activities?
7. Have you noticed any particular behavior changes in your child during the duration of this pilot program? If so, please describe.
8. Do you have any other comments, questions, or concerns regarding this program you would like to share?

APPENDIX L
HAPPY FACE FORMS

Directions: Please circle the letter or the face that best describes how you feel at this time.

Please complete one form at the beginning of each day and near the end of the school day.



Your Name _____

Today's Date _____

Morning or Afternoon? (Circle One)



Your Name _____

Today's Date _____

Morning or Afternoon? (Circle One)



Your Name _____

Today's Date _____

Morning or Afternoon? (Circle One)

APPENDIX M
POINT SHEET/STAMP CHART



DATE _____



OVERALL BEHAVIOR 5 4 3 2 1

FORM A



SUBJECT	COMPLETE	ASSIGNMENT	COMMENTS
AFFECTIVE EDUCATION			
READING			
ENGLISH			
SPELLING			
MATH			
SOC. ST.			
SCIENCE			
PENMANSHIP			



PARENT
SIGNATURE _____

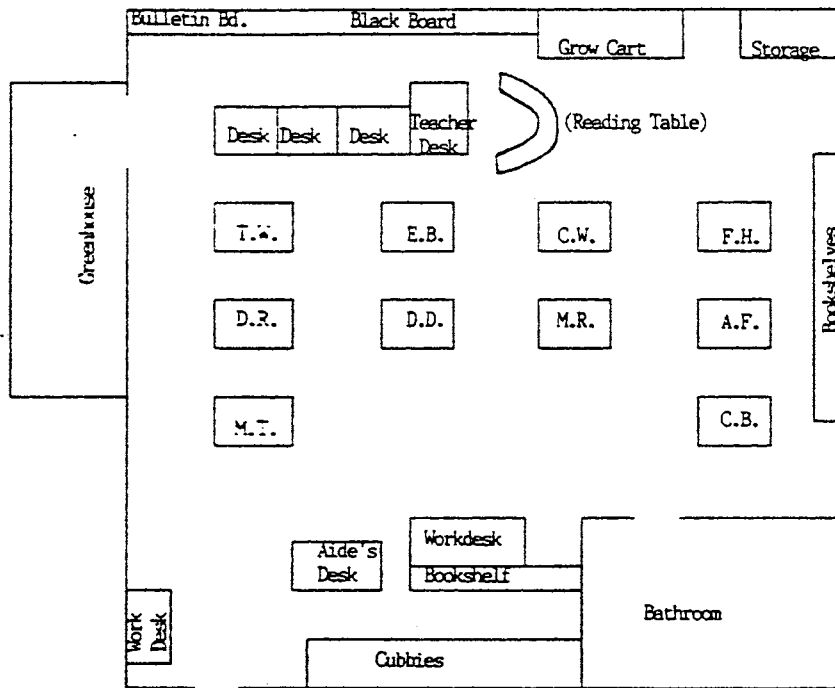


FORM B

M T W T F

Opening						
9:15 - 10:15						
10:15 - 11:15						
11:15 - 12:15						
Lunch						
Recess						
1:15 - 2:15						
2:15 - 3:15						
Reading						
English						
Math						
Social Studies						
Science						
All assignments						
Special class						
Bus line						

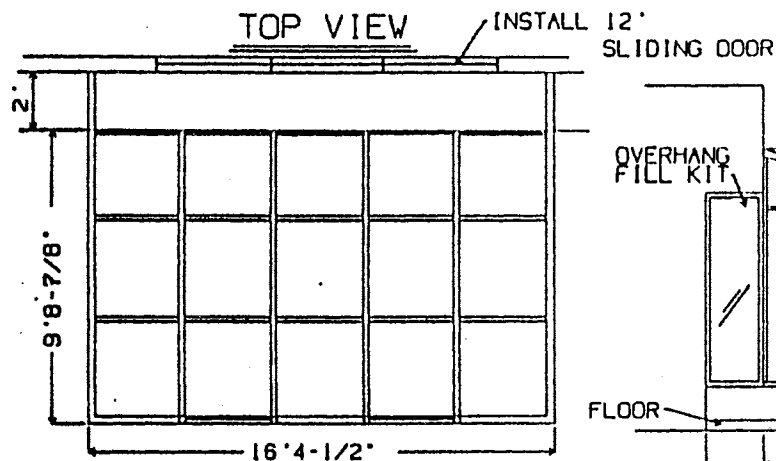
APPENDIX N
CLASSROOM DIAGRAM



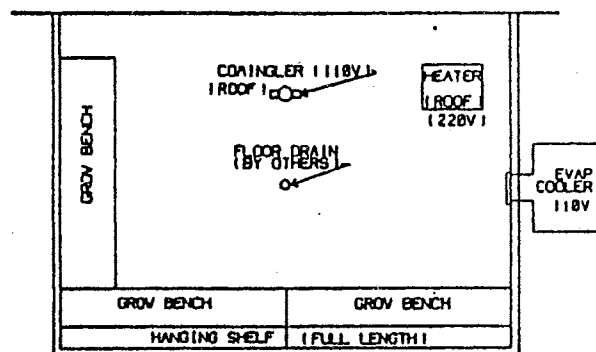
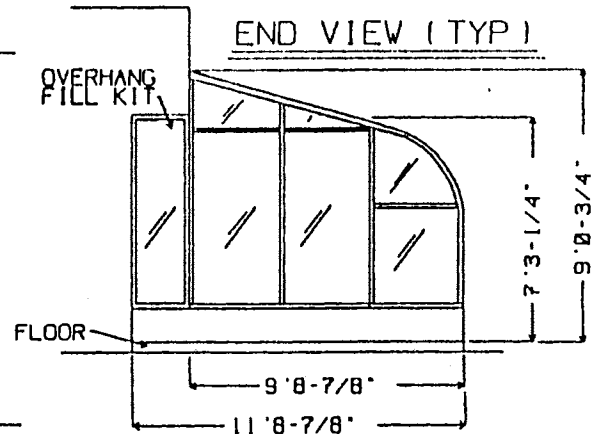
CLASSROOM

APPENDIX 0
GREENHOUSE DIAGRAM

#J910KW ON 18" KNEEWALL - OPTION #1915D



MR. CHRONISTER



ACCESSORY PLAN

OTHER ACCESSORIES NOT SHOWN:

- 1) ONE 63% EXTERIOR SHADE CLOTH, COVERS ROOF TO BOTTOM OF CURVE, BRONZE COLOR
- 2) FOUR HANGING HOOKS ON EACH REGULAR GLAZING BAR, IN THE ROOF, FOR A TOTAL OF 16 HANGING HOOKS
- 3) IN-LINE THERMOSTAT FOR COOLER, 110V

