PHD

THE EFFECTS OF A PROGRAM OF THERAPEUTIC HORSEMANSHIPON THE SELF-CONCEPT AND LOCUS OF CONTROL ORIENTATION OF THE LEARNING DISABLED

Carlson, Eugene Alfred

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A Dissertation

Presented to the

Graduate Faculty of the

School of Human Behavior

United States International University

In Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

in Psychology

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by

Eugene A. Carlson

San Diego, 1983

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Approved by:

James Smith — Chairperson

February 3 1983 — Date

G.R. Kf

Dean

Joan J. Mayotte

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

Problem Formulation and Definition

The last decade has witnessed a growing trend toward developing new ways in which human beings may benefit from the creative and non-exploitative use of animals. These animals, generally having some special or unique quality and often referred to as companion animals or pets, have demonstrated a therapeutical value for many persons far beyond the parameters of simple recreation. More specifically, the animals have shown many times over their value as therapeutical adjuncts for the handicapped; a well-known example developed early in this century being the use of guide dogs for the blind. More recent developments are organized horseback riding centers for the handicapped stressing "therapeutical horsemanship" and often adding the element of "risk exercise" (Rosenthal, 1975) to the rather special relationship between man and animal. Interest in these relationships has grown greatly in recent years and the field has become commonly known as "animal-" or "pet-facilitated" psychotherapy (PFT). The greatest problem in all this enthusiasm appears to be the dearth of research and scientific study to support the benefits of many of the PFT-type of programs; the horsemanship program

mentioned above being a good example in particular (Rosin, 1980). However, continued growth in the field appears likely and some researchers who may have previously felt such a subject would not hold up to the "scientific" standards of their colleagues, can now feel more at ease with their interest. As Curtis (1981) stated, "the bond between people and their pets is now the subject of respectable scientific scrutiny."

Background of the Problem

The use of animals in the treatment of the mentally or physically handicapped has a long history. Since primitive times the domestic animal has served as a companion, comforter, and protector to man. The list of these animals stretches from snakes to lions to the sometimes greatly revered cat; however, two of the best-known, useful, and constant companions have been the dog and the horse. The dog has served so well and been so much a part of our history that it is hard to dispute the gist of the saying, "a dog is a man's best friend." The saying took on a new meaning in the mid-eighteenth century when an English mental health facility, the York Retreat, used dogs and other small animals to teach self-control by having patients care for something more dependent and weaker than themselves (Marcus, 1976).

The horse has occupied a similarly important part in man's past, and not just for his more obvious areas of utility and achievements. In the field of therapeutic benefit, his worth was known even to the ancient Greeks and Romans. Physicians from those times are known to have recommended horseback riding to cure certain ailments, such as severe hangovers or "untreatable" types of psychological conditions (Rosin, 1980).

Later records of therapeutic horseback riding are sketchy until they are once again discovered in medical texts and journals of the late eighteenth and nineteenth centuries. In these journals there are several references to the therapeutic value of riding. But it was not until the late nineteenth century and early twentieth centuries that actual studies of riding therapy were done, and modern day interest seems to stem only from 1943, when Mrs. Liz Hartel of Denmark proved to the world that a handicapped person could not only learn to ride horses, but could greatly benefit from it and actually become a master of the sport (Haskin, 1974). From there, the advent of established riding centers for the handicapped was but a short time away, with England having over one hundred centers of its own and the United States having over sixty centers either operating or planned by 1977 (NARHA, 1976).

The objectives of such riding centers are to provide a

therapeutic and recreational riding program for handicapped persons, as well as to provide mental, physical, and social stimulation (Rosin, 1980). And to note the comments of participants and workers in such programs and the great number of personal testimonials and brief case studies on the subject (for example, Marcus, 1976; Curtis, 1981; Goldfield, 1978; Levinson, 1969), one would almost have to believe that they had accomplished considerably more than the aforementioned modest objectives.

However, evidence stemming from scientific studies has lagged behind the testimonials. Presently there is a paucity of such studies; Rosin (1981) and many professionals in the field cite this as a strong need if the practice of therapeutic riding is to gain the respect and reputation it appears to deserve. One of the few studies done was a survey by Rosenthal (1975) which dealt with horseback riding as a "risk" exercise, and demonstrated mainly its physical benefits to the handicapped. Other studies have concentrated mostly on achievement motivation (Rosenfeld, 1979; Gaskins, 1976) and, though there were no reported controls in the studies, they appear to support the idea of positive influence deriving from such an exercise.

Little attention has been focussed on psychological aspects of influence, such as self-esteem, self-concept,

and locus of control. The latter has been shown to be an important consideration in feelings of mastery, independence, self-control, and is highly related to academic achievement levels (Norwicki, 1977; MacDonald, 1973). Self-concept too has been pointed out as a strong factor in the development of academic motivation (Rogers, 1969), and thus would seem to be an important variable to investigate in school age populations. It is at these and other aspects of the whole child that the therapeutic horsemanship program is aimed.

Statement of the Problem

Many claims have been made, especially in the last few years, for the physical, educational, and psychological benefits accruing from therapeutic horseback riding for the handicapped. Physical benefits with the physically disabled have been fairly well established, but benefits in other areas and from other populations have depended mainly on testimonials and case studies. Very few of the claims have been backed up with substantial empirical research. Thus the problem of this study was to select a handicapped population, in this case the learning disabled, and determine whether a therapeutic riding program could be of benefit in influencing two important aspects of the participants' psychological make-up, namely their

self-concept and locus of control orientation.

Research Hypotheses

This study centered on improvements in self-concept and internal locus of control of learning disabled children as a result of participation in a therapeutic horsemanship program. A riding group and a non-riding control group were utilized. The research hypotheses were as follows:

Hypothesis 1. Learning disabled students who participate in a structured program of therapeutic horseback riding demonstrate a greater increase in self-concept as measured by self-report on the Piers-Harris Children's Self Concept Scale, and by teacher report on a three-point Likert-type scale than students who receive no treatment.

Hypothesis 2. Learning disabled students who participate in a structured program of therapeutic horseback riding demonstrate a greater shift toward internal locus of control as measured on the Norwicki-Strickland Locus of Control Scale than students who receive no treatment.

Rationale

Theories attempting to explain animal- or pet-oriented psychotherapy hold that through the human-animal bond, many people are able to find comfort and acceptance where they cannot find it from their fellow human beings. The overall appeal of the animal is its child-like manner of

showing affection in a non-discriminatory manner. If this is true for many apparently normal people, then the question might arise as to whether it might not have considerably greater importance for persons who suffer from physical and learning disabilities or mental and emotional problems. Such a human-pet bond should help to reduce negative self-feelings and concerns in the handicapped and thereby lead to improved self-esteem and self-concept. Furthermore, in a program of animal-oriented child therapy such as the therapeutic horsemanship program, two other important variables are added to or emphasized in the process of therapy. Firstly, the handicapped, who so often find themselves dependent on others due to their special needs or problems, find now that the animals are one of the few things that are dependent on them. In the case of the horse, these children may play only a small part in caring for or grooming the animal, but this is more than made up for by the feeling of independence and power given by learning to control the much larger animal and eventually being able to compete in such an activity on a par with those who have no disability or handicap. Thus rather than depending on luck or on the power of others to help them, which is a disabling factor in itself (McDonald, 1973), the handicapped rider learns that some control is within his own grasp. Also, since an extra

risk factor maybe involved in the horseback riding program, the handicapped person may experience a special exhileration or euphoria (Rosenthal, 1975). The effect here is a further release from debilitating internal concerns and a freeing of energy for new areas of endeavor. A number of studies in psychology and education have hypothesized that this new energy is utilized and made apparent in the form of increased motivation for facing life (Curtis, 1981) and school tasks (Rosenfeld, 1979). Reasoning from these theoretical or posited considerations, it was inferred that a group of learning disabled children who participate in a program of therapeutic horsemanship can experience an increase in both self-concept and internal sense of control, the latter of which, as previously mentioned, bears a strong relationship to feelings of independence, self-control, and to academic achievement (Norwicki, 1977).

Importance of the Study

The physically and mentally handicapped have gained much exposure and attention from society in recent years. Great progress has been made since Robinson (1965) could state, in regard to the mentally handicapped, that they, "in great numbers and in dire need, have remained until this decade among the most ignored and least regarded of all children." The learning disabled may have suffered

less, but even with them a concerted interest came relatively late. Lerner (1971:13) stated in this regard that "learning disabilities as a comprehensive field of study in this country is generally considered to have begun in 1947."

However, despite even the great advances of recent years, much remains to be done before society can approach the ideal of putting the handicapped into the mainstream of education--an ideal that has become such an important concept in the last decade. New educational methods and therapeutical approaches must continue to be developed to ease the entry of the handicapped child into the "real" world and to help him cope. To do this, the handicapped person needs to regard himself as a capable and worthwhile human being. He has to be accepted and learn to accept himself, to learn to risk being as independent as possible, and to believe in himself. A program of animal-facilitated psychotherapy such as the therapeutic horsemanship program appears to fit the criteria for assisting handicapped persons such as the learning disabled to accomplish the above; that is, to increase their inadequate self-concept, reduce their anxieties and strive for the control, mastery and independence that they so often lack. As Gordon and Stewart (1981) indicated:

> All horseback riding is therapy, all horseback riding is recreational. Any riding program for the developmentally disabled, if properly organized, supervised and carried out, will provide physical improvement and emotional satisfaction. That is the ultimate goal.

Definitions

Therapeutic Horseback Riding. For the purpose of this study, therapeutic horseback riding refers to a structured program of active education concerning care and handling of horses as well as to the actual riding of horses under supervision of a qualified instructor. The therapeutic exercise aspect of the riding, to quote the definition of the North American Riding for the Handicapped Association (NARHA, 1980:2), "is specifically designed to improve the health and well-being of individuals with physical, mental, or emotional impairments."

Self-Concept. Self-concept is defined as a person's perception and evaluation of him or herself. It encompasses a multidimensional and unique composite of complex and dynamic ideas about one's own attitudes, values, morals and physical appearance. The individual's perception is gained through his or her interpretation of interpersonal interactions, relationships, behavior and experiences. In this study students self-rate themselves on self-concept by completing the Piers-Harris Children's Self Concept Scale.