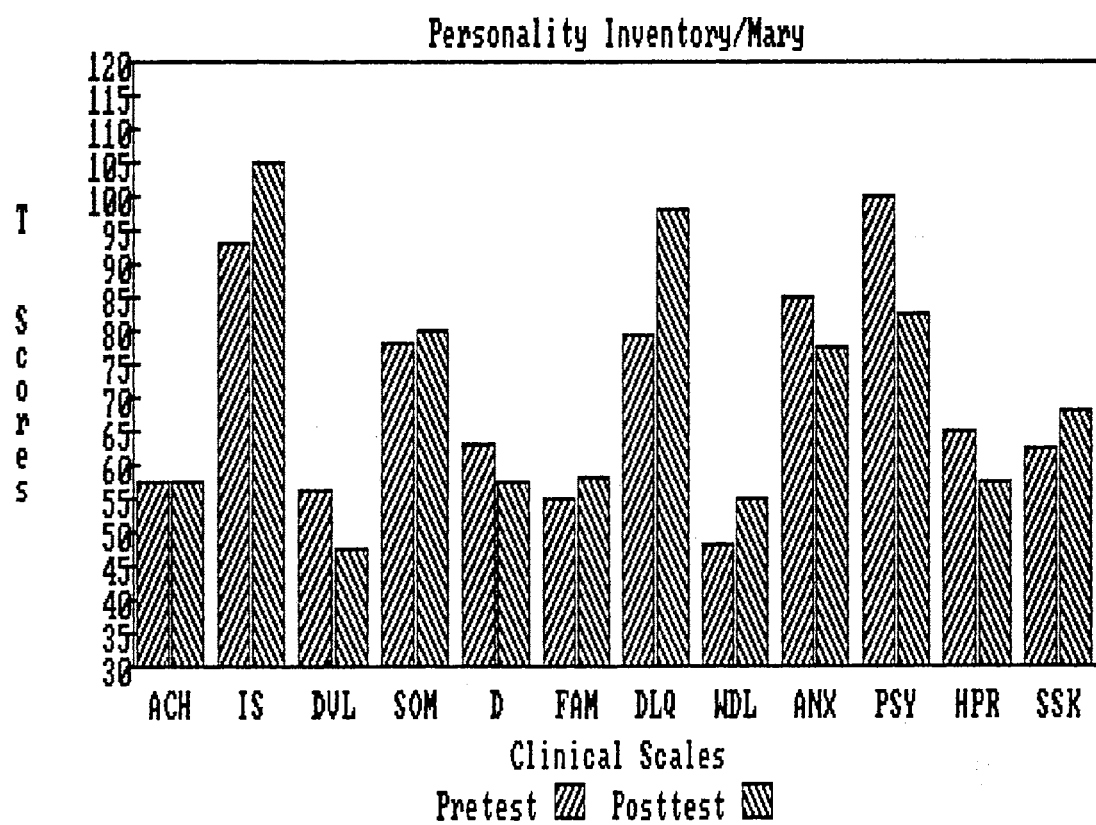
BROMACK CONSTRUCTION CO.
6554 E. 41ST STREET
74145

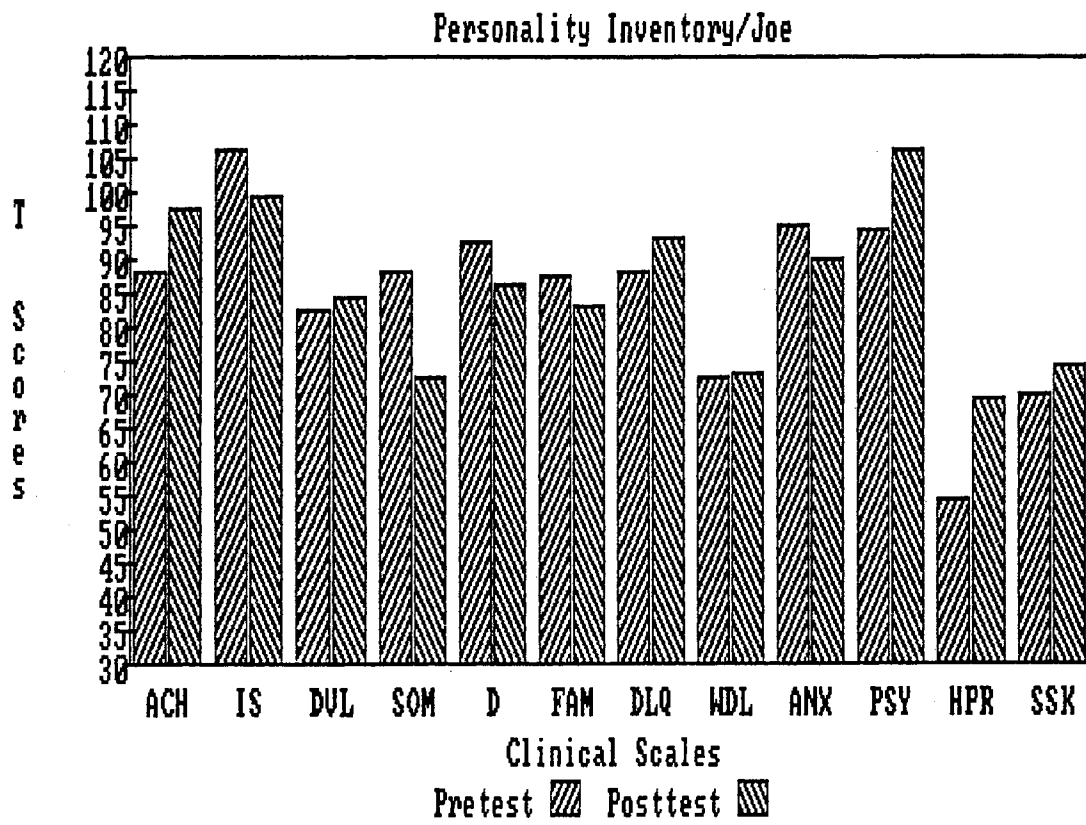
APPENDIX P
THERAPY GARDEN PLANT LIST

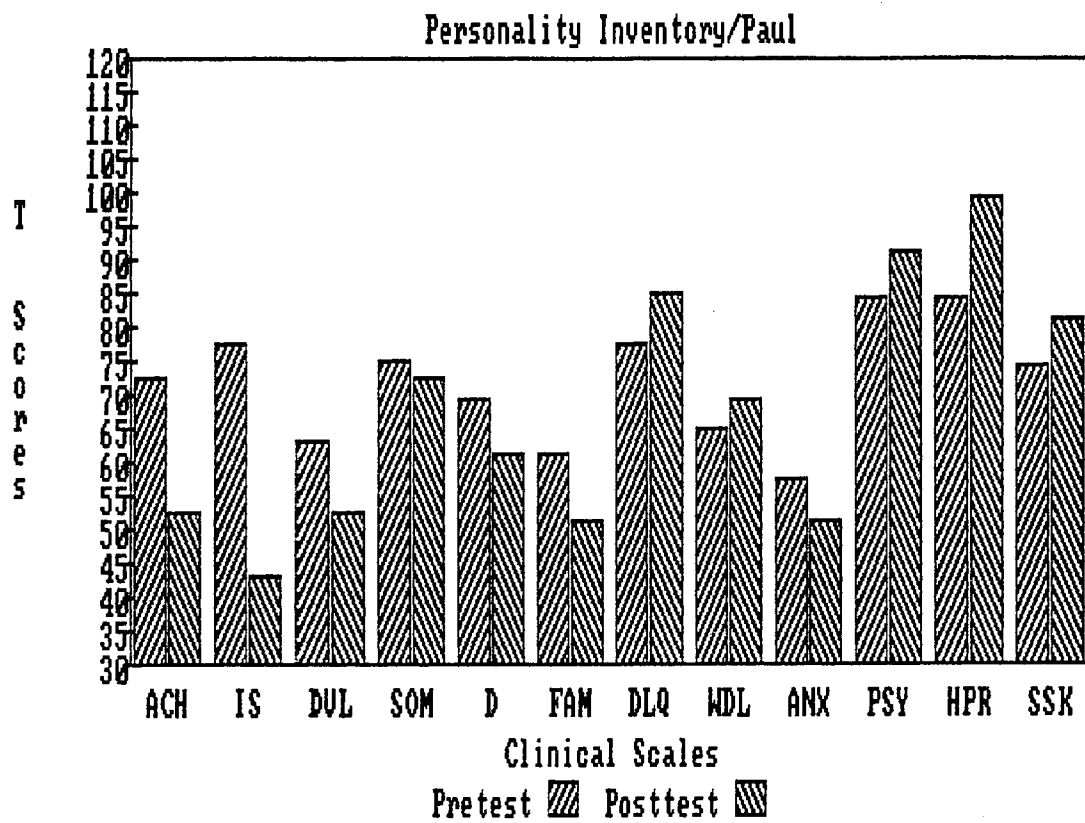
THERAPY GARDEN PLANT LIST

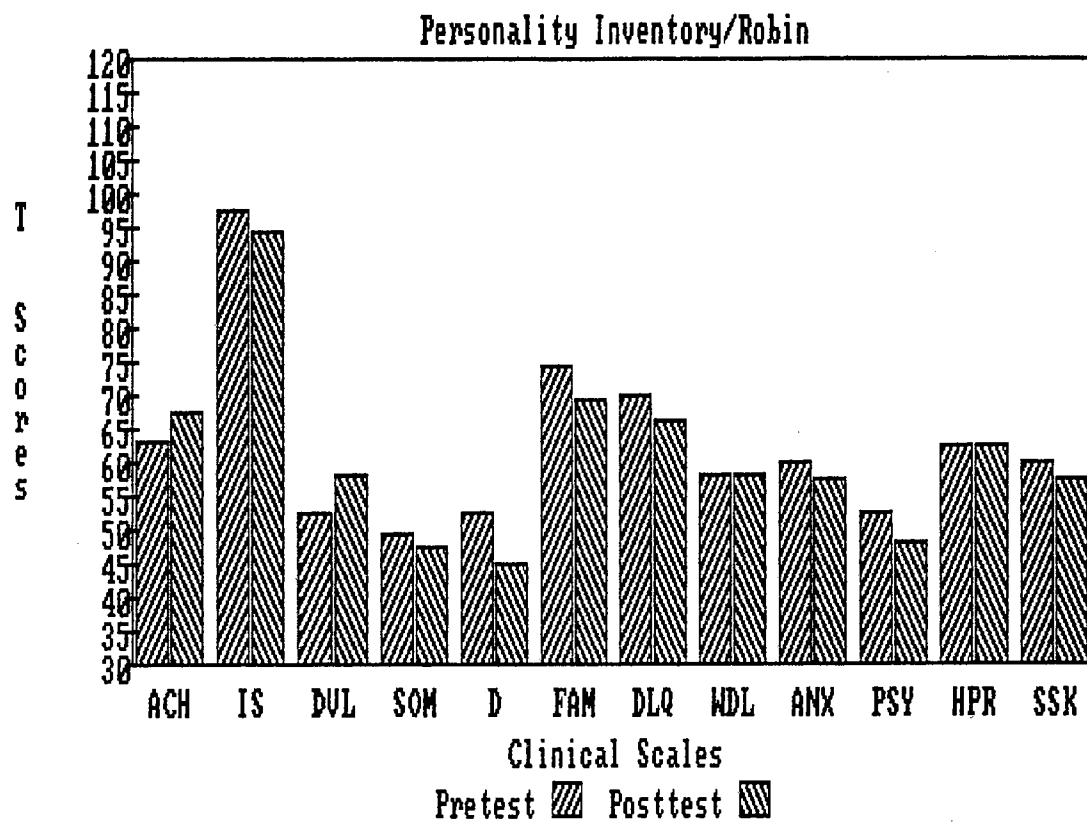
<u>Quantity</u>	<u>Species</u>
13	Crimson Pigmy Barberry
1	Yaupon Holly
6	Bradford Pear Tree
26	Varigated Liropi
14	Dwarf Nandina
7	Otto Lukens Laurel
10	Carissa Holly
1	Fountain Grass
4	Dens Yew
1	Photenia
15	Dwarf Yaupon Holly
1	Pyricantha
1	Red Sunset Maple Tree