Locus of Control. Locus of control, internal and external, refers to the extent to which persons perceive contingency relationships between their actions and their outcomes. An internal locus of control in a person would indicate a belief of having some independence and control over his or her destiny; external control orientation would indicate a person who believed that the outcomes of his or her actions were determined by extrinsic factors such as fate, luck or chance. In this study students self-rate themselves on locus of control by taking the Norwicki-Strickland Locus of Control Scale.

Therapeutic Riding Group. The therapeutic riding group consists of learning disabled students who are voluntarily enrolled in a therapeutic riding program, and who have consent to participate in the present study.

No treatment group. The no treatment group consists of students who are pre- and posttested, who followed a school program similar to that of the treatment group, but who do not participate in the therapeutic riding program.

Learning Disabled. Learning disabled students consist of those students in both groups who come from special programs for the learning disabled and fit the following definition from the Federal Register (1975:7411):

> Children with specific learning disabilities means those children who have a disorder in one or more of the basic psychological processes

> involved in understanding or in using language, spoken or written which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematic calculations. Such disorders include such conditions as perceptual handicaps, brain injury, minimal brain dysfunctions, dyslexia, and developmental aphasia. Such term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, or emotional disturbance, or of environmental disadvantage.

Delimitations

This study was limited to learning disabled children of grades six through eleven, who were enrolled in special classes for the handicapped in a private school in South Orange County, California, and who were enrolled voluntarily in a therapeutic horseback riding program in this geographical area. The study was controlled for type of handicap and sex (all male sample), and subjects in respective groups were highly similar in terms of grade and academic achievement level. Not all of the children were expected to have perfect attendance in the program, but those that missed more than one of their scheduled classes were not to be posttested or included in the final data. None of the participating children had been involved in this type of therapeutical riding program before, though some had indicated brief exposure to horses.

Limitations

Since the riding program was conducted in an outdoor area and at specific times, weather imposed some limitations on regular scheduling of riding lessons. Inclement weather caused cancellations that resulted in a lower number of total lessons than may have been conducted had this problem not existed.

Another inherent limitation is that this study utilized a relatively small sample from one private school in the Southern California area only, and thus, the riding study's results may be restricted in terms of generlizability.

CHAPTER TWO

Review of the Literature

Chapter two is divided into four parts. Section one reviews literature giving an historical perspective on the development of animals as therapeutical adjuncts. The second section presents literature specifically concerned with pet-facilitated psychotherapy, and more specifically with the use of the horse in such therapy. The third part explores the literature concerning the use and benefits of physical exercise in general with the learning disabled, including a note on risk exercise. Section four deals with self-concept, locus of control, and their relation to the learning disabled.

An Historical Perspective on the Development of Animals as Therapeutic Adjuncts

The history of man is intricately and inextricably interwoven with that of the rest of the animal kingdom. As a primitive example, one need only look at Paleolithic man's colored paintings of graceful leaping buffalo or galloping horses at Vezere or Altamira to understand the ancientness and depth of this relationship and see that animals played a large part not only in the economical development of man, but in the psychological development

as well. And yet, perhaps the most remarkable achievement growing out of this relationship was the domestication of some of the very animals man had at one time been able to represent only in his art.

Levinson (1969) however, indicated that the story of domestication includes man himself as well as his animal neighbors. Long ago, conditions began to permit man the hunter to leave the wilderness and nomadic life and settle into the more stationary life of shepard or planter. With this move it is apparent that he gained a certain amount of security and made greater developments in family and tribal life possible. The concept of "home" and its correlate "domesticity" could develop. In other words, man began to domesticate or "tame" himself and in the process found that he could do likewise with his environment. In fact, Zeuner (1963:30) spoke not only of the domestication of animals in general, but specifically of this change of "natural environment into a man-made one."

At this point, however, it becomes clear that some distinction must be made between the historical lines of domestication of animals in general, and the domestication and adoption of animals as pets. As Levinson (1969:5) indicated, "although the domestication of animals for food and labor may have and probably did coincide with their adoption as pets, the two roles must not be confused

or equated." It is thus suggested that the domesticated animal is useful economically or represented a saving for man in terms of physical labor; in other words, the domesticated animal is finally and strictly a "servant" of man. On the other hand, the pet has always occupied a more favored position. He has satisfied an additional need in man for, among other things, companionship. In fact, his role in this regard has been so powerful that, as Levinson (1969:5) noted, he very quickly became the equivalent of man's master:

> The different functions obviously developed to satisfy different human needs. The former catered to man's soma--the latter to man's psyche. That occasionally animals had dual or overlapping roles was as inevitable as the human confusion between the roles of a wife and a mistress.

A number of historical researchers have theorized as to the psychic function that the "pet" actually serves in man. Levinson (1969:4) stated that

> it could very well have been that when man first began to modify his environment and hence to lose contact with it, he felt a great need to strengthen his contact with nature through the adoption of pets.

This view is also apparent in Lorenz (1952) and Searles (1960). Searles (1960:6) in particular was quite explicit on the subject, and stated:

> It is my conviction that there is within the human individual a sense, whether at a conscious or unconscious level, of relatedness to his

> nonhuman environment, that this relatedness is one of the transcendentally important facts of human living, that--as with other very important circumstances in human existence--it is a source of ambivalent feelings to him, and that, finally, if he tries to ignore its importance to himself, he does so at peril to his psychological well-being.

In the same vein of pointing out the alienation which man experiences when he sets himself apart from nature, Ardrey (1970:9) commented:

> Few members of the natural sciences, however, would today dispute the evolutionary continuity of a man and the natural world, or uphold the proposition that for man exists one fate, for nature another. Difficult it may be to part with the convictions of two centuries, and for some impossible. Yet part with them we must, for while the conviction of human sovereignty has led us to dare and aspire, it has led us likewise into the Age of Anxiety. We build paradises in which we have no faith.

The above theorists point out briefly but clearly some of the roots and the ultimate price man pays for his alienation from nature. What all this has to do with pets is perhaps best dilineated by Levinson (1969). He stated that, judging from reviews of different ages and cultures, there appears to be a universal need and affection for pets. Every generation seeks reaffirmation of unity with nature through some medium, generally symbolized by a God (or Gods) which gives man a point of reference and support and, to some people, an assuagement of anxiety. "It appears that the possession of pets symbolizes this

unity with nature and thus satisfies some deep human need."

For whatever reason, it appears that the importance of pets and pet-like affiliations is a proven fact of human history--from primitive societies through ancient and medieval worlds, and up to modern times.

This importance is evident in studies such as that of Fortune (1963) concerning legends of the Dobu Islanders of the Western Pacific. In Fortune's account there is an illustration of how primitive man looked to animals for support and treasured his pets as providing him with a degree of security. The Dobus legends stress the solid relationship between man and his dog, and the powerful position socially that a man's dog may occupy. As Fortune (1963:6) stated:

> A man normally cares more for his dog than his mere acquaintances. Also cases of a man spearing his wife out of affection for his dog, which she had treated shabbily over food, have come before the white courts.

In an example illustrating the importance of pets in another primitive society, Menninger (1951) pointed out that Australian Aborigine women as well as New Guinea women suckle puppies at their breasts. Thus for primitive peoples such as these, the difference between animal young and human young often appear to be minimal.

Pets have served in a wide variety of ways throughout history. Dale-Green (1963) noted that in Egypt the

household cat was held in such high esteem that it was often allowed to eat from the same plate as its master and was often adorned with jewelry. Deemed immortal, the cat was embalmed when it died, placed in a vault and buried along the banks of the Nile in a special burial place reserved for cats. As with human royalty, food was placed in the tomb of the cat for its journey to the netherworld.

Trew (1940) gave the account of a primitive Ethiopian practice wherein the inhabitants would elect a dog for their king. By growling or wagging its tail the dog would indicate whether a favorable or unfavorable decision was to be made. And Leach (1961) noted that in the Vendidad, the Bible of the Zorastrians, there are two books discussing in great detail the care, treatment and protection of the dog. Severe penalties were and are imposed on any one who in any manner mistreats or kills a dog. To dogs, as well as to birds, the task of devouring the dead is assigned.

As is apparent from the above, there are many historic areas where neither the term "pet" nor simple "domesticate" can apply in the way previously defined and described in this review. That is, it is a fact that some animals occupied a central and favored place in man's history, and yet remained distant from him in the general psychological sense, and thus we have come to attach the connotation

of pets. It seems appropriate to mention a few of these areas of importance since, even though a slightly different relationship is evident, there continues a stress on how the identity of man has often been shaped by his association with animals favored for considerably more than their mere utilitarian value.

One such area has been that of the use of animals in religious practices. One of the most ancient uses in this area was in regard to the totem, defined by Freud (1938:808) as follows:

> An animal, either edible or harmless, or dangerous and feared; more rarely the totem is a plant or a force of nature (rain, water) which stands in a peculiar relation to the whole clan. The totem is first of all the tribal ancestor of the clan, as well as its tutelary spirit and protector; it sends oracles and, though otherwise dangerous, the totem knows and spares its children. The members of the totem are therefore under a sacred obligation not to kill (destroy) their totem, to abstain from eating its meat or from any other enjoyment of it.

The use of totems in primitive cultures has been well-documented and described in the writings of authors such as Howells (1948) and Lewisohn (1954). However, even in the world today, Menninger (1951:13) has suggested man may not have moved so far away from his ancestors in this regard. He indicated that the animals to which people are attached usually represent totemic figures, such as father, mother, or some other authority figure. He considered

these attachments as "definitely romantic and somewhat consciously erotic," and indicated that the attachment to particular animals can be due to an unconscious transfer of feelings for a human being to whom they are not shown.

Other areas where animals have occupied places of considerable importance are: (1) the realm of legendary prophetic powers; (2) the area of reputed evil powers; (3) the area of animal symbolism. However, the importance of all this for the present research lies quite clearly in the implication that the psychic development of man has retained, even up to the present, a considerable amount of the psyche of the animal from which he purportedly descended; thus his psychic dependence on maintaining contact with this animal ancestry is increasingly undeniable. Today, as Levinson (1969:24) theorized, people may be seeing the modern version of this psychic dependence in the increasing attachment to pets:

> It seems that we are now going through a pet revolution. Whereas in the ancient world the pet was worshipped and thus, in a sense, removed from the experiences of everyday life, we in modern times have elevated the pet to a being on a par with man. The affection of civilized man for his pets seems to have no bounds.

Pet-Facilitated Psychotherapy

Pet-facilitated psychotherapy (PFT) is a relatively recent term in the language. It is a result of the fact

that therapists, mainly during this century, have discovered--or rediscovered--that pet animals could act as catalysts or therapeutical adjuncts in reaching the mentally ill. This "discovery" has made it possible for this special bond between people and their pets to become the subject of a newly respectable scientific scrutiny (Curtis, 1981).

As detailed in the previous section, however, the subject is really a rather old one; it is then, the science that has not kept pace. In fact however, this is not an entirely unheard of phenomenon in the area of mental health. As Shlien (1968:xi) explained it:

> The activity of psychotherapy remains no science at all . . . but a practical art. . . .Even with the American genius for technology, the attention to behavior and the massive demand for a psychiatric industry or what may be a form of sociotherapy, psychotherapy is still, as Jessie Taft put it, "an intensely personal affair with intensely personal feelings." Our research still circles around those meanings and struggles to encompass them in a scientific framework.

The first "scientific" use of animals--other than horses, which will be covered in the following section--appears to have been undertaken at the York Retreat in England in the middle of the eighteenth century. Then considered rather revolutionary in approach, the retreat employed among its unusual techniques the carefully planned introduction of the care of pets by the patients. Jones

(1955) described the experiment as follows:

> There was an airing-court in the grounds for each class of patients and each court was supplied with a number of small animals--rabbits, poultry and others--so that the patients might learn self-control by having dependent upon them creatures weaker than themselves.

Samuel Tuke (Jones, 1955:50) commented on this experiment:

> These creatures are generally very familiar with the patients, and it is believed that they are not only the means of innocent pleasure, but that the intercourse with them sometimes tends to awaken the social and benevolent feelings.

Despite the fact that the York Retreat found some success with their method, there is little in the way of reference to the further therapeutic employment of pets until early in the nineteenth century. However, as Levinson (1969:40) stated:

> This type of hiatus is not uncommon in history and there are many examples of historic "rediscoveries" which have represented the loss of hundreds of years to the welfare of mankind.

Handicapped persons were probably the first to benefit from the systematically and widely organized use of animals as therapeutical aids. This came with the introduction of guide dogs for the blind, first developed in Switzerland and Germany early in this century. The dogs are now a common sight and a source of indispensable assistance for the blind. And more recently dogs have been trained to aid the deaf, and to help those confined to wheelchairs by fetching and carrying (Curtis, 1981).

Another experiment with dogs was undertaken by the American Red Cross at the AAF Convalescent Center in Pawling, New York during 1944 to 1945 (Levinson, 1969). The agency report states that, while collection of data was principally subjective, there appears to be "little doubt that the undertaking was worthwhile and that it has met with unusual success." The report goes on to say that

> while the dogs offer an outlet for recreation primarily, they have been therapeutic for some patients in distracting an individual's attention from himself and presenting a responsibility for care and training which could be assumed, affording in some instances normal entry to a group (Levinson, 1969:40).

The two examples above provide a record of the dearth of planned use of pets in psychotherapy before the latter half of the present century. The lack is deplorable in a sense but also may be understandable if one views the situation in a certain perspective--that is, the perspective of the treatment of <u>children</u> before the current century. In commenting on this development and its relation to the "rediscovery" of pets, Levinson (1969:31) said:

> In a sense, our relationship with pets crystallizes our relationship with our children. It is only in the twentieth century that children have been accepted for their own worth or contribution to the family and it was only when we began to speak of childhood as worthwhile in itself, rather than as a preparation for adolescence and adulthood, that the pet came into his own.

The statement above is theoretical and may, of course,

be disputed, but it does give some rationale for what would otherwise be a rather difficult question to answer; that is, "Why the great interest now?" It also points up another important point about pets--the fact that they are in essence kept in a state of perpetual childhood or at most, juvenile life (Zeuner, 1963). And it is perhaps this quality, this youth orientation, this youthful zest and honesty, acceptance and generally unconditional warmth, that is cited most often today as the reason for the therapeutical value of the animal. Marcus (1976:5) has described the effect in rather more concrete terms, especially in regard to the handicapped:

> Although animals fill different needs, the overall appeal is their non-threatening nature. For the disturbed child who often craves affection, yet is fearful of rejection, a warm loyal dog will always accept endless hugs and fondling, and anxiously return with moist licks and wagging tail. For the physically handicapped, a pet is not only a comfort during painful times, but also the incentive to continue physical therapy. A spastic little girl, for example, refused to use her legs, because she would often fall and hurt herself. Once given a lively puppy, she followed it from room to room, stumbling, crawling, and occasionally walking.

Marcus' comment also suggests one area of PFT which has received great attention lately, namely that of brief case observation and study. There is a very ample supply of these observations which, though lacking an experimental scientific basis, do point up the enthusiasm and faith

which the new type of therapy has engendered and the effectiveness with which it seem to operate. Curtis (1981), Goldfield (1978), and Levinson (1969) in particular have included notes of case observations and studies in their writings. Many others, mostly professionals in the field, have given accounts of having used pets as psychotherapeutic aides with children; these include Quaytman (1963), Rothenberg (1960), Schildkrout and Geis (Levinson, 1969).

One of the above, Schildkrout, made the following observations from her view of pet therapy as a variant to play therapy:

> 1. I use my cocker spaniel, a very gentle dog with great affection for children, as a transitional object in Winnicott's sense. This is especially relevant in the case of children who collect stuffed toys as imaginary and bed companions until well into their latency years. 2. I find the dog useful as a means of desensitization in children with dog phobias. This does not exclude the use of concurrent, appropriate dynamic interpretations. 3. As a "safe barrier" in untrusting children, who, for good reason, prefer animals to humans. this is similar to your use of pets with autistic children, but I also find it applies at times in the case of neurotic children. The three of us often take walks (Levinson, 1969:34).

From this account, it can be noted that pets can be utilized in many areas of psychotherapy, especially with children. Jon Geis reported in Levinson (1969) that he used cats with patients in the following ways: (1) use of the patient's reaction; (2) use of pets as ice-breakers;

and (3) holding imaginary conversations with pets.

Levinson (1969) saw pets as important in psychological assessment, especially in the area of enabling the observation of the unfettered and unthreatened child or adult in therapy. He saw animals as having value in many traditional areas of psychotherapy, such as role playing, transferrence, and interpretation, and took issue with authors such as Quaytman (1963), who would essentially preclude the "planned" involvement of the pet in the treatment plan.

Along with this, there has been evidence more recently from institutional and residential settings that indicate a growing recognition and acceptance of PFT. The National Humane Review (1966) reported that pets served therapeutic purposes for "severely handicapped youngsters at the United Cerebral School in Denver, Colorado." At the University of Michigan Medical Center hospital school animals are used extensively in instruction with children in the lower grades, with the animals used to provide lessons for child patients (Recreation, 1961). Norwalk Hospital carries on what they regard as a successful experiment in animal therapy; every Tuesday they hold an Animal Day for the introduction of various animals to children (Levinson, 1969). In Lima State Hospital for the criminally insane, a program of animal care has been established. About this

program, a social worker at the hospital said:

> The effect on the patients has been dramatic. I don't mean to imply that the animals alone cure or socialize anybody. But they certainly establish trust and communication between the therapists and these mentally or emotionally disabled prisoners (Curtis, 1981:54).

In the physical treatment center of the large physical therapy treatment area at the Johnston B. Buoman Health Center for the Elderly, a pet visitation program is carried out under the auspices of the Anti-Cruelty Society (Curtis, 1981). The problems of setting up such a program are suggested by the following comments:

> Programs for taking pets from shelters to visit hospitals, nursing homes and other institutions exist in many cities. These programs require real managerial ability. The best of them are carefully orchestrated by the project directors from the humane societies in close harmony with the recreation directors or other persons in charge at the institutions where the visits take place. The success of the Anti-Cruelty Society's program lies in Mary McLaughlin's tact and sensitivity in screening volunteers and in winning the trust and cooperation of the hospitals (Curtis, 1981:52).

Once again, however, it must be emphasized that the results from most of these programs rest on subjective appraisal or observational evaluation and not scientifically treated research as such (though some such areas have been explored further in the area of therapeutic riding). Nevertheless, two exemplary studies which have been done give clear evidence of the therapeutic effectiveness of

animals.

Wolfe (1977) explored the use of pets as transitional objects in early adolescence. The study found, under controlled conditions, that certain young adolescents do use their pets in ways described for a traditional transitional object. Other data from the research suggested that a highly adaptive function can be served by the use of a pet as a transitional object, especially when there is also some active and meaningful involvement with other important individuals in the child's environment.

In the other study by Fields (1977), the social interaction between persons and pets was studied by a methodological analysis in two nursing home settings. The introduction of pets had been characterized as part of a program of Pet-Facilitated Psychotherapy. The study took data from video tape transcriptions, still photographs, audio tapes, interviews, and participant observation, which was ethnomethodologically analyzed and revealed differential as well as common elements in the settings. The author concluded that

> the basic elements in pet-person social interaction in institutional settings suggest that the introduction of a pet alters a social situation in such a way that social interaction is facilitated.

Pet animals were seen to maximize social work outcomes for residents and staff also, such as increasing humane

conditions in institutional settings or facilitating behaviors in preparation for independent living. The author stated that "the potential utility of pets as adjuncts to therapeutic planning is an appropriate innovation for social work to explore."

Thus while much remains to be done in the area of scientifically validating the effectiveness of PFT, there seems to be little doubt from the literature available that the PFT approach has gained scientific respectability and that more rigorous research will, in the main, only help the process.

Therapeutic Horsemanship: Relevant Literature

Horses as pets have been with us at least since early Greek and Roman times. In fact, Gates (1931) indicated that next to the dog, the horse was second in popularity as a pet for the ancients. There is also evidence that the horse at that time found use therapeutically with the depressed and withdrawn or otherwise incurable. As noted in the previous section, Mayberry (1978) told us that the Greek physicians often put these "untreatable" persons on horseback to cheer their spirits. Likewise, Roman physicians recommended horseback riding to cure certain ailments even unto the lowly hangover (Marcus, 1976).