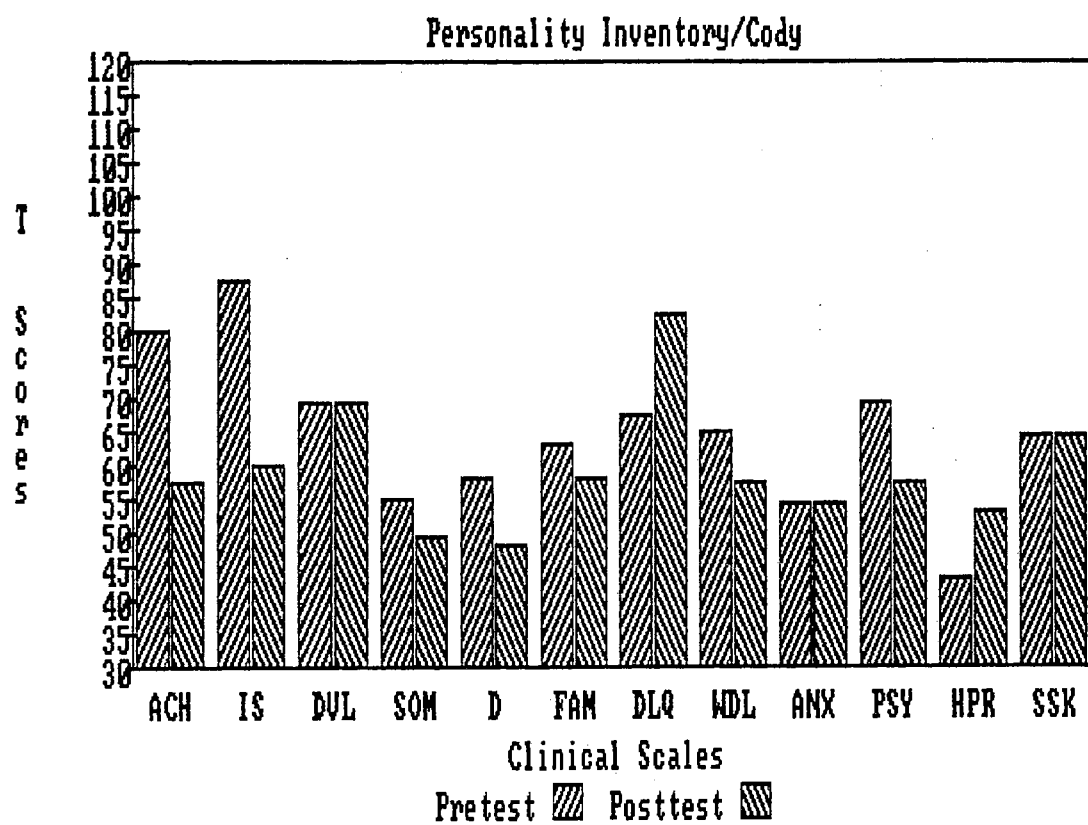
APPENDIX Q
INDIVIDUAL PIC SCORES

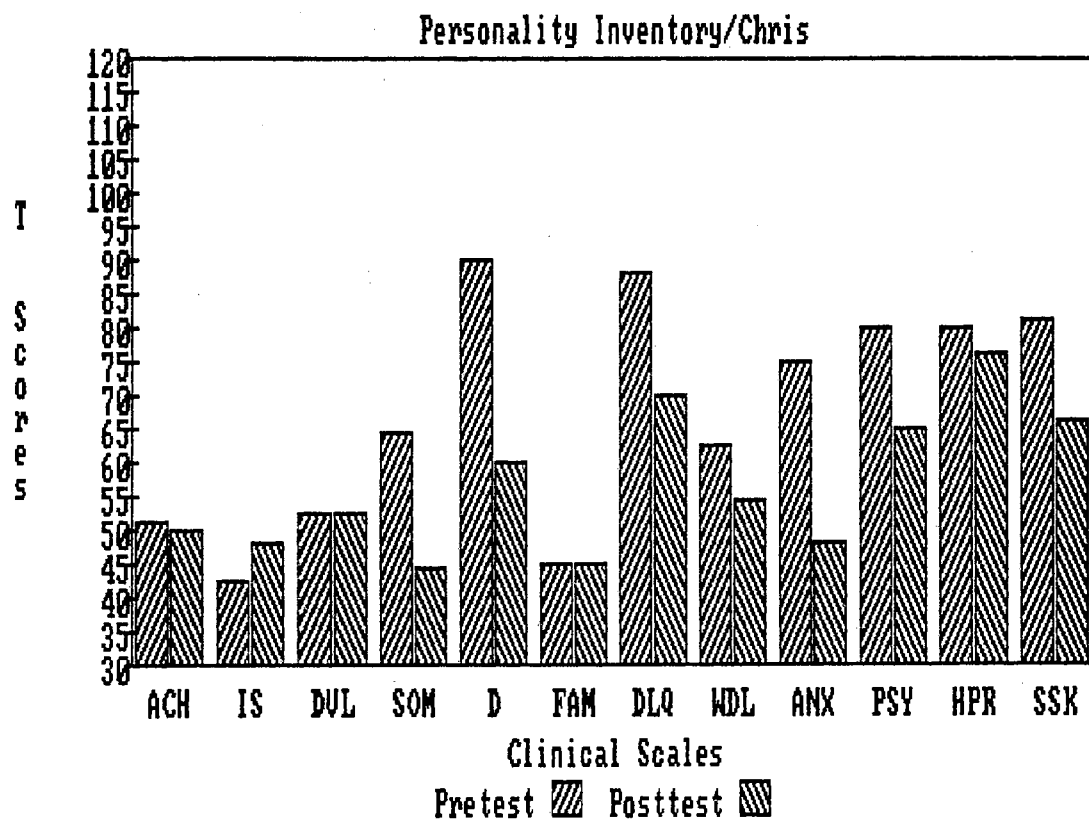


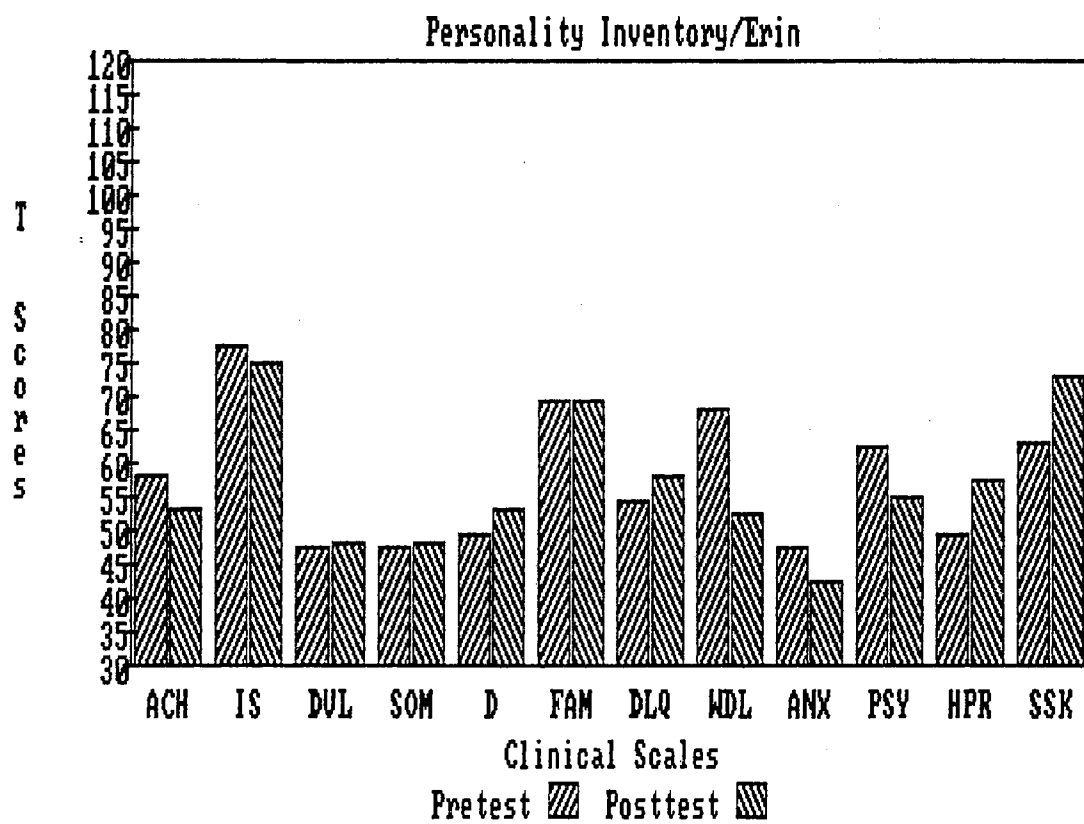




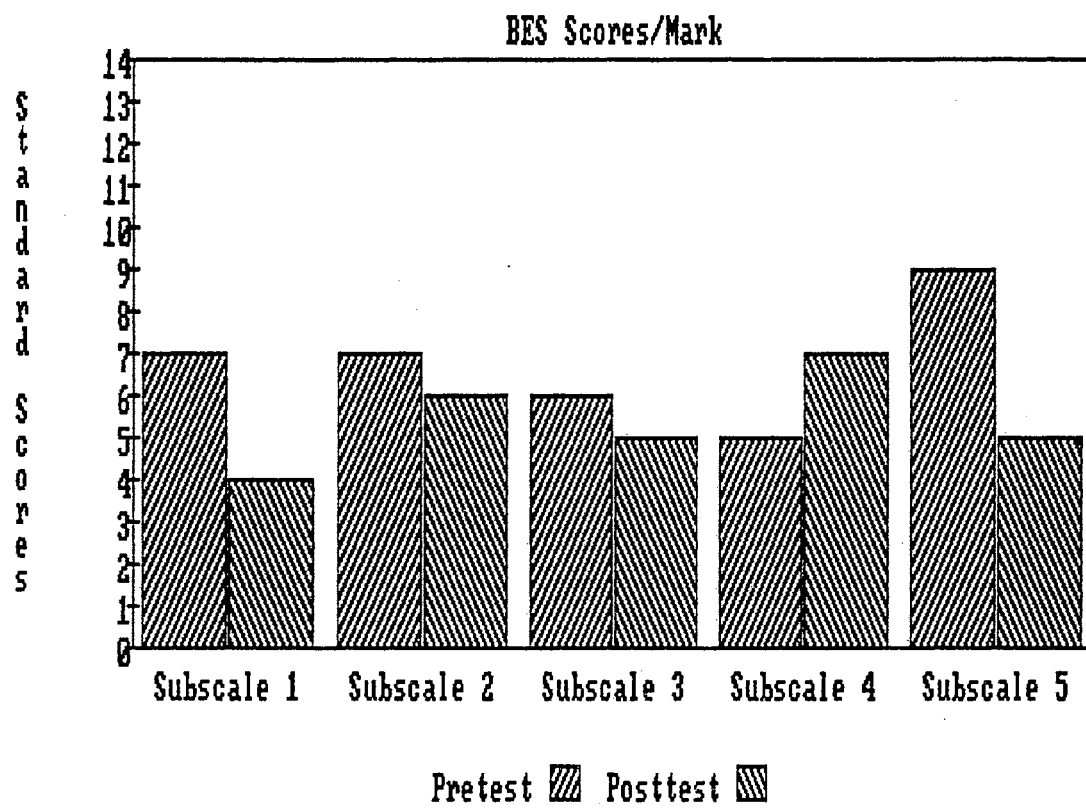


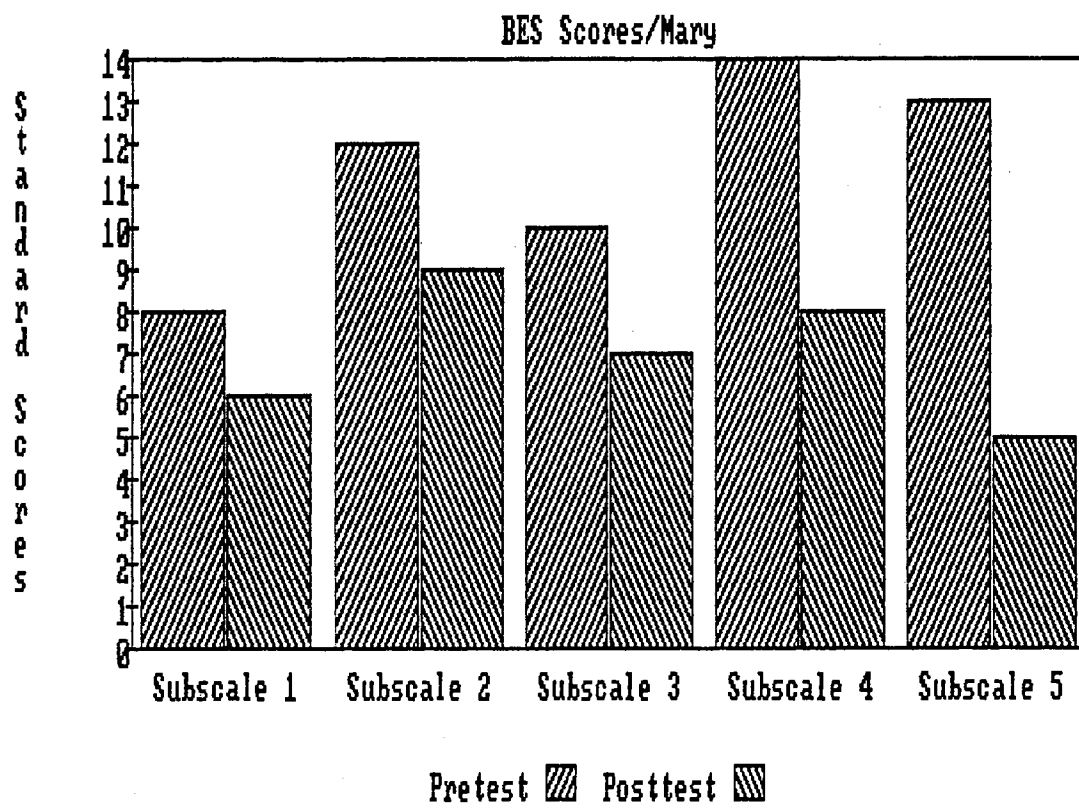


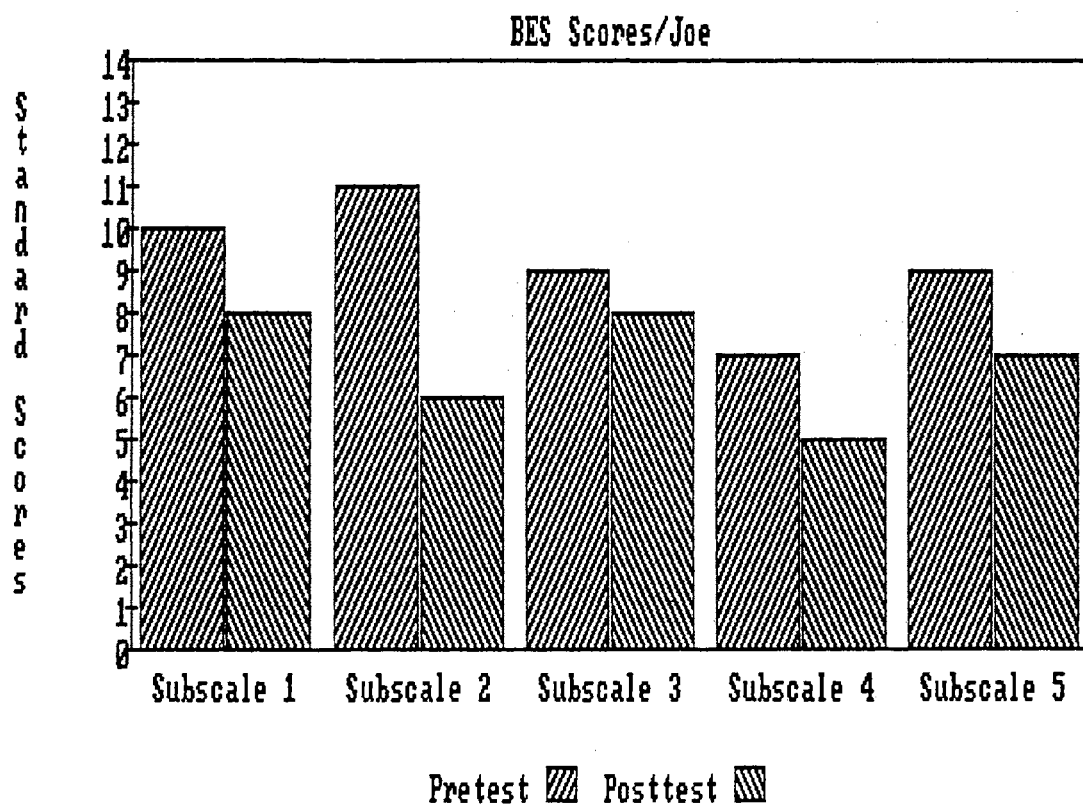


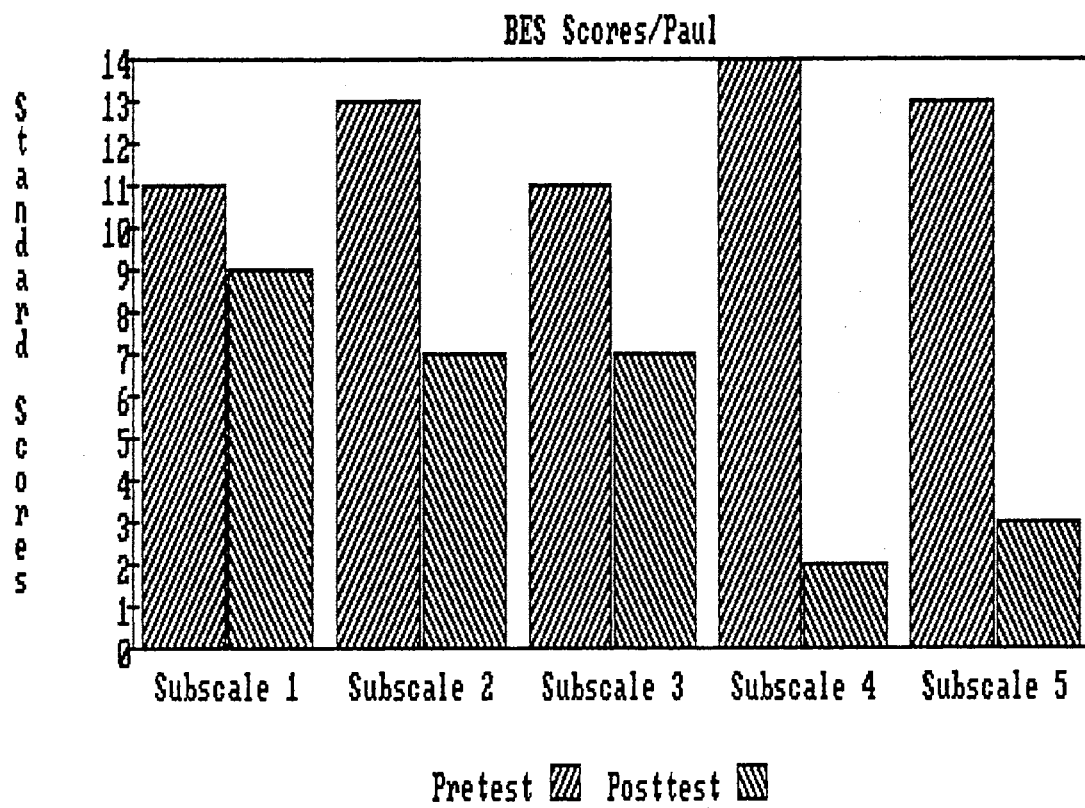


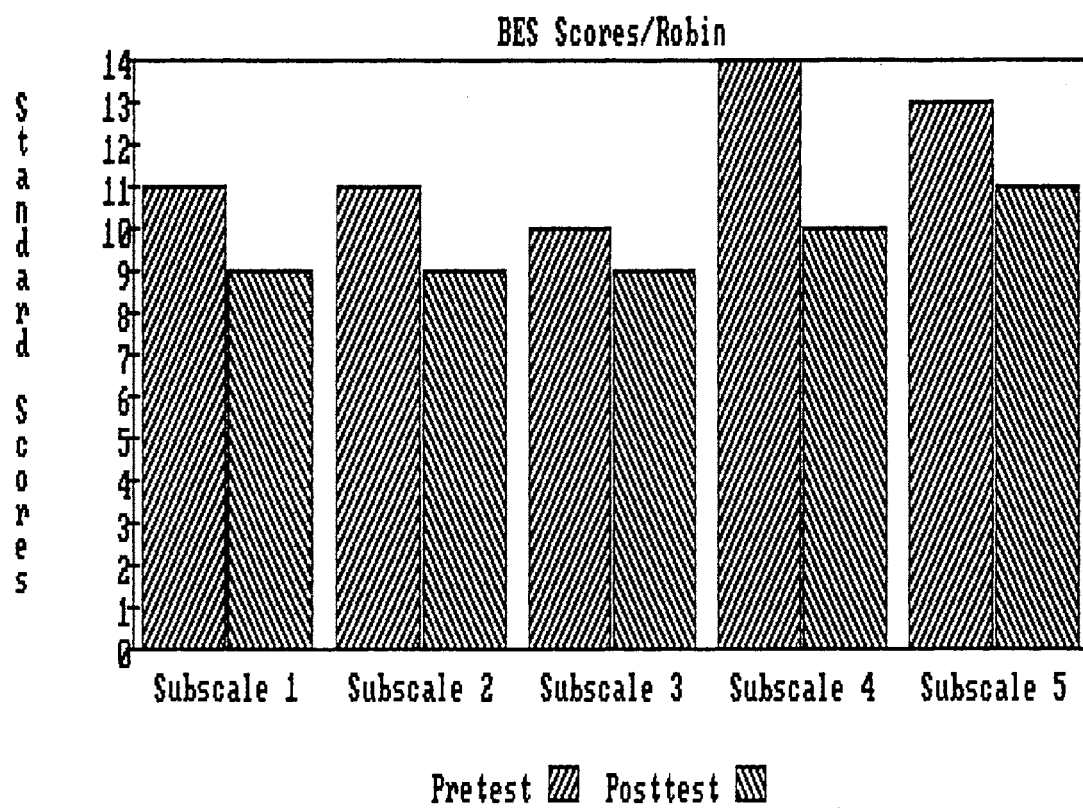
APPENDIX R
INDIVIDUAL BES SCORES

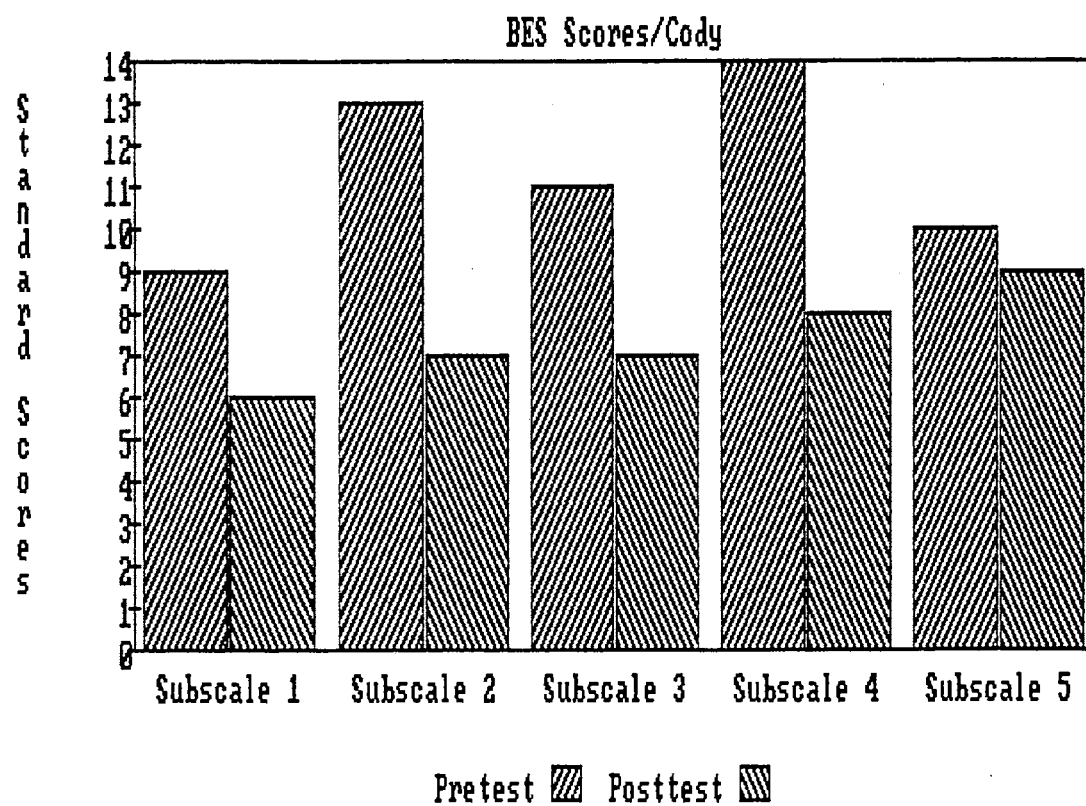


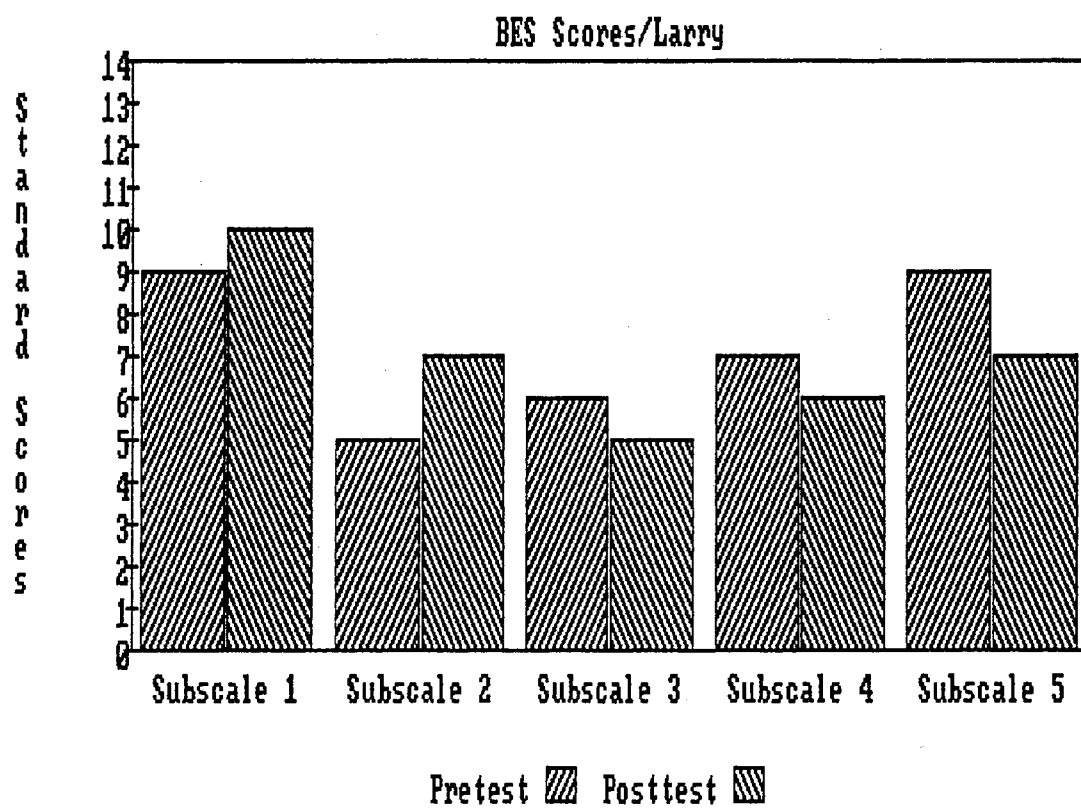


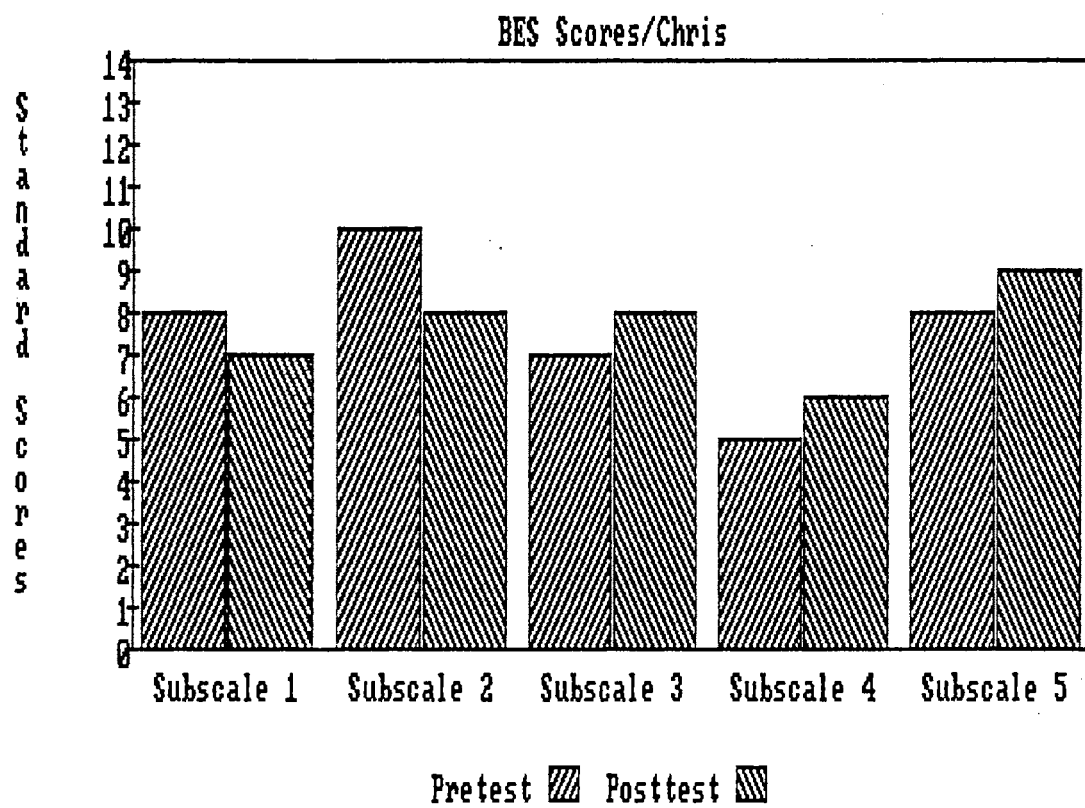


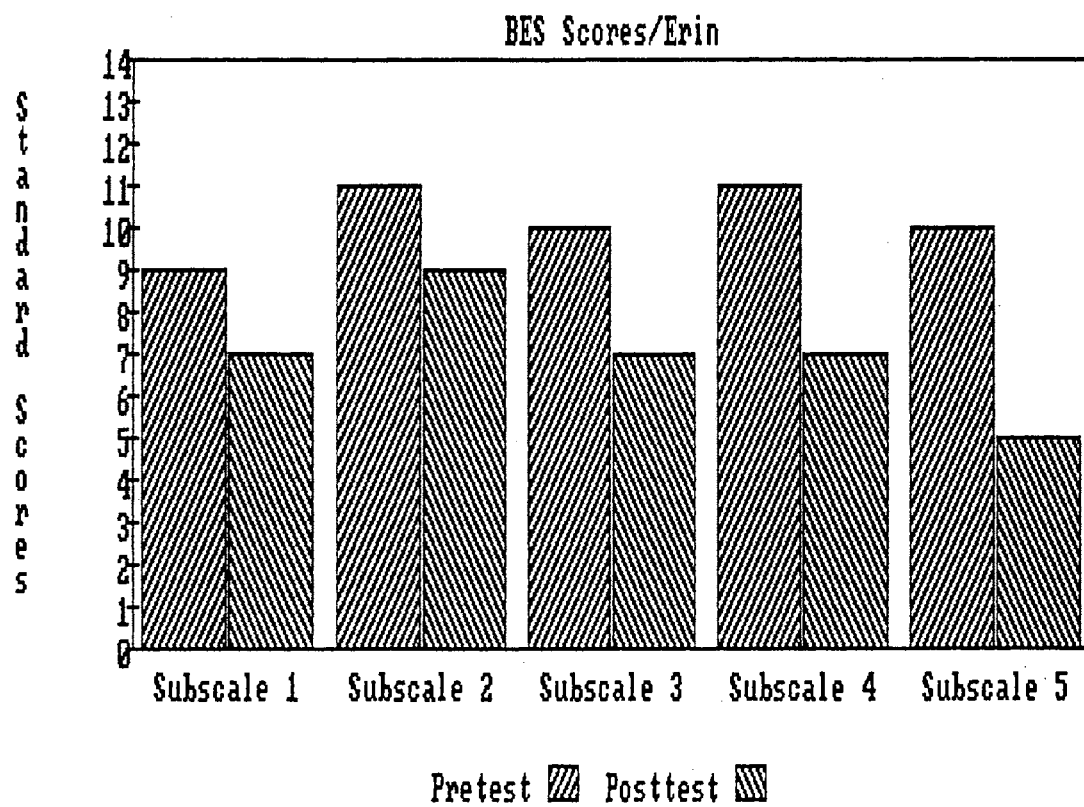












APPENDIX S
STUDENT REPORT CARDS

Student: Mary

Grading Scale:

A = 90-100%	Excellent	Consistently
B = 80-89%	Very Good	Proficient
C = 70-79%	Good	Competent
D = 60-69%	Fair	Developing
F = Below 60%	Needs Improvement	Below Average

Handwritten notes: 1 = Excellent, 2 = Very Good, 3 = Good, 4 = Fair, 5 = Needs Improvement, 6 = Below Average

Student	1	2	3	4
Math				
Comprehends and is ready to learn				
Understands & develops vocabulary				
Reasons independently				
Writes appropriately in response to stimulus				
INCISE				
Uses language appropriately in writing and speaking				
Uses the writing process				
Meets needs in social context (self and others)				
Spelling				
Applies spelling strategies				
Uses learned spelling in writing				
REMANUATE				
Participates actively				
ATTENDANCE				
Days present				
Days absent				
Days tardy				

Student	1	2	3	4
Math				
Performs basic facts				
Displays understanding of numbers & concepts				
Applies mathematical concepts to solve problems				
SCIENCE				
Participates in class discussion and projects				
Applies science projects etc				
Displays knowledge of concepts through reading and writing				
SOCIAL STUDIES				
Participates in class discussion and projects				
Uses map, globe, chart, and lines and graphs				
Displays knowledge of concepts through reading and writing				
COMPUTERS				
Performs basic understanding of computer usage				
Uses computer vocabulary appropriately in grade level				
Uses proper care with equipment				
ART				
Performs adequate understanding of art concepts				
Uses ability in class setting				
Displays self control				

Student	1	2	3	4
MUSIC				
Understands and follows directions				
Shows adequate understanding of musical concepts				
Uses ability in class setting				
Displays self control				
PHYSICAL EDUCATION				
Understands and follows directions				
Uses ability in class setting				
Participates actively				
Displays self control				
PERSONAL/WORK HABITS				
Displays positive attitude toward school				
Accepts personal responsibility				
Respects authority				
Respects rights and property of others				
Works cooperatively with others				
Displays self control				
Works independently				
Completes work on time				
Uses time wisely				
Follows directions				
Understands authority				
Put item back after				
Shows of the proper time				
Shows neat/legible work				
Organizes work and materials				

Joe

6

A = 90-100%
B = 80-90%
C = 70-79%
D = 60-69%
F = Below 60%

1 = Excellent
2 = Satisfactory
3 = Needs Improvement
4 = Concern
5 = Considerably
6 = Progressing
7 = Area of Concern

1. The first step is to identify the problem. In this case, the problem is that the company is not making enough profit.

		Quadrant			
		1	2	3	4
Mature suprafunctional level	A ⁺	B ⁺	B ⁺	B ⁺	B ⁺
	✓	✓	✓	✓	✓
	Understands & develops vocabulary	✓	✓	✓	✓
	Knows independently	✓	✓	✓	✓
Emerging suprafunctional level	B	A ⁻	A ⁻	A ⁻	B ⁻
	✓	✓	✓	✓	✓
	Uses language spontaneously in writing and speaking	✓	✓	✓	✓
	Uses the writing process	✓	✓	✓	✓
Mature suprafunctional level	A ⁺	B ⁺	B ⁺	B ⁺	B ⁺
	✓	✓	✓	✓	✓
	Applies writing strategies	✓	✓	✓	✓
	Uses focused quality in writing	✓	✓	✓	✓
Fluency/usage		5	5	5	5
Perceptually legible		+	✓	✓	✓
ATTENDANCE					
Days present		41	41	40	43
Days absent		4	1	2	2
Days tardy		5	3	3	5

	Quizzes			
	1	2	3	4
<u>MAIN instructional level</u>	A	B	B	B
Participant basic facts	✓	✓	✓	✓
Display understanding of numerical concepts	✓	✓	✓	✓
Active involvement of participants in solving problems	✓	✓	✓	✓
<u>SCIENCE instructional level</u>	A	A	B	A
Participants in class discussion and projects	✓	✓	✓	✓
Applies science process skills	✓	✓	✓	✓
Displays knowledge of concepts through reading and writing	✓	✓	✓	✓
<u>SOCIAL STUDIES instructional level</u>	A	B	B	B
Participants in class discussion 1-2-4	✓	✓	✓	✓
and projects	✓	✓	✓	✓
Uses maps, globes, charts, line lists and graphs	✓	✓	✓	✓
Displays knowledge of concepts through reading and writing	✓	✓	✓	✓

The following areas will define the grading scale which is listed below:

Grading:
 A = Excellent
 B = Good
 C = Fair
 D = Needs of Concern

Students outside understanding of core skills taught	✓	✓	✓
Uses computer vocabulary appropriate to grade level	✓	✓	✓
Uses answer cards with excitement	✓	✓	✓

Proven adequate understanding of concept taught	✓	✓	✓
Uses ability to transfer skill	✓	✓	✓
Displays self-control	✓	✓	✓

	Quarter			
	1	2	3	4
LEAP-IC				
Use oral and written directions	✓	✓	✓	✓
Process concrete understanding	✓	✓	✓	✓
REASONING				
Use ability to find answer	✓	✓	✓	✓
Display self-control	✓	✓	✓	✓

PHYSICAL EDUCATION				
Values and values education	+	+	+	+
Life skills education	+	+	+	+
Physical fitness	+	+	+	+
Physical education	+	+	+	+

Demonstrate positive attitude toward school	✓	✓	✓	✓
Accept/assume responsibility	✓	✓	✓	✓
Respect authority	—	✓	✓	✓
Respects right and property of others	✓	✓	✓	✓
Works cooperatively with others	—	✓	✓	✓
Displays self control	—	✓	✓	✓
Works independently	✓	✓	✓	✓
Completes work on time	✓	✓	✓	✓
Manages time wisely	✓	✓	✓	✓
Follows directions	✓	✓	✓	✓
Manages privacy	✓	✓	✓	✓
Put items back where	—	✓	✓	✓
Respects the physical time	—	✓	✓	✓
Does neat/hygienic work	✓	✓	✓	✓
Chooses work and materials	✓	✓	✓	✓

Student: Paul

Grading Scale:

A = 90-100%
 B = 80-90%
 C = 70-80%
 D = 60-70%
 F = Below 60%
 (+) = Exceeded