There is a considerable time lapse, however, before

the next substantial mention is made of horseback riding in a therapeutic vein. Bain (1965) pointed out that a number of medical texts and journals of the late eighteenth and nineteenth centuries contain references to the subject.

The first actual study of the value of therapeutic horseback riding was undertaken by Chassigne in Paris in 1875. Riding was used by Chassigne in the treatment of a wide variety of diseases and, as a result of his experiments, he concluded that riding was beneficial in the treatment of hemiplegia, paraplegia, and other neurological disorders. Several specific improvement areas were noted by Chassigne, such as improvements in posture, balance, joint movement, and muscle control, brought about by the active and passive movements provided by the horse. Dramatic improvement in morale was also noted by Chassigne (Bain, 1965).

Modern day interest in therapeutic riding seems to stem from two events. The first concerned Mrs. Liz Hartel of Denmark, who was an avid young horsewoman until she was stricken with polio in 1943. At that point, she seemed destined to spend most of her time confined to a wheelchair. However, she determined to ride again and, following many years of practice, she was able to compete in the Grand Prix de Dressage at the 1952 Olympic Games in Helsinki where she won the silver medal (Haskin, 1974).

This set a notable example for other handicapped persons who were facing similarly constricted lives and also allowed the world at large an opportunity to see what the handicapped could do with assistance and determination.

Another event occurred in england in the aftermath of World War II. Several amputee and blind soilders approached a military riding instructor, John Davies, for lessons. Davies responded to their request and it was not long after that he was asked to direct the world's first facility for handicapped riders, Pony Riding for the Disabled Trust. After approximately twelve years of teaching handicapped British children to ride, Davies came to the United States and became director of the Acorn Hill Equestrian Center in Naperville, Illinois. Today, with special equipment and trained horses, Davies and volunteers teach about fifty handicapped children in the center's indoor arena (Marcus, 1976).

The children at Davies' school are only a small number of those who by 1981 have benefitted from the therapeutic riding programs. In North America alone, by the last count in 1976, some 3,000 handicapped riders had been involved in over forty operating programs. At least twenty new programs have been accredited since that time (Annual Report, NARHA, 1976). And in 1974, an inventory of centers found there were 161 schools in England and ninety on the

continent providing therapeutic horseback riding for the handicapped. However, the Cheff Center at Augusta, Michigan in the United States is the largest facility of this kind in the world, and offers intensive courses for potential instructors of handicapped riders, as well as providing a riding program for up to 200 handicapped riders per week (McCowan, 1972).

Scientific proof of the effectiveness of these programs, as in other PFT programs, has lagged somewhat behind the enthusiasm and individual case observations. As noted in the 1980 NARHA Seminar publication, "research and scientific studies to support the benefits of riding as a form of therapy are virtually non-existent." This is especially true in the area of psychological benefit, and the same NARHA (1980) publication noted that the only such study undertaken has been a survey by Rosenthal (1975) entitled "Risk Exercise and the Physically Handicapped." In this post-riding study, Rosenthal found that therapeutic riding significantly benefitted the physically handicapped persons in the areas of increased mobility, heightened feelings of euphoria, elation, motivation and courage. However, the study utilized no control groups and increases were based mainly on observation by instructors and therapists. Further research was urged by him in the area of measurement with more precise psychological instruments.

Another study, however, was located by the present researcher. This study reported by Rosenfeld (1979) was conducted by the Special Education Learning Center in Washington, D.C. It evaluated the effect of the Rock Creek Horse Center riding program for the handicapped in Washington, D.C., on several areas of handicapped functioning. While there were areas in which the program was shown to have little or no effect upon the children, there were other areas in which the study reported impressive results, for example: (1) listening skills and the ability to follow instructions went up eighty percent; (2) interest in learning rose by forty-one percent; (3) self-confidence was sixty-two percent higher; and (4) physical orientation, or the ability to tell up from down, left from right, near from far, rose by about sixty percent. Other results from teacher reports were dramatic improvements in "verbalizing needs," in ability to "relate a brief incident," in "experience-sharing," in retaining new vocabulary, and in using full sentences. The study utilized several educational measures along with teacher evaluation, over a period of several months. The results were undeniably impressive; however, it must be noted again that proper control groups were not utilized in this study and this tends to limit the interpretation of results in a scientifically sound manner.

There have been no known scientific studies conducted in the area of social benefits from therapeutic riding, though it is conjectured that during riding therapy, participants are brought into a healthy contact with other riders, and especially in the case of the handicapped, this contact helps to broaden horizons and allows further development of social skills. Self-control and patience are developed while learning to control the horse--which first takes self-control--and repeating over and over again the basic principles of riding (Rosin, 1980).

In the area of physical benefits, there seems to be a basic agreement that therapeutic riding is effective, even with the dearth of extensive scientific study. In other words there is agreement that the benefits of therapeutic horseback riding "have a physiological basis, which must be more fully investigated" (NARHA, 1980).

Some of the physical benefits generally suggested as deriving from riding have already been mentioned in the previous comments on Davies (Marcus, 1976). However, a summary of these benefits is provided by Rosin (1980) as follows: (1) improved relaxation of spastic muscles; (2) increased strength; (3) improved coordination and reflexes; (4) improved balance; (5) improved mobility; (6) improved cardio-respiratory function; (7) a general sense of well-being developed from exercise. Rosin (1980) noted that

these and other benefits have been documented and categorized by Lorentz (Hengst, 1972). Further benefits were noted by Gaskins (1976) who maintained that riding therapy utilizes a multi-sensory approach in developing and facilitating psychomotor and other skills. Additional benefits are described by Gaskins as improvements in time orientation, visual acuity, visual-form discrimination, and anticipatory response.

The Learning Disabled and Therapeutic Exercise

Although there have been essentially no experimental studies specifically concerning therapeutic riding and the learning disabled, many of the benefits mentioned in the preceding section are considered as applicable to most handicapped populations.

To consider the benefits to the particular case of the learning disabled child, it is first perhaps necessary to gain a better understanding of the problems that are a part of being learning disabled. The definition from the Federal Register (1975) given previously in Chapter One is probably the most accepted standard for classifying the learning disabled. From that definition, it is clear that a child who has a learning disability is primarily handicapped in his understanding or use of language, a condition not to be associated with learning problems

which "are primarily the result of visual, hearing, or motor handicaps, of mental retardation, or emotional disturbance, or of environmental disadvantage." Other definitions tend to stress neurological processes and perceptual deficits (Johnson and Myklebust, 1967; Hobbs, 1975) or educational process and underachievement (Millichap, 1975). Total agreement on any one definition is lacking and this tends to add a note of ambiguity to the defining process. This ambiguity is mentioned for its relation to identifying the characteristics of learning disabled youngsters, a process which has apparently been just as difficult as finding a definition.

Pytkowicz (1968:277) pointed out that when a child is referred for evaluation of a learning disorder, "he automatically brings three problems with him: problems around learning or performing in school, emotional problems and family problems." She mentioned further that the challenge to the psychologists is to determine which problems are primary and which are secondary.

Certainly this would seem to be a rather difficult process if one considers the literature on the subject. Michael-Smith and Morganstern (1965), for example, have stated that aside from the matter of underachievement, the only other consistent characteristic that should be attributed to the learning disabled youngsters is "their

wide variability of behavior." Capobianco (1967:243) agreed in asserting that the "one irrefutable characteristic attributed to children with learning disabilities is their wide variability of behavior." However, McWhirter (1977:10) argued that the learning disabled youth and adolescent exhibited more than a variability of behavior:

> In fact, the most consistent thing about a learning disabled child is the inconsistency which he is likely to exhibit in his behavior. The behaviors and problems which typify one learning disabled child may be totally different from the behaviors and problems of another learning disabled child.

Again, according to Capobianco (1967:244):

> Candidates for these special classes are selected primarily on the basis of the overt display of certain characteristics such as underachievement, hyperactivity, distractibility, poor motor coordination, impulsivity, and short attention span and secondarily on their performance on selected psychological tests of perceptual processes.

What becomes important for these learning disabled youngsters, Capobianco argued, is not etiology but symptomatology or characteristics of the youngsters. Chruickshank (1977:58) tended to agree in principle with Capobianco when he alleged that five significant characteristic deficiencies of learning disabled or perceptual processing deficit children emerge. He called these sensory and motor hyperactivity, dissociation, figure-background reversals, perseveration, and motor immaturity or

incoordination. Myers and Hammill (1969) listed six categories of "disorders" that were characteristic of learning disabled children, including motor activity, emotionality, perception, symbolization, attention, and memory.

Thus what is being looked at with the learning disabled child is an array of characteristics that often appear ambiguous, but are certainly descriptive and well recognized by the parents and teachers of learning disabled youngsters. The descriptions, with all their disagreement and ambiguity, also strongly suggest that the learning disabled student requires help for improvement in many of the areas listed above in which he shows deficits.

One of the most promising approaches for treatment of these problems of the-learning disabled is that of physical education and recreation. As with the normal child, physical activity with the learning disabled is seen as both a complementary and alternate method to the traditional academic approach of educating the child. As Gurber (1969: 44) stated:

> Physical education and recreation should make a number of contributions to the education of handicapped children. The development of knowledge and competencies in games, dancing, hobbies, nature, and sports can improve the general functioning of the handicapped in society. Specifically, physical education and recreation programs should contribute to the child's physical development, level of recreational skills, emotional development, intellectual achievement and social competencies.

Unfortunately, few studies backing up the claims of this benefit from physical exercise have been directed specifically at the learning disabled. One such study was that of Walker (1977), which demonstrated increased attention-to-task behavior as a result of gross motor activity and painting. A second was that of Culhane (1979) which concerned an investigation of self-concept modification by aerobic conditioning. Here it was demonstrated that all physical fitness measures utilized increased endurance and aerobic capacity as a result of conditioning in the experimental group as a whole. Changes in self-concept were demonstrated, with those showing the highest degree of aerobic conditioning also showing the greatest degree of self-concept change on the measures used. A decrease of disruptive behaviors in the classroom was also shown by students in the conditioning program.

Other studies in this area seem to have been directed at the mentally retarded as much as the learning disabled, even though the retarded population is supposedly specifically excluded from that of the learning disabled. Additionally, many of these studies have yielded conflicting results and lacked scientific experimentation and controls.