 (-) = Below
 (N) = Needs Improvement
 (A) = Area of Concern
 (S) = Satisfactory
 (P) = Pending

Numbers will be marked L, I, or R
 Red grade only. Pending, Below Below, Below will be marked L, I, or R

	Quarter			
	1	2	3	4
READING				
Comprehends what is read				A- B-
Understands & develops vocabulary				+
Reads independently				+
Writes appropriately in response to features				+
THINKING				
Uses language appropriately in writing and speaking				A A-
Uses the writing process				+
Researches to locate/collect usage and mechanics of usage				+
WRITING				
Applies writing strategies				A- A
Uses learned spelling in writing				+
Formulates				S S
Participates actively				+
ATTENDANCE				
Days present				41 45
Days absent				0 0
Days tardy				0 0

	Quarter			
	1	2	3	4
MAIN				
Performs basic facts				B-
Displays understanding of fundamental concepts				+
Applies mathematical concepts to solve problems				+
KNOWLEDGE				
Participates in class discussion and projects				A B
Applies knowledge in class				+
Displays knowledge of concepts through reading and writing				+
SOCIAL STUDIES				
Participates in class discussion and projects				A A
Uses maps, globes, charts, and text and graphs				+
Displays knowledge of concepts through reading and writing				+

The following area will utilize the grading scale which is listed below:
 Grading Scale:
 (+) Exceeded
 (-) Below
 (N) Needs Improvement
 (A) Area of Concern

	Quarter			
	1	2	3	4
COUNTING				
Knows strategies understanding of concepts taught				+
Uses computer vocabulary appropriate to grade level				+
Uses problem sets with appropriate				+
ATT				
Knows strategies understanding of concepts taught				+
Uses ability to learn and				+
Displays self control				+

	Quarter			
	1	2	3	4
LANGUAGE				
Understands and follows directions				+
Shows adequate understanding of English				+
Uses ability to learn and				+
Displays self control				+

	Quarter			
	1	2	3	4
PHYSICAL EDUCATION				
Understands and follows directions				+
Uses ability to learn and				+
Participates actively				+
Displays self control				+

	Quarter			
	1	2	3	4
PERSONAL/HOME HABITS				
Displays positive attitude toward school				+
Accepts personal responsibility				+
Respects authority				+
Respects rights and property of others				+
Works cooperatively with others				+
Displays self control				+
Works independently				+
Completes work on time				+
Uses time wisely				+
Follows directions				+
Understands authority				+
Put forth best effort				+
Spends at the proper time				+
Does not/should not				+
Organizes work and materials				+




Larry

ATTENDANCE	1	2	3	4
Beggs Present	19	42	32	38
Beggs Absent	0	0	10	7
Beggs Sick	0	0	2	0

WORK HABITS	GRADE 11/12			
	1	2	3	4
Went to bed promptly	+	+	✓	✓
Completed work on time	+	+	+	+
Wrote free clearly	+	+	+	+
Followed directions	+	+	✓	✓
Initiated activity	+	+	+	+
Put forth best effort	+	+	✓	✓
Best school work	+	+	+	✓
Used materials correctly	+	+	+	✓