One major case in point is the work of Doman (1967) and Delcato (1963), which advocated that neural patterns omitted during the neurological development of a child be

introduced to him in order to compensate for the missing links, and that physical activity is the prescribed therapy medium. Doman and Delcato thus asserted improved neurological organization from their remedial exercise program with brain-injured children; however, the encouraging results of their programs were gained in the apparent absence of scientifically controlled experimentation (Gruber, 1969).

Another study by Corder (1966) involved educable mentally retarded boys in public schools and found that a program of physical activities significantly improved physical fitness and raised IQ scores on the WISC; however, it was also found that a significant Hawthorne effect was operating in regard to the IQ scores. Kershner (1967) found improved IQ in trainable retarded children in his experimental work with the Doman-Delcato theory. Improvements in creeping and crawling were also reported by Kershner and he regarded this data as support for the Doman-Delcato theory of neurological organization and its remedial activity program. Again, however, this study did not specifically involve the learning disabled.

Most other reports of success with physical activity methods for the learning disabled appear to depend on subjective reports, case studies, and other non-experimental data. This may be in part due to the difficulty of obtaining a reliable longer-term population for studies of

a scientifically sound basis, along with a difficulty in defining the exact nature of what constitutes a learning disability. Nevertheless, the observed and generally agreed upon benefits shown for handicapped children, along with the successes of many normal children exposed to physical fitness and activity programs, have been encouraging. Gruber (1969:49) stated in this regard that

> Psychologically, every child needs successful play experiences to develop a body image or self-concept. Physical education and recreation programs can provide the child possessing a learning disability with compensatory successes and satisfactions in play not found in the academic world. Eventually it is hoped that these feelings will motivate the child in the classroom.

Stein (1974) added to the above by pointing out the developmental nature of physical activities and their ability to provide youngsters with opportunities and experience in areas that are in tune with, among other areas, their interests, abilities, and cultural background:

> Activities provide youngsters with opportunities to succeed. Regardless of factors dilineated above, every youngster can find activities in which he can succeed; emphasis is positive--not negative, and on ability--not disability; students are encouraged--not discouraged, as potential--not deficiencies is stressed (Stein, 1974:40).

Therapeutic horseback riding is a physical activity which seems to fit well into the above framework. Although it is not aimed specifically at any one handicapped population, it nevertheless holds many specific benefits for the

learning disabled child, whose lack of self-esteem and poor self-concept, his hyperactivity, poor self-control and distractibility, his emotional problems and poor social relations, and his memory deficit all make the everyday problems of life infinitely more difficult.

The following are two psychological benefits listed by Rosin (1980) for therapeutic riding in general: (1) improved self-respect and self-awareness; (2) improved attention span, motivation, concentration and self-control. Social and physical benefits accruing from riding have been listed in the previous section (Therapeutic Horsemanship) as applicable to all handicapped riders. Specifically in terms of the learning disabled youngster, the following summary of those benefits seems appropriate.

Social benefits: greater interpersonal contact and a broadening of horizons to allow further development of social skills; self-control and patience; learning of acceptable social behavior such as taking turns, respect for equipment and property rights of others.

Physical benefits: improved relaxation, increased strength, balance and coordination, visual form discrimination, anticipatory response, and a general sense of well-being.

Probably one of the most important benefits from riding programs for the learning disabled child is that of

increased motivation. Specifically in regard to this variable, Groy (NARHA, 1980:3) stated:

> Children with learning disabilities have experienced failure in the classroom and much of their everyday life. Consequently these children have little excitement left for learning and experiencing new things. However, therapeutic horseback riding provides an environment that they can succeed in--it allows the child to have accomplishments. As he becomes successful, his feelings about himself become more positive and he is in a better position to deal with his weak areas.

A Note on Risk

Although the element of "risk" was not included as a part of the present study, it merits some attention for its potential relevance to the area of therapeutic exercise for the learning disabled and other handicapped populations. The idea of risk recreation as a therapeutic approach has attracted the attention of several researchers in the last few years. Already mentioned was a study by Rosenthal (1975), which classified horseback riding as a "risk exercise" in regard to the physically handicapped. Even though in its usual practice horseback riding is not listed by most risk researchers as a higher risk exercise or sport, it is clear that Rosenthal regarded at least some horseback riding as risky exercise. Certainly it holds a degree of risk for the physically disabled, and in its more advanced stages, horseback riding

would seem to have an undeniable element of risk even for non-handicapped riders. The point is that even though the concept of risk could not be established in the present study, this does not necessarily mean that no risk was involved; indeed, a number of participating students evidenced real fears of danger during the first few riding sessions, and this is a response more appropriate to a risk sport or exercise than to, say, a dance or bowling class.

Secondly, and more importantly, the potential for risk-taking was always present in the program, which was aimed at continually challenging the students' skills. Thus the longer and more structurally challenging the program, the more chance of eliciting certain responses and improvements that are generally attributed to risk recreation activities. And what are these responses? Rosenthal's (1975) study found, as stated in the previous section, that therapeutic riding significantly benefitted the physically handicapped persons in the areas of increased mobility, heightened feelings of euphoria, elation, motivation and courage. The prime operative in producing these responses or changes was theorized to be the "RE" (Risk Exercise) response. And what is the RE response? Rosenthal suggested that it likely involved some chemical or hormone that was thrown into the bloodstream during

risk activity, which counteracted the substances adrenalin and noradrenaline, which act on the autonomic nervous system. Furlong (1969:41) clarified this reaction further:

> In essence, this response is a sensation that envelops the risk taker, usually, though not inevitably, after the activity. The sensation varies in intensity and duration according to the individual and to the degree of risk. Rosenthal is careful to distinguish the RE response from the "adrenalin high" some risk takers say they have experienced. Adrenalin, notes Rosenthal, is simply a "fight or flight" secretion that speeds up the body or gives it more energy. The RE response goes further, taking on both a strong sensory and a strong cerebral dimension.

A number of other researchers (for example, Meier, 1976; Allen, 1979; Ursin, 1978) have explored the topic of risk sport or recreation and found it has potential as a therapeutic agent. Meier (1976), in particular, suggested that risk taking in leisure activities is a relatively new concern and is a result of at least two factors: (1) increased leisure time for recreational pursuits in modern society; (2) a quest for play-excitement in the more controlled and limited societies of today, where an individual may test his far limits and enjoy the stress of self-imposed obstacles. Meier also pointed out that several values can be expected to be gained from risk recreation, including development of a sound self-concept, self-reliance and self-confidence, physical fitness, ability to deal with stress, tenacity, and cooperation.

And in terms quite relevant to the present study, Meier (1976:12) stated that risk recreation may offer unlimited possibilities for use in the public schools. The schools could implement risk recreation programs "to help students who are not only unsure of themselves, but also for those students who experience academic difficulty." Meier also stated that institutions for juvenile delinquents, community recreation agencies, and the field of mental rehabilitation could greatly benefit from risk recreation programs.

In fact, many of the types of programs that Meier described have actually been studied and they do indeed show positive measurable effect, as described above, both for normal populations of youngsters (Dickey, 1974; Iida, 1975) and for special populations such as delinquents, underachievers, and mental patients (Thorstenson, 1973; Barcus, 1972). Thus along with Rosenthal's (1975) study, the results seem quite encouraging and certainly provide another avenue of exploration for the therapeutic treatment of all individuals, and especially the handicapped. Mayberry (1978:7) commented specifically on the role that a program of therapeutic riding may play:

> What happens and why when a child or adult who is disabled learns to ride, when he becomes one with the horse, are not yet clearly understood. Is it the unique movement of the horse, the psychodynamics involved, or a primal atavistic need for experiencing controlled risks? Perhaps, it is all or none of these; suffice to say, the mystique of the horse is strong medicine.

Self-Concept, Locus of Control and the Learning Disabled

Self-Concept

Self-concept has been basically defined by Reading (1977:188) as "that organization of qualities that an individual attributes to himself." Kinch (1963) agreed with the above, but included in his definition that self-concept was the part of the conscious self that the individual is willing to reveal. Bugenthal (1967) pointed out the importance of past experiences in the formation of self-concept and of conscious and unconscious hopes and fears about one's own being. Knight (1969) viewed self-concept as a mediating hypothetical construct devised to help account for the continuing effect of present behavior or past experience.

Whatever the final definition accepted, self-concept is considered one of the most basic and crucial components of an individual's personality, affecting nearly every dimension of his life. As Goldenson (1970:1180) stated:

> It [self-concept] deeply affects not only his relationship to himself but his relations to other people and the world at large. A realistic self-evaluation and a full measure of self-acceptance and self-esteem are regarded as foundation stones of healthy adjustment.

Thus self-concept is of undeniable importance in the understanding, evaluation, and treatment of an individual. In the present study, this importance was considered in

relation to the learning disabled, who, like many other handicapped populations, suffer from often difficult and negative early experiences that affect his self-perception of life.

In a review of pertinent studies concerning self-concept and learning disabled children, Bryan and Pearl (1979) concluded that learning disabled children are indeed more likely than nondisabled children to have negative self-concepts. The self-attributions of learning disabled youngsters were found to be established by about nine years and become increasingly negative with age, thus showing an increasing imperviousness to change. Additionally, Bryan and Pearl (1979) reported that in at least one study (Beersma and Chapman, 1978), parents and teachers were shown to hold more negative expectations for the future achievements of learning disabled children than of non-disabled children, and their expectations may be even more negative than the learning disabled hold for themselves.

It is apparent from the above that the learning disabled child faces formidable odds in the development of his self-concept. In the process of early evaluation by parents and later by other adults and peers, the learning disabled child develops his own evaluation, and, if observation and research findings are accepted, it would

appear that the self-evaluation he generally makes falls into the negative category. If this is indeed the case with the learning disabled, then at least one implication involves the developing and evaluation of alternative therapeutical approaches for dealing with and enhancing his poor self-concept. The evaluation of one such method is the primary goal of this study.

Locus of Control

The internal-external locus of control construct was developed by Rotter (1954) within the theoretical framework of social learning theory. The construct was concerned with contingencies of reinforcement and whether an individual perceives a causal relationship between his own behavior and the reward or punishment outcome. The Internal-External Locus of Control Scale (Rotter, 1966) was created in order to determine the extent to which persons perceive they control these rewards and punishments. People who believe they have some control over their own reinforcements or destinies are seen as "internals" and having a belief that at least some control resides in themselves. "Externals," on the other hand, think that their reinforcements or outcomes of their actions are determined by agents or factors beyond their control, such as fate, luck, chance, or simply the unpredictable.

In the present study, the internal-external locus of control orientation is one of the measures utilized to assess the effects of the therapeutic riding program on learning disabled students. The scale used was the Norwicki-Strickland Locus of Control Scale (Norwicki, 1966), which was adapted from the Rotter scale for use with children and adolescents.

Locus of control for learning diabled students has generally been found to be more externally oriented than for non-disabled children (Bryan and Pearl, 1979; Snyder, 1980; Scott and Moore, 1980). Externality has been associated with maladjustment, anxiety, and defensiveness (Phares, Wilson and Klyver, 1971; Joe, 1971). In contrast, a belief in internal control has been related tc such adaptive behaviors as intellectual ability and achievement (Powell and Vega, 1972), independence and self-control (Norwicki, 1977), mastery of the environment (Lefcourt and Wine, 1969), and life satisfaction (Palmore and Luikart, 1972). From this evidence it may then be concluded that the learning disabled child in general is considerably handicapped by his or her orientation toward a belief in external control. As McDonald (Robinson and Shaver, 1973: 170) stated in regard to all persons, disabled or not: "all of the research points to the same conclusion: people are handicapped by external locus of control orientations."

The present study sought to examine the extent to which this locus of control orientation might be modified in the direction of internality for the learning disabled, thereby promoting a more adaptive and less turbulent adjustment to life.

Summary

Although many animals have long served man in areas far beyond simple utilitarian value, it is only more recently that the "pet" has become more fully recognized for the important place it occupies in human affairs. This modern resurgence of interest in the pet-human bond has marked the advent of a new closeness between man and animal and has opened up a new area of therapeutical treatment, commonly known today as pet-facilitated psychotherapy (PFT). The new therapy has garnered much enthusiasm and has effected the development of a great number of animal-oriented programs for the physically, emotionally, learning and mentally handicapped. PFT has attracted the eye of science and has become a respectable area of scientific scrutiny, even though much remains to be done and there is an actual dearth of scientific research existing in the field at present.

Therapeutic horsemanship is one of the most important areas being explored in PFT today. The benefits of

therapeutic riding, though they have not been studied extensively, are generally considered to be substantial. Physical benefits, especially, seem to have been solidly established for the handicapped. Many social and psychological benefits are clearly observable, and wait only for more scientific corroboration. Improvements in self-concept, shifts toward internal locus of control, and increased motivation all appear to be hypothetically possible for participants in therapeutic riding programs, and especially for the handicapped participant.

CHAPTER THREE

Method

It has been suggested by case studies, testimonials, and reports by a few qualified researchers that therapeutic horseback riding programs are of great psychological, social and physical benefit to handicapped riders. However empirical evidence to back the claims has generally been lacking. the present study sought to determine whether the handicapped (in this case learning disabled students from a South Orange County private school) did in fact benefit from a therapeutic riding program. Two measurable areas were examined, namely self-concept and degree of internal locus of control. The self-concept measures were taken from participating student self-reports on the Piers-Harris Children's Self-Concept Scale, and from teacher judgments on a three-point Likert-type scale. Locus of control was measured by student self-report on the Norwicki-Strickland Locus of Control Scale (Appendix A).

The subjects in the above procedure were two groups (N = 12 each) of learning disabled students who were voluntary participants in either a randomly selected therapeutic riding (experimental) group or a non-riding (control) group. The therapeutic riding program was run over a

period of fourteen weeks with pre- and posttesting of each subject group with instruments previously mentioned. A pre- and posttest were utilized to determine whether significant differences in the psychological variables of self-concept and locus of control had occurred.

Research Design

This study utilized an experimental pretest, posttest control group design as defined by Campbell and Stanley (1963). The experimental group consisted of learning disabled students randomly assigned to participate in a therapeutic horseback riding program in conjunction with their regular schedule of therapeutic exercise, outings and other enrichment activities. A control group of comparable learning disabled children consisted of those participating in an equal schedule of exercise and regular school enrichment activities, but who did not participate in the therapeutic riding program. Both groups were taken from a small private school for the learning disabled in South Orange County. The purpose of a no treatment "non-riding" group was to add a control factor which would make the findings more meaningful. Since both groups in this study--experimental and control--already had a school program which includes regularly scheduled therapeutically oriented exercise, several outings or field trips a month, and regularly scheduled individual and group counseling

sessions, it was not felt that a further control group addressing the so-called "Hawthorne effect" was necessary. Nevertheless, there was some attempt at controlling for the Hawthorne effect via running the experiment for a longer period of time than would have been considered had there been no Hawthorne consideration. Fox (1969: 470) addressed this option when he stated that "the best defense against this kind of bias [Hawthorne effect] is to permit the experimental period to run a long time, or to be replicated often." The rationale here, as Fox further stated is that if the Hawthorne effect is indeed operative, "it will not be maintained for a long period of time, whereas the genuine response to the independent variable will be."

Campbell and Stanley (1963:13) presented the schematic design for one treatment with repeated measures as follows:

$$\begin{array}{lll} R\ O_1 & X & O_2 \\ R\ O_3 & & O_4 \end{array}$$

Thus this particular schema is illustrated by "X" representing the independent variable, therapeutic riding.

Subjects

The subjects were twenty-four randomly selected male learning disabled students, grades six through eleven, from a small private educational center in South Orange County.

Twelve, or one half, of the students composed the therapeutic riding sample. The other twelve composed the control sample, which participated in the normal school program of regularly scheduled therapeutic exercise activities and outings, but did not participate in the riding program. Sex of students was controlled for in this study by means of an all male sample. Two other relevant variables, those of grade level and academic achievement level, were considered from demographic data gathered at the time of the pretest (Appendix A). Inspection of the data showed these two variables to have a high degree of similarity for individuals in the respective groups, and thus a formal matching procedure was not considered necessary in this study.

The school itself was selected on the basis of its available population and its representativeness in terms of similarity to other private educational institutions or centers for children with various learning problems who do not respond well in more traditional settings. The staff of the school is stable and major emphases are placed on life skills, including individualized instruction which can meet the needs of each pupil in the basic academic areas such as reading, math and social studies. Other and complementary life skills are also stressed, including development of independence and self-care and growth toward

self-worth and self-esteem. Speech and language therapy and remedial physical education, with a therapeutical approach, are provided. Each child is encouraged to develop at his own pace. A wide choice of extracurricular activities are provided, with from one to three field trips a month scheduled in activities ranging from bowling to weekend camping or hiking. In addition, on-going peer group and individual counseling sessions are part of the schedule each week for each child, and family or parent counseling may also be arranged.

Instrumentation

One instrument utilized was a teachers' pre- and post-experimental judgment on a single three-point Likert-type questionnaire as to how they perceived their students' self-concepts. This was a global judgment utilizing face validity. Reliability data were gained through the co-rater or observer technique, in which two independent observers familiar with the subject rate the subject on the desired variables. In the present study, two teachers rated eight of their learning disabled students on the Likert-type scale on students' self-concepts. This produced a Spearman Rank Order Correlation of +.92, thus establishing a high degree of inter-rater reliability for teachers' perceptions of students' self-concepts.

Two instruments were filled out by students. The

first was the Piers-Harris Children's Self Concept Scale. This is a forced-choiced self-report of eighty items which takes students approximately fifteen to twenty minutes to complete. The scale is appropriate for grades four through twelve and may be used as a group test with the teacher or examiner reading the test to students in grades six and below.

The scale was "developed from Jersild's collection of children's statements about what they liked and disliked about themselves" (Piers, 1969:2). Reliability was established by Piers through several techniques. The Kuder-Richardson Formula-21 yielded coefficients of +.78 to +.93. The Spearman-Brown odd-even formula resulted in coefficients of +.90 and +.87. Concurrent validity was measured with Lipsitt Children's Self-Concept Scale (Mayer, 1965), Big Problems on SRA Junior Inventory (Cox, 1966), teacher rating and peer rating. The Lipsitt teacher and peer ratings were reported to have positive Pearson r correlations ranging from +.06 to +.68. The SRA comparison was reported to have a negative Pearson r correlation of -.64. The norms were established on 1,183 public school children in grades four through twelve. No significant sex or grade level differences have been found to exist (Piers, 1969).

The other instrument filled out by students was the

Norwicki-Strickland Locus of Control Scale. The scale was constructed on the basis of Rotter's (1966) definition of the internal-external control of reinforcement dimension; that is, the extent to which persons perceive contingency relationships between their actions and their outcomes (McDonald, 1973). The scale is a forty item test having a Yes-No response mode, takes approximately fifteen minutes to complete, and is appropriate for grades three through twelve. Test scores are based on responses reflecting "externality," and are thus negatively correlated with internality of locus of control (that is, declining scores indicate shifts toward internal locus of control orientation). The authors make no recommendations about the method of administration, stating that both oral and self-administration has been used with individuals and groups.

The test was developed from an original item pool of 102 items. The 102 items were given to a group of nine clinical psychology staff members who were asked to answer the items in an external direction. Items were dropped for which there was not complete agreement among the judges leaving fifty-nine items. Item analysis reduced the test further to the present forty items.

Convergent validity was established through correlations with other measures of locus of control (Norwicki and

Strickland, 1977). In a comparison with the Intellectual Achievement Responsibility Questionnaire, there were significant correlations with the I+ but not with the I- scores: r = +.31, and r = +.51 respectively in groups of third and seventh graders. A correlation of +.41 with the Bialer-Cromwell Scale (Bialer, 1961) was found in a sample of twenty-nine children nine through eleven years of age. Reliability data was established via the split-half method corrected by the Spearman-Brown Prophesy Formula (Norwicki and Strickland, 1977). The correlations were: r = +.63 (grades three through five); r = +.68 (grades six through eight); r = +.74 (grades nine through eleven; and r = +.81 (grade twelve). Approximate sample sizes for the first three groups were 300, and for grade twelve, eighty-seven.

Internality of locus of control was found to increase with age and was significantly related to achievement test scores for the third, fifth through seventh, tenth and twelfth grade males, but not for females. It has also been tentatively concluded that internality is related positively and significantly to higher occupational level, especially for males.