	SOCIETY			
	1	2	3	4
SOCIAL DEVELOPMENT				
Disciplinary practices outside toward school	✓	✓	✓	✓
Accepted customs and propriety	✓	✓	✓	✓
Respect authority	✓	✓	✓	✓
Respect rights, propriety of others	✓	✓	✓	✓
Works cooperatively with others	✓	✓	✓	✓
Disciplinary self control	✓	✓	✓	✓
Self control of the school	✓	✓	✓	✓

Quantity					
LANGUAGE AREA	1	2	3	4	
Honors sight words cards	+	+	+	+	✓
Recap sheets at end name	+	+	+	+	+
Spells in complete sentences		+	+	+	+
Conjunctions reviewed three in group discussion	+	+	+	+	+
Recap sheet in notes and directed st		+	+	+	+
Floral reviewing of affection words		+	+	+	+
Honors email upper case labels		+	+	+	+
Understands opposites		+	+	+	+
Honors mail lower case labels			✓	✓	✓
Recap sheet at end name					
Understands phrasing words			+	+	+
Reverent pictures ends to tell a story					+
Demonstrates told in right punctuation					+
Matches upper and lower case letters			+	+	+
Elaborates most beginning (all sequential second)					✓

MAIN		1	2	3
Name of the subject		+	+	+
  		+	+	+
Class taught by a teacher		+	+	+
Class taught by a student		+	+	+
Property		+	+	+
Customer's pattern		+	+	+
Course subject in a self study way				
First 10 days		+	+	+
Next 10 days		+	+	+
Last 10 days		+	+	+
Total of 30 days		+	+	+
First 10 days		+	+	+
Next 10 days		+	+	+
Last 10 days		+	+	+
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Total of 30 days		+	+	+
First 10 days		+	+	+
Next 10 days		+	+	+
Last 10 days		+	+	+
Total of 30 days		+	+	+
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Next 10 days		+	+	+
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Total of 30 days		+	+	+
First 10 days		+	+	+
Next 10 days		+	+	+
Last 10 days		+	+	+
Total of 30 days		+	+	+
First 10 days		+	+	+
Next 10 days		+	+	+
Last				

Quarter					
	1	2	3	4	
GROSS/HW MOTOR SELL	+	+	+	+	
Belmont on light and not host	+	+	+	+	
Host on light and not host	+	+	+	+	
Belmont and subject on host	+			+	
Host without subject	✓	✓	✓	✓	
Completed 11:15 place parls	+	+	+	+	
Wrote Roll name			✓	+	
Capt's Report			✓	✓	
Grades			+	+	
Sign				+	

PERSONAL AWARENESS		1	2	3	4
Express full name		+	+	+	+
Express age		+	+	+	+
Express birthdate (month and day)		+	+	+	+
Express address			✓	✓	✓
Express telephone number			+	+	+
Fill sheet			+	+	+

EVALUATION SCALE

- ✦ Consistently
- ✓ Progressing
- Area of Concern
- ☐ Not Yet Introduced

Chris

Grading Scale:

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = Below 60%

• Creditability
• Pledge
• Assoc of Congress

I = (excellent)
S = Satisfactory
N = Needs Improvement

Personality will be made of it, it is it

	Quarter			
	1	2	3	4
READING	A	B	B	B
Comprehend what is read	✓	✓	✓	✓
Understand & describe vocabulary	✓	✓	✓	✓
Read independently	✓	+	+	+
Write appropriately in response to literature	✓	✓	✓	✓
Fluency	B ⁺	B	B ⁺	B
Use language appropriately in writing and speaking	✓	✓	+	+
Use the writing process	-	-	-	-
Push reach to technical exact usage and mechanics of prose	-	-	-	-
WRITING	A ⁺	A ⁺	A ⁺	B
Applies writing techniques	-	-	-	-
Use learned spelling in writing	-	-	-	✓
REVISION	S ⁺	S ⁺	S ⁺	S
Participates actively	-	-	-	-
ATTENDANCE				
Days present	43	42	41	45
Days absent	0	0	1	0
Days tardy	0	1	0	0

	Quizzes			
	1	2	3	4
MAIN	A- ⁺	B- ⁺	B- ⁺	A
Explain basic facts	+	+	+	
Explain understanding of nature of concept	✓	✓	✓	
Apply understanding of concept in new problems	✓	✓	✓	
SCORE	5	4	5	5
Participate in class discussion and projects	+	+	+	
Apply concepts in class	✓	✓	✓	
Explain knowledge of concept through reading and writing	✓	✓	✓	
SOCIAL SCORE	5	5	5	5
Participate in class discussion and projects	+	+	+	
Share group, class, and class and group	✓	✓	✓	
Explain knowledge of concept through reading and writing	✓	✓	✓	

The following scores will make the grading scale which is listed below:

- A- Excellent
- B- Very Good
- C- Good
- D- Fair
- F- Poor

Know adequate underlining at first sight	✓	✓	✓
Use computer vocabulary appropriate to grade level	✓	✓	✓
Use computer correctly and accurately	✓	✓	✓

Shows adequate understanding of copyright law?	✓	✓	✓
Was ready to defend self?	✓	✓	+
Displays self control	✓	✓	✓

	Quarter		
	1	2	3
WJMC			
Unite and inform directors	✓	✓	✓
Present adequate understanding of present position	✓	✓	✓
Unite ability to raise funds	✓	✓	✓
Display self control	✓	✓	✓

Users and subnets directed	✓	+	+	+
User ability to adjust content	✓	✓	✓	+
Participants actively		+	+	+
Displays not covered		+	+	+

PERSONAL/WORK HABITS						
Express positive attitude toward school	✓	✓	✓	+		
Accept/assume responsibility	✓	✓	✓	+		
Respect authority	✓	✓	✓	+		
Respect rights and property of others	✓	✓	✓	+		
Work cooperatively with others	✓	✓	✓	+		
Displays self control	✓	✓	✓	+		
Wells independence	✓	✓	✓	+		
Completes work on time	✓	✓	✓	+		
Uses time wisely	✓	✓	✓	+		
Follows directions	✓	✓	✓	+		
Wears appropriately	✓	✓	✓	+		
Pushes back chair	✓	✓	✓	+		
Sits at the proper time	✓	✓	✓	+		
Does not/leaves seat	✓	✓	✓	+		
Obtains work and materials	✓	✓	✓	+		

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Students: Erin

Grading Scale:

A = 90-100%	Excellent	• Excellent
B = 80-90%	Good	• Good
C = 70-80%	Satisfactory	• Satisfactory
D = 60-70%	Needs Improvement	• Needs Improvement
F = Below 60%	Failure	• Failure

Proficiency will be indicated by the following symbols:
 ✓ = Proficient
 + = Approaching Proficiency
 - = Needs Improvement
 0 = Not Proficient

	Quarter			
	1	2	3	4
READING	A	B	C	A
Comprehends what is read	✓	✓	+	✓
Understands & develops vocabulary	✓	✓	✓	✓
Reads independently	✓	✓	✓	✓
Writes appropriately in response to literature	✓	✓	✓	✓
REASONING	B	A	B	C
Uses language appropriately in writing and speaking	✓	✓	✓	✓
Uses the writing process	✓	✓	✓	✓
Applies knowledge to local/cultural usage and mechanical skills	✓	✓	✓	✓
WRITING	C	C	B	B
Applies spelling strategies	✓	✓	✓	✓
Uses learned looking in writing	✓	✓	✓	✓
Fluency	S	S	S	S
Participates actively	✓	✓	✓	✓
ATTENDANCE				
Days present	45	41	42	45
Days absent	0	1	0	0
Days tardy	8	1	0	0

	Quarter			
	1	2	3	4
MAIN	B	B	B	B
Performs basic facts	✓	✓	✓	✓
Displays understanding of numerical concepts	✓	✓	✓	✓
Applies understanding of concepts to solve problems	✓	✓	✓	✓
KNOWLEDGE	A	A	A	A
Participates in class discussion and projects	✓	✓	✓	✓
Applies science process skills	✓	✓	✓	✓
Displays knowledge of concepts through reading and writing	✓	✓	✓	✓
SCIENCE	A	A	A	A
Participates in class discussion and projects	✓	✓	✓	✓
Uses maps, globes, charts, and text and graphs	✓	✓	✓	✓
Displays knowledge of concepts through reading and writing	✓	✓	✓	✓

No following areas will utilize the grading scale which is listed below:

Grading Scale:
 ✓ = Excellent
 + = Good
 - = Needs Improvement
 0 = Not Proficient

COURTESY

Knows outside understanding of concepts taught	✓	✓	✓	✓
Uses concepts vocabulary appropriate to grade level	✓	✓	✓	✓
Uses proper care with equipment	✓	✓	✓	✓

ART

Shows solid understanding of concepts taught	✓	✓	✓	✓
Uses ability to learn others	✓	✓	✓	✓
Displays self-control	✓	✓	✓	✓

	Quarter			
	1	2	3	4
LOGIC	✓	✓	✓	✓
Understands and interprets	✓	✓	✓	✓
Shows solid understanding of concepts taught	✓	✓	✓	✓
Uses ability to learn others	✓	✓	✓	✓
Displays self-control	✓	✓	✓	✓