The authors of the test conclude with the comment that new data are emerging on the test and that, due to its careful construction by researchers "of solid reputation," this scale appears to be the best measure of locus

of control as a generalized expectancy presently available for children.

Procedure

Arrangements with the Director of the American Riding Club for the Handicapped at the Rancho Del Rio Stables in Anaheim were made by the researcher to institute the study.

The principal and teachers from the selected private educational center in South Orange County were then invited to participate in the research project. Parental permission (Appendix B) was obtained for all students to be included in the pool for random sampling and participation in either the therapeutic riding or control group part of the study. The students randomly selected for participation in the study were notified and, after voluntarily consenting, represented the population for this study.

The twelve students in the therapeutic riding group attended a minimum of ten riding sessions conducted at the Rancho Del Rio Stables on Tuesday of each week, between 10:00 A.M. and noon. The first three sessions consisted of two hour lessons, one hour of which was directed at the proper care, handling, and other aspects of the horse, and the other hour at the actual riding of the horse in graduated exercises. The other seven sessions were one hour each and consisted of therapeutic riding lessons only.

The sessions, of necessity, took place outdoors, and thus the weather factor occasioned a number of cancellations. For this reason, a period of fourteen weeks, stretching from February 15, 1982 through May 30, 1982 was allowed for completion of the program. The twelve students in the control group followed their usual enriched school program, participating in other therapeutically-oriented exercises or activities for time periods similar to those of the riding group.

Testing was conducted during the second week of February and the last week of May. All students were tested by the researcher of this study, with assistance in monitoring by trained teacher aides in each class. Students at the school were rountinely given educational and psychological tests and evaluations, and thus it was considered that the introduction of this test situation did not create an undue experimental effect. In addition, instructions indicated that these tests were meant to evaluate the effectiveness of certain activities in the school activities' program, and thus specific mention of evaluation of the riding program, which may have caused bias in test marking, was avoided.

Data Collection and Recording

During the last two days of the week previous to the

first riding lesson, students in both the therapeutic riding and the non-riding control group were tested on both the Piers-Harris Children's Self Concept Scale and the Norwicki-Strickland Locus of Control Scale. Teachers also filled out and returned the Likert-type questionnaire on self-concept and a demographic survey, including a rating of student academic achievement level. Posttesting and evaluation with the same instruments was done during the last two days of the last week of the program following the last riding session.

Tuckman (1972) suggested the use of analysis of variance or t-test for studies with the type of variables in this study. The t-test was selected and used to determine differences between the two groups, as well as within the two groups, for teacher and student-reported self-concept and for student report of locus of control orientation.

Additional analyses, utilizing the Pearson product moment correlation coefficient, were made to determine the relationship that students' grade level and academic achievement level (teacher rated) might have to positiveness of self-concept and internality of locus of control. The correlation statistic was also used to test for the relationship between self-concept and degree of internal locus of control for all students involved in the study.

The dimension of "favorable experience" in the riding program, which was a posttest field instructor evaluation (Appendix A) for the riding group, was examined for its relationship to student reports of self-concept and locus of control.

CHAPTER FOUR

Research Findings

Chapter four covers statistical analysis of data generated by learning disabled students and their teachers in regard to two hypotheses, and to additional questions derived from those data. Twenty-four students in two equal groups, grades six through eleven, in a private school for the handicapped, were included in the final data analysis. Responses from eight teachers were included. Each student who participated in the study was administered the Piers-Harris Children's Self Concept Scale, the Norwicki-Strickland Locus of Control Scale, and was also teacher-rated on self-concept on a three-point Likert-type scale.

Results Relevant to Hypotheses

Hypothesis 1 stated that learning disabled students who participate in a structured program of therapeutic horseback riding demonstrate a greater increase in self-concept as measured by self-report on the Piers-Harris Children's Self Concept Scale and teacher report on a three-point Likert-type scale than students who recieve no treatment. The hypothesis as stated in the null form was: There is no significant difference in self-concept,

as measured by student self-report and teacher report, between learning disabled students who participate in a structured program of therapeutic horseback riding and students who receive no treatment.

Null Hypothesis 1 was accepted at the .05 level of significance, thus giving no support to the research hypothesis that the therapeutic riding program contributed to positive significant change in self-concept for the riding group versus the non-riding group (Tables 1 and 2).

Table 1

Means, Standard Deviations, t-Statistic, and Levels of Significance for Riding vs Non-Riding Group on Self-Concept (Student Report)

Groups	Mean	S.D.	t	df	Significance
Student Self-Report					
Riding Group	57.50	12.01			
			1.01	22	p>.05 (n.s.)
Non-Riding Group	61.75	7.10			

Hypothesis 2 stated that learning disabled students who participate in a structured program of therapeutic horseback riding demonstrate a greater increase in internal locus of control as measured on the Norwicki-Strickland

Table 2

Means, Standard Deviations, t-Statistic, and Levels of Significance for Riding vs Non-Riding Group on Self-Concept (Teacher Judgment)

Groups	Mean	S.D.	t	df	Significance
Teacher Judgment					
Riding Group	1.83	0.69			
			0	22	p>.05 (n.s.)
Non-Riding Group	1.83	0.69			

Locus of Control Scale than students who receive no treatment. The hypothesis as stated in the null form was: There is no significant difference in locus of control orientation as measured on the Norwicki-Strickland Locus of Control Scale between learning disabled students who participate in a structured program of therapeutic horseback riding and students who receive no treatment.

Table 3 shows the comparisons of the riding and non-riding groups on the locus of control scale. The resulting t-value based on the change of scores for the two groups (pre- to posttest) indicated that there was a significant difference beyond the .02 level. Null Hypothesis 2 was rejected, thus supporting the research hypothesis of a significant shift toward internal locus of control in the

riding group versus the non-riding group. Since change scores were used and a significant posttest difference was not obtained, the qualification may be made that while there are strong indications that the therapeutic horseback riding program led to a significant shift toward internal locus of control, the indications may not be strong enough to posit that a definite relationship exists. Table 4 presents the results on the posttest data.

Table 3

Means, Standard Deviations, t-Statistic, and Levels of Significance for Riding vs Non-Riding Groups on the Norwicki-Strickland Locus of Control Scale (Change Scores)

Groups	Mean	S.D.	t	df	Significance
Riding Group	-1.83	2.61			
			-2.71	22	p<.02
Non-Riding Group	-2.17	4.14			

Table 4

Means, Standard Deviations, t-Statistic, and Levels of Significance for Riding vs Non-Riding Groups on the Norwicki-Strickland Locus of Control Scale (Posttest Scores)

Groups	Mean	S.D.	t	df	Significance
Riding Group	14.92	5.36			
			-1.12	22	p>.05 (n.s.)
Non-Riding Group	17.50	5.44			

Additional Analyses

Self-Concept

As stated, Hypothesis 1 was not supported by the data. However, an additional statistical analysis was completed to examine a possible significant relationship between teacher and student reports of self-concept for the two groups combined. The product moment correlation coefficient between the two variables at pretest was .00 (p>.05) and at posttest +.28 (p>.05). The conclusion was that student ratings of their self-concept were not shown to be related by this study.

Another analysis which was considered pertinent to a thorough understanding of the data was to determine whether improvement in self-concept within either of the two groups

(riding and non-riding--control) was significant. Table 5 shows the t values for the comparisons in both groups.

Table 5

Changes Within Groups on Student Self-Report of Self-Concept

Groups	N	Pretest Mean	Posttest Mean	t	Significance
Riding Group	12	59.25	57.50	0.61	P>.05 (n.s.)
Non-Riding Group	12	62.42	61.75	0.20	P>.05 (n.s.)

Neither group revealed a significant change in self-concept. Improvements in teacher ratings of students' self-concept within each of the two groups were also analyzed via the t-statistic and found to be non-significant (Table 6).

The possible effect of grade level was also tested for significance for both students' and teachers' ratings on changes in students' self-concept. The product moment correlation coefficient comparing student ratings and grade level taken at posttest time (N = 24) was +.56, while the comparison of change scores in student ratings and grade level was +.49, showing significance consecutively at the .01 and .02 levels of significance. The conclusion was that a significant positive relationship exists between

Table 6

Changes Within Groups on Teachers' Report of Students' Self-Concept

Groups	N	Pretest Mean	Posttest Mean	t	Significance
Riding Group	12	2.08	1.83	1.39	P>.05 (n.s.)
Non-Riding Group	12	1.67	1.83	1.00	P>.05 (n.s.)

students' ratings of self-concept and grade levels. However, a similar analysis of the relationship between teacher ratings of students' self-concepts and grade levels failed to indicate that a significant relationship exists in this area (+.30 for posttest comparison and +.08 for change score comparison, both non-significant, p>.05).

Locus of Control

Hypothesis 2, as stated, was supported by the data. As with self-concept, an additional analysis was performed to determine whether there had been significant improvement toward internal locus of control within either of the two groups, riding and non-riding (control). Table 7 shows the t values for the within group comparisons. The riding group evidenced a significant (.05 level) change toward internality (thus a belief that they had some control over their own rewards and punishments), while the non-riding

control group evidenced no significant change (and thus had more of a tendency to believe that extrinsic factors such as luck or chance controlled their rewards and punishments). This outcome also lent further support to Hypothesis 2.

Table 7

Within Group Changes on Internal Locus of Control

Groups	N	Pretest Mean	Posttest Mean	t	Significance
Riding Group	12	16.83	14.91	2.36	$p<.05$
Non-Riding Group	12	15.33	17.50	1.74	$p>.05$ (n.s.)

This possible effect of increasing grade level of students was examined again, this time as it might relate to locus of control scores. The product moment correlation coefficient revealed no significant relationships in this area.

Academic achievement is a variable that has been frequently associated with locus of control and thus an analysis of the relationship between the two areas was performed. Since the teacher rating of student achievement was taken only at the pretest time as a demographic variable, both pre- and posttest locus of control comparisons

relate to the initial academic rating. The correlation coefficients were +.41 and +.43 respectively, indicating that higher academic achievement was related to greater internality for this population.

In order to determine whether a relationship existed between students' report of locus of control and his reported self-concept, the product moment correlation coefficient was again utilized. The pretest r of -.27 revealed no significant relationship; however, a posttest r of -.52 was significant at the .01 level. This gave some evidence to the conclusion that increasingly internality in locus of control is related to more positive self-concept.