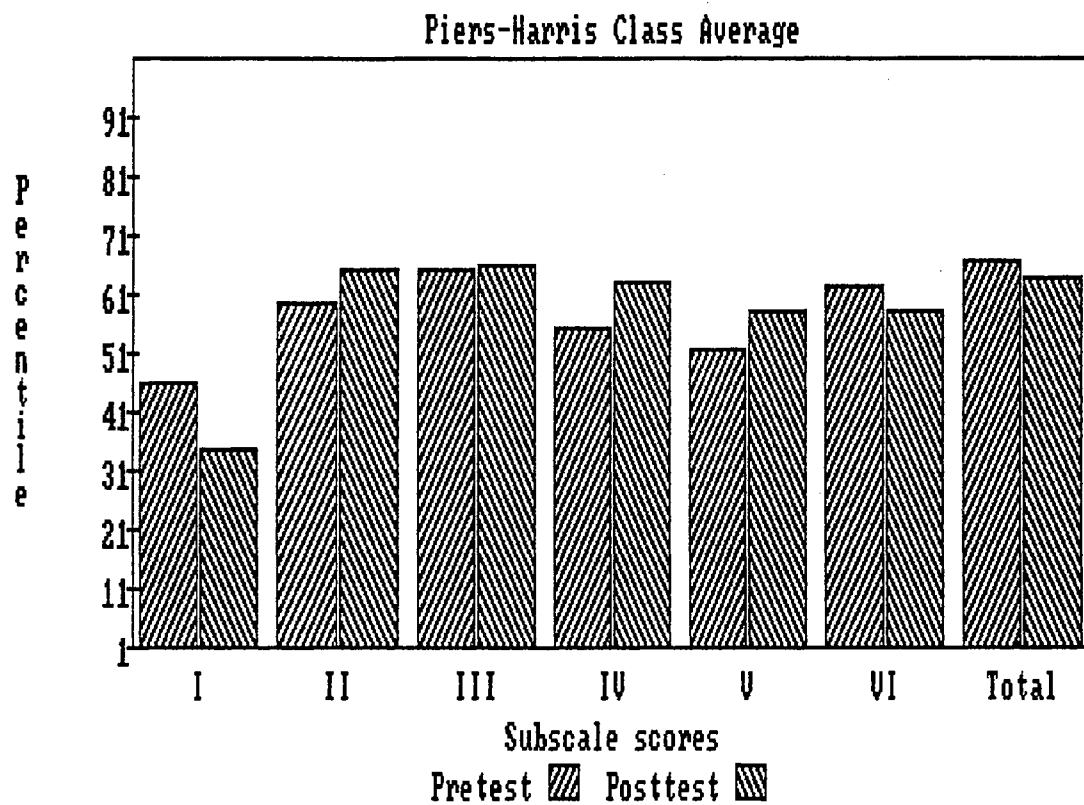
PHYSICAL EDUCATION

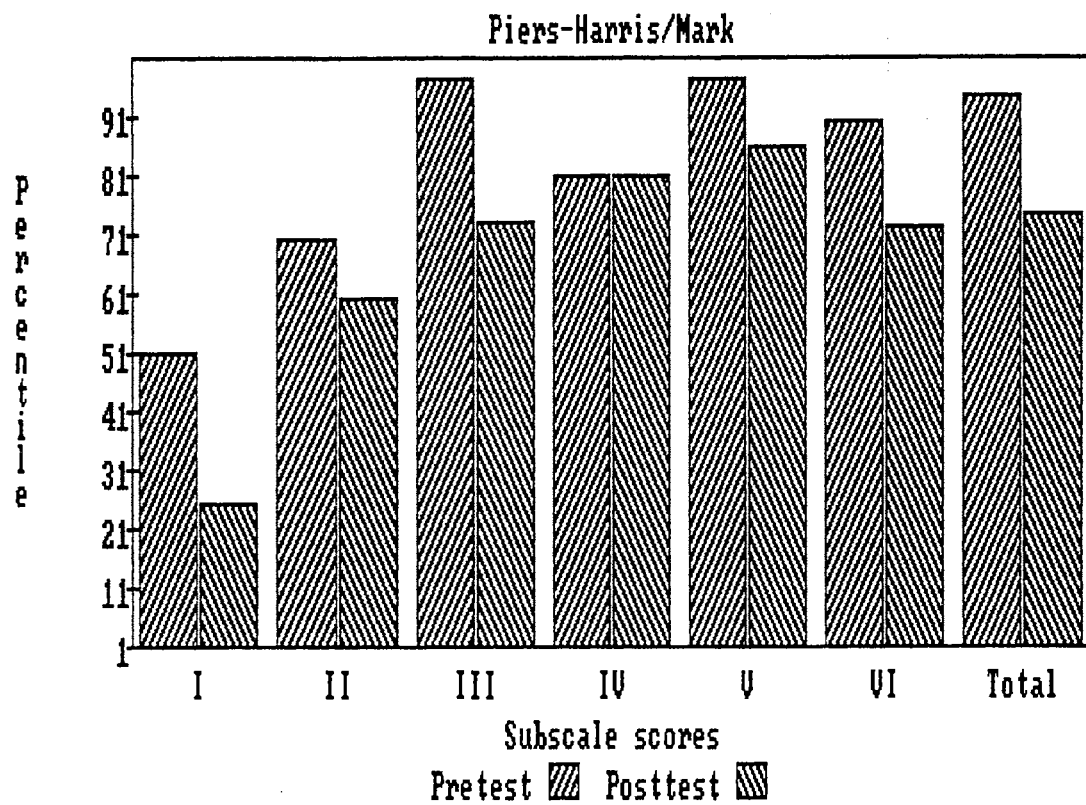
Understands and interprets	✓	✓	✓	✓
Uses ability to learn others	✓	✓	✓	✓
Participates actively	✓	✓	✓	✓
Displays self-control	✓	✓	✓	✓

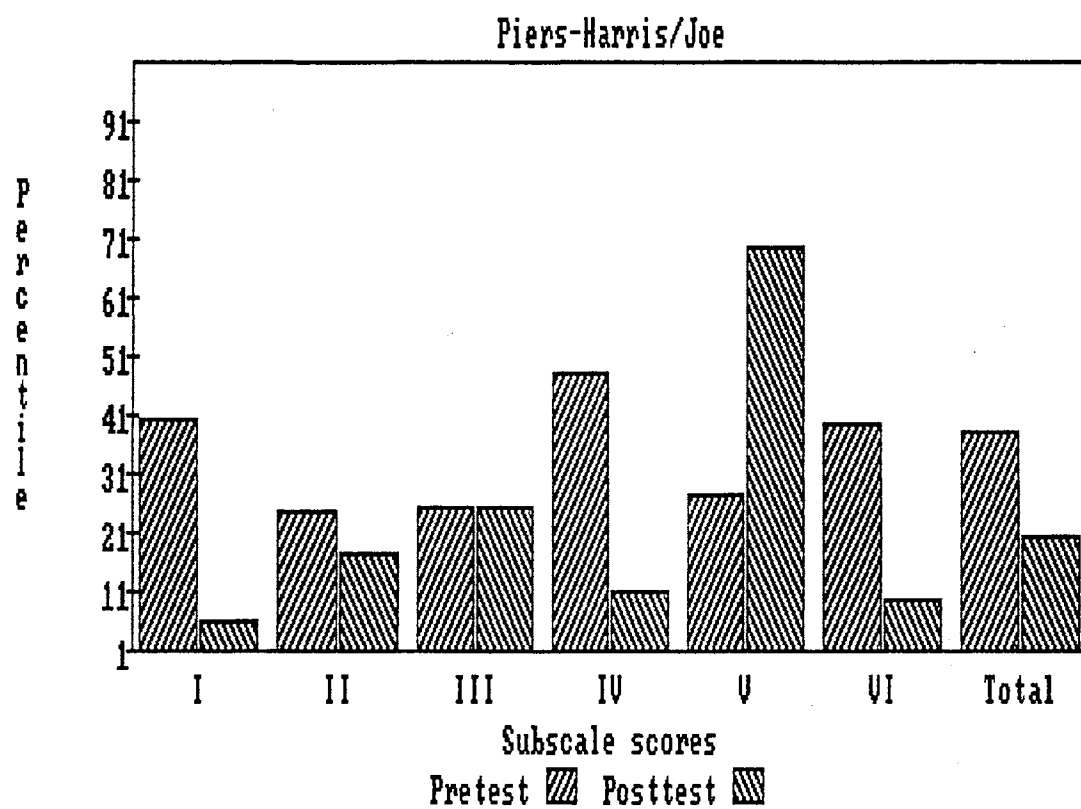
PERSONAL/WORK HABITS

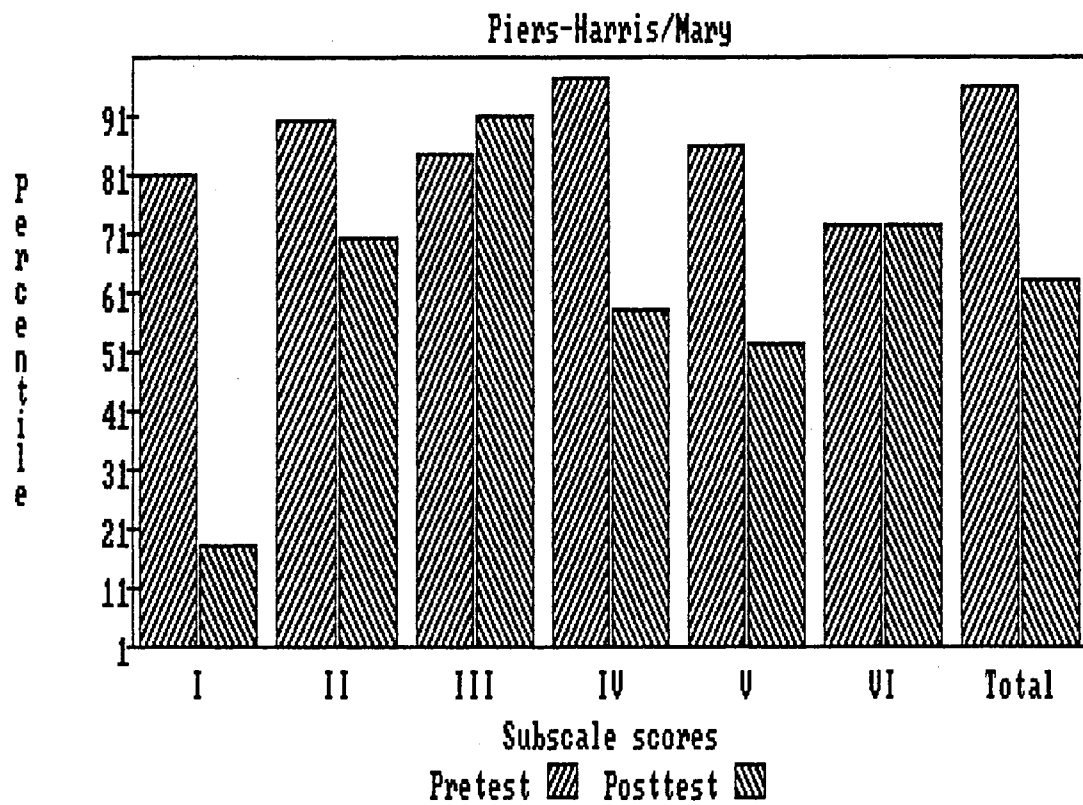
Displays positive attitude toward school	✓	✓	✓	✓
Accepts/assumes responsibility	✓	✓	✓	✓
Respects authority	✓	✓	✓	✓
Respects right and property of others	✓	✓	✓	✓
Works cooperatively with others	✓	✓	✓	✓
Displays self-control	✓	✓	✓	✓
Works independently	✓	✓	✓	✓
Completes work on time	✓	✓	✓	✓
Uses time wisely	✓	✓	✓	✓
Follows directions	✓	✓	✓	✓
Understands effectively	✓	✓	✓	✓
Put forth best effort	✓	✓	✓	✓
Stands at the proper time	✓	✓	✓	✓
Does neat/clean work	✓	✓	✓	✓
Disposes work and materials	✓	✓	✓	✓

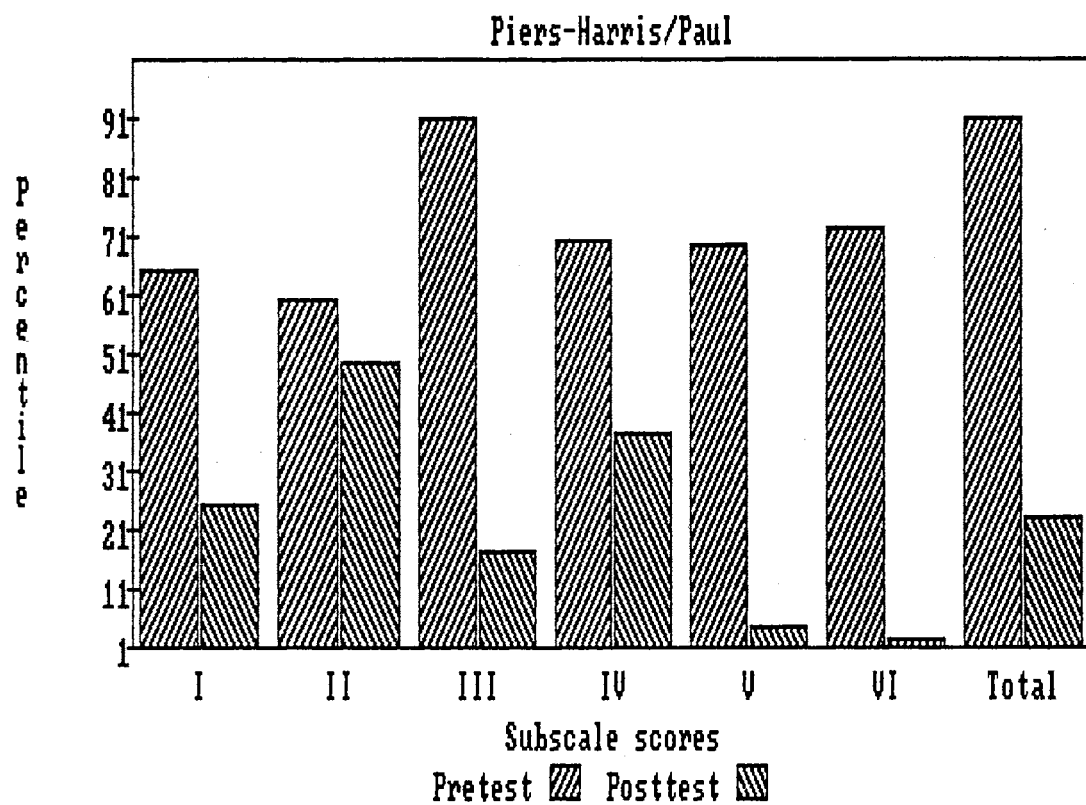
APPENDIX T
INDIVIDUAL PIERS
HARRIS SCORES

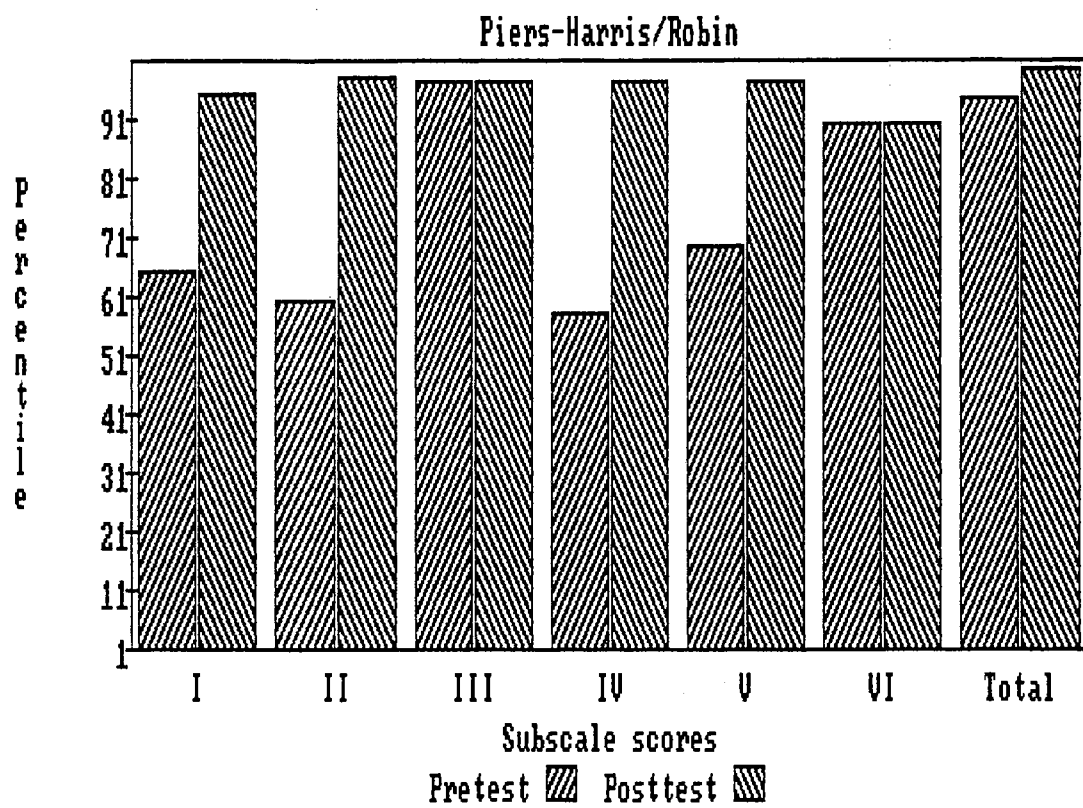


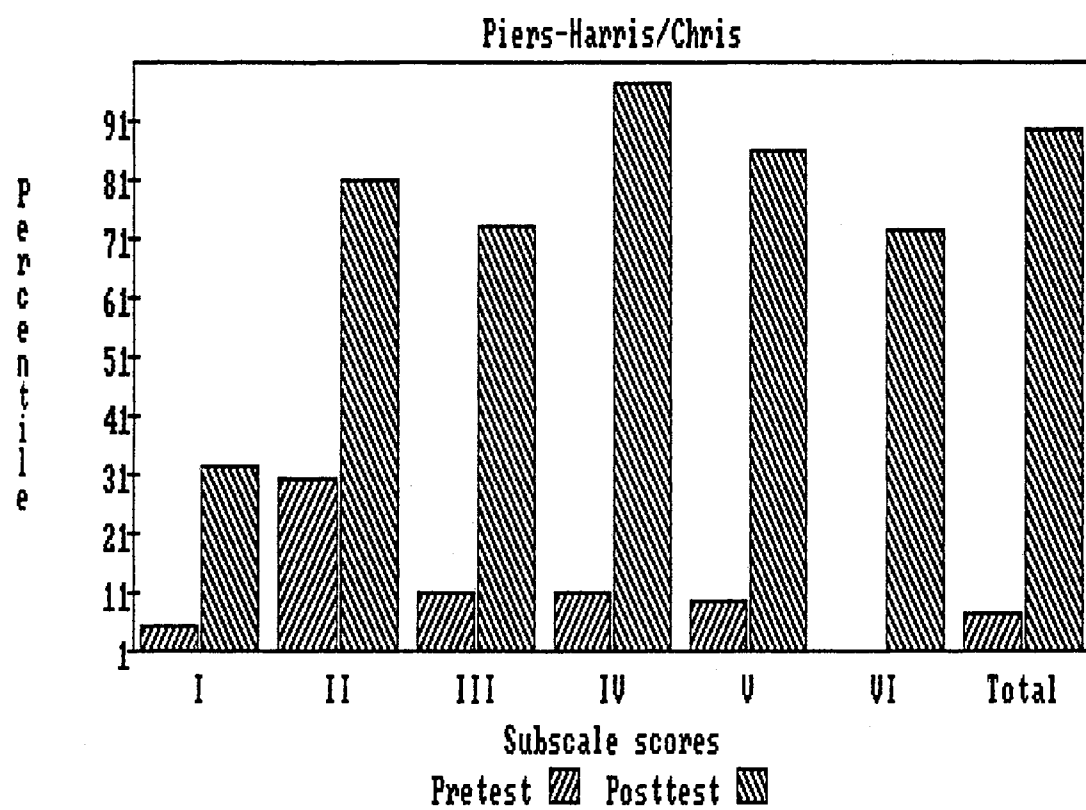


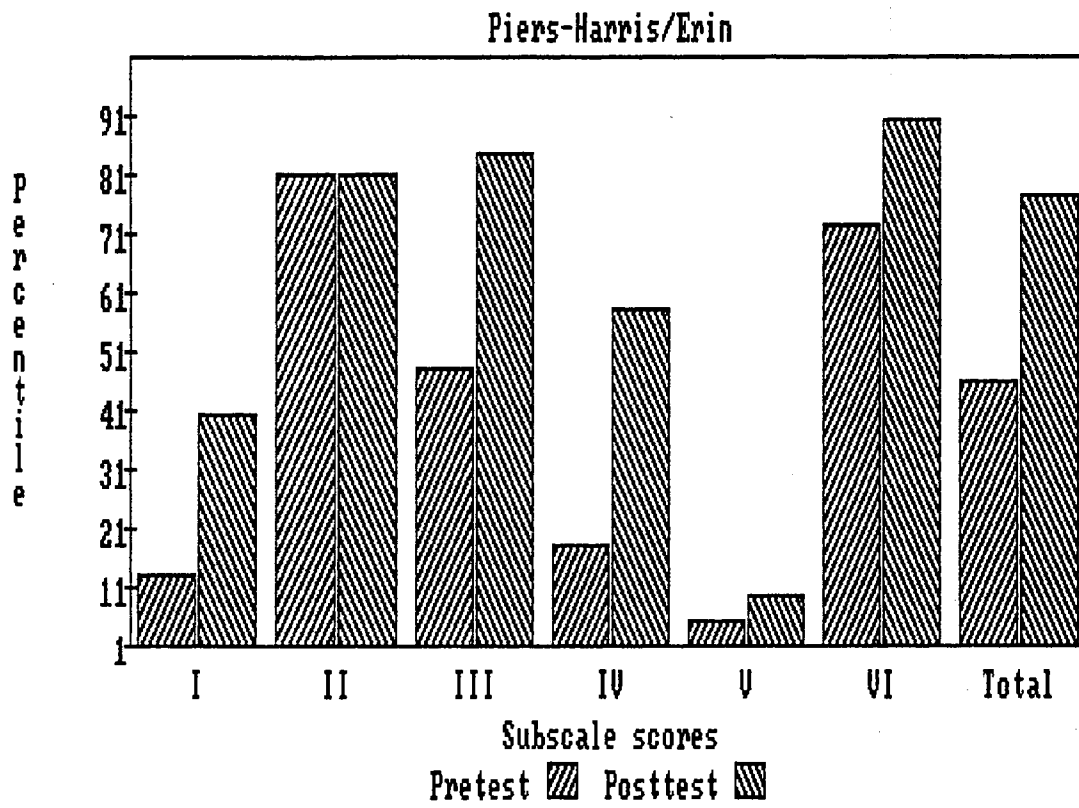












APPENDIX U
HAPPY FACE DATA

Mark

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	22.3%	33.3%	33.3%				
Wednesday	100%						
Thursday	100%						
Friday	100%						

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	33%	67%					
Wednesday	33%	67%					
Thursday	100%						
Friday	100%						

Mary

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	83%			17%			
Wednesday	83%			17%			
Thursday	100%						
Friday	100%						

Joe

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	12.5%	75%					12.5%
Tuesday	22%	56%					22%
Wednesday	38%	50%				12%	
Thursday	14%	57%	29%				
Friday	14%	86%					

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	75%	25%					
Tuesday	56%	44%					
Wednesday	38%	62%					
Thursday	29%	57%					14%
Friday	43%	57%					

Paul

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday				100%			
Tuesday				75%			25%
Wednesday	40%						60%
Thursday	17%			66%			17%
Friday	50%			50%			

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday				75%			25%
Tuesday				75%			25%
Wednesday	20%			80%			
Thursday	17%		17%	66%			
Friday	17			66%			17%

Robin

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

Cody

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	99%		11%				
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

Fran

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	53%						17%
Wednesday	75%		25%				
Thursday	100%						
Friday	100%						

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

Larry

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	99%						11%
Wednesday	99%					11%	
Thursday	100%						
Friday	100%						

Chris

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	89%						11%
Tuesday	100%						
Wednesday	89%		11%				
Thursday	100%						
Friday	89%					11%	

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	89%						11%
Tuesday	89%		11%				
Wednesday	89%		11%				
Thursday	89%					11%	
Friday	100%						

Erin

HAPPY FACE RESPONSE/A.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	100%						
Friday	100%						

HAPPY FACE RESPONSE/P.M.

	Face A	Face B	Face C	Face D	Face E	Face F	Face G
Monday	100%						
Tuesday	100%						
Wednesday	100%						
Thursday	89%			11%			
Friday	89%			11%			

2
VITA

Gary L. Chronister

Candidate for the Degree of
Doctor of Philosophy

Dissertation: THE EFFECT OF HORTICULTURE THERAPY AND
ANIMAL-ASSISTED THERAPY ON SERIOUSLY
EMOTIONALLY DISTURBED ELEMENTARY
STUDENTS IN A PUBLIC SCHOOL SETTING:
AN ETHNOGRAPHIC STUDY

Major Field: Applied Behavioral Studies

Area of Emphasis: School Psychology

Biographical:

Personal Data: Born in McAlester, Oklahoma,
March 19, 1953, the son of Robert V. and
Georgianna Chronister.

Education: Graduated from Hartshorne High School,
Hartshorne, Oklahoma in May 1971; received
Bachelor of Science Degree in Psychology from
Oklahoma State University in July, 1975;
received Master of Science in Counseling
Psychology from Northeastern State University
in Tahlequah, Oklahoma in May 1980; completed
requirements for the Doctor of Philosophy
degree in School Psychology at Oklahoma State
University in December, 1993.

Professional Experience: Social Studies teacher,
Hulbert High School, Hulbert, Oklahoma from
November 1975 to May 1979; Social Studies
and Psychology teacher, Union Public School
District, Tulsa, Oklahoma from August 1979 to
May 1987; Psychometrist, Broken Arrow Public
School District, Broken Arrow, Oklahoma from
August 1987 to May 1989; School Psychologist,
Broken Arrow Public Schools, August 1989 to
present.

Professional Organizations: Oklahoma School Psychological Association, National Association of School Psychologists, Phi Kappa Phi, Nationally Certified School Psychologist.

Professional Honors: Educator of the Month, Union Public School District, April 1987; Educator of the Month, Broken Arrow Public School District, September, 1992; Tulsa Jr. College's 1st Annual Teacher of the Future Award, May 1992; Invitation to present dissertation findings at the National School Board Association's annual conference, April 1994.

~~OCCASIONAL STUDY UNIVERSITY~~
~~INSTITUTIONAL REVIEW BOARD~~
FOR HUMAN SUBJECTS RESEARCH

Proposal Title: THE EFFECT OF HORTICULTURE THERAPY AND ANIMAL FACILITATIVE
THERAPY ON SERIOUSLY EMOTIONALLY DISTURBED ELEMENTARY STUDENTS IN A PUBLIC
SCHOOL SETTING: AN ETHNOGRAPHIC STUDY.

Principal Investigator: Paul Warden/ Gary Chronister

Date: 7-17-92 IRB # ED-93-004

This application has been reviewed by the IRB and

Processed as: Exempt ☐ Expedite ☐ Full Board Review ☒

Renewal or Continuation ☐

Approval Status Recommended by Reviewer(s):

Approved ☒

Deferred for Revision ☐

Approved with Provision ☐

Disapproved ☐

Approval status subject to review by full Institutional Review Board at
next meeting, 2nd and 4th Thursday of each month.

Comments, Modifications/Conditions for Approval or Reason for Deferral or
Disapproval:

Signature: Maria L. Tilley

Chair of Institutional Review Board

Date: 9-8-92