Favorable and Unfavorable Experience

Through the course of this study, it became apparent to the researcher that different students in the horseback riding group had quite consistent responses to their experience. These responses seemed to fit into either an overall favorable pattern or an overall unfavorable pattern. Thus a subjective student rating scale was devised to be completed by those adults most involved with and responsible for the field portion of the program, namely the director of the therapeutic riding program at the Anaheim stables and the coordinator of the riding program

for the participating school. These individuals were asked to submit a brief evaluation of each student in terms of three criteria which were considered by the researcher to indicate favorable or unfavorable experiences in the riding program (Appendix A). The result was a split of six students evidencing overall favorable experiences and six overall unfavorable experiences. An example of a brief evaluation of a student whose experience gained a favorable rating was: "Good rider, enjoyed the program, eager to go every week. Good attitude." An example of an "unfavorable" evaluative summary was: "Not always eager to take direction. Wanted to go on his own most of the time. Fair rider, but seemed bored. Difficult to keep him out of trouble before and after riding."

Since the ratings were subjective and time did not permit reliability or validity data to be gained for the evaluative criteria, the ratings cannot be considered scientific data. However, they do hold an offer of some insight that may have implications for the data, principally in terms of who may or may not gain from a riding program.

A product moment correlation coefficient was calculated between the favorable and non-favorable data and gain scores on the two independent measures. Even with the extremely small number of subjects in each group, a

point-biserial correlation of +.61, significant at the .05 level, was shown between gain scores on the Piers-Harris Children's Self Concept Scale and favorable experience rating in the riding program. The correlation between shift towards internal locus of control and favorable experience rating was +.45, which was not significant at the .05 level. The non-significant finding for locus of control appeared to have been due to the fact that ten of the twelve subjects actually showed gains in internal locus of control, which threw the correlation off. Actually, the mean gain in locus of control for the favorable experience group was +.67, a statistic which may give a clearer picture of the differences involved.

The above results would suggest that the elements of favorable or unfavorable attitudes toward, and experience with, a riding program are a significant factor in the success or failure of participants in that program. The implications for selection and on-going evaluation of participants are thus self-evident.

Subjective Impressions

While subjective impressions are not scientific data, they often give some insight into the data. Thus it was noted by the researcher that many students enrolled in the riding program experienced considerable difficulty in

calming down for the non-riding portion of the initial three sessions. However, once they entered the actual riding phase, most students were able to exhibit at least an adequate degree of self-control. This suggested, as might be expected with many learning disabled students, that the students responded best to a high degree of structured activity, and that the non-riding portion of the program may have been lacking the tight structure needed for this particular group. Also, since the director of the program, who was in general very tolerant and supportive, reported that she had not had similar difficulties with previous learning disabled groups, it may be that this particular group included a greater number than usual of students displaying hyperactivity and shortened attention span. Supervision of the students seemed generally adequate, but would have probably benefitted by having extra personnel from the school available for that purpose.

Subjectively, the researcher, along with others involved in the program, could not help but wonder what effect session cancellations due to rain may have had on the outcome of the study. With a completely unexpected total of five sessions having to be cancelled at the outdoor riding facility, an every-other-week schedule virtually became the pattern until near the last month of the program. These cancellations, it would seem, would have

some effect on the consistency and efficacy of the program, not to mention the problems they often created in restructuring the regular school schedule.

Despite all this, however, the students in the program seemed to develop a group cohesiveness, often giving support to each other and providing both positive and negative feedback on riding and behavior. Two students, both enrolled in the program, had had a dominant-submissive relationship before the riding had begun. As the more submissive student improved in his riding, his teacher noted that he gained steadily in respect from his critical classmate and could speak to his former adversary on a near equal basis by the end of the program.

Again, these are subjective comments and observations for which the design and instruments of this study were not generally appropriate. Most of the impressions were gained during the study or at the end, and thus future studies would have to include them in initial design considerations.

CHAPTER FIVE

Conclusions

The purpose of this study was to assess the effects of a program of therapeutic horseback riding under experimental conditions to determine whether it is a viable method for improving the self-concept and locus of control orientation of learning disabled youngsters. To accomplish this, the following hypotheses were tested: (1) Learning disabled students who participate in a structured program of therapeutic horseback riding will demonstrate a greater increase in self-concept as measured by self-report on the Piers-Harris Children's Self Concept Scale and teacher report on a three-point Likert-type scale than students who receive no treatment; and (2) Learning disabled students in a structured program of therapeutic horseback riding will demonstrte a greater increase in internal locus of control as measured on the Norwicki-Strickland Locus of Control Scale than students who receive no treatment.

The study compared two groups of learning disabled students from a private educational center in South Orange County. Twenty-four male subjects, grades six through eleven, were randomly selected from the larger school

sample, with one-half, or twelve students, composing the therapeutic riding group. The other twelve composed the control group, which participated in the normal school program of regularly scheduled therapeutic exercise activities and outings, but did not participate in the weekly riding program. Sex of students was controlled for by means of an all male sample. The two groups also showed high similarity in terms of grade level and academic achievement level, according to demographic data gathered at the time of the pretest. All test data were secured from three instruments: the Piers-Harris Children's Self Concept Scale (student self-report), a three-point Likert-type self-concept scale (students' self-concept rated by teachers), and the Norwicki-Strickland Locus of Control Scale to measure the degree students perceive that they control their own rewards and punishments. Teachers and students completed pre- and posttest instruments over a fourteen week period for participating students.

Analysis of the data did not support Hypothesis 1 concerning increases in self-concept due to participation in the therapeutic riding program. Neither student report of self-concept change nor teacher report of students' self-concept change was significant. However, Hypothesis 2 was supported by the data, with a t value of -2.71, significant at the .02 level. Since this statistic represented a

change score comparison rather than a posttest comparison (the latter was not significant), the acceptance of Hypothesis 2 was qualified by stating that there was a strong indication that the riding program led to a shift toward internal locus of control, but the indications may not yet be strong enough to state that a definite relationship existed.

Additional analyses of the data were made. It was found that there was a significant within group change over the test period for the riding group in locus of control orientation, but not for the non-riding control group. Within group changes on the Piers-Harris were not significant for either the riding or the non-riding group. In a comparison of student self-ratings on self-concept and teacher ratings of students' self-concept, it was found that the two were unrelated. Grade level proved to have a significant relationship to students' rating of their self-concept, but not to teachers' rating of students' self-concept. A non-significant relationship was found between grade level and student locus of control reports; however, locus of control did show a significant relationship to teacher-rated academic achievement level. An analysis to find a relationship between students' report of locus of control and their reported self-concept found a significant relationship between the two measures on

posttest ratings, but not on the pretest. In a consideration of those riding group participants who evidenced overall favorable or unfavorable experiences with the riding program, it was found that favorable experience and gain scores in self-concept (student self-report) were significantly related, while favorable experience and gain scores in internal locus of control did not demonstrate a significant relationship.

It was concluded, based on these findings, that a program of therapeutic horsemanship led to a student-reported shift toward internal locus of control, but not to significantly positive increases in reported self-concept. Teachers and students differed on students' self-concept changes. A significant association was found between students' self-concept and locus of control ratings. Higher grade level was a factor in student report of positive self-concept, but not in teacher report of students' self-concept, nor in student self-report of locus of control orientation. Teacher-rated academic achievement level and internal locus of control orientation showed a significant relationship. Overall reports of favorable experience in the riding program were significantly related to improvement in self-concept and indicated that the favorable experience variable may be of importance in the evaluation of this type of riding program.

Discussion of the Findings

Self-Concept

Hypothesis 1 was not supported. On additional analysis, it was also found that there were no significant within group changes in self-concept for either of the two groups of learning disabled students. However, it should be noted that a number of conditions appear to have contributed to this lack of significant results.

It was pointed out by Piers (1969) that a long enough interval should be allowed between pre- and posttests for changes in self-concept to take place. Piers did not specify an ideal time lapse, but indicated only that it should be longer than several weeks. The present study was conducted over a period of fourteen weeks and would thus seem to be long enough to gain some impression of change in self-concept; however, a riding program conducted over a six month to a year's time would possibly have greater impact on changing students' self-concepts than over the shorter period. Some credence is lent to this idea by Rosenthal (1975) in his study of the benefits of therapeutic "risk" riding with the physically handicapped. He found, in his two year study, that "good reactions" to the riding program were at their height at six months and that "elated to euphoric" reactions, considered a quantum step higher, were at their height after two years of

participation. Thus length of time, which in the Rosenthal study developed more skill and less apprehension, may be a strong element for judging the effects of any therapeutic riding program. Another point in the present study should also be considered; that is, while the length of the program was marked for fourteen weeks, only ten actual sessions were run, due to inclement weather cancellations and difficulty of arranging make-up sessions. Thus the relatively brief one-hour sessions that comprised the majority of the program may have contributed to less of an impact on self-concept. Furthermore, the three initial two-hour sessions themselves may have contributed to a lessening of self-concept due to a problem with structuring the hour non-riding part of those sessions. Several of the students, being learning disabled with complications of hyperactivity and emotional problems, simply could not control themselves during the less action-oriented non-riding part of the session. Since stricter controls were necessitated by some of the disruptive behavior, this may have been an unavoidable reinforcing agent to some of the students' already poor self-appraisal. At any rate, a more tightly structured session for the non-riding part of the program would seem to minimize the possible negative effect of the behavioral variable and maximize the exposure of the student to the overall beneficial

aspects of the riding program.

The type of population itself may also have contributed to certain difficulties in measuring self-concept change. First, as Piers (1969:18) indicated concerning normal populations, self-attitudes are "probably less stable in childhood than in adolescence." Since the population of the present study included eighteen of the twenty-four subjects in the over fourteen years of age category, it might be theorized that the self-concept of these older students were more stabilized and less subject to more extreme shifts that would yield significant changes. The fact that the subjects were also learning disabled also supports this conclusion since, as stated by Bryan and Pearl (1979:223), the "maladaptive attitudes of the learning disabled are established by about nine years and become increasingly more negative with age." This would suggest that the older the learning disabled child, the more difficult it would be to bring about any significant positive attitude change.

Another point that would seem of importance in this discussion is the possibility of the older students in this study being, as their teachers described it, "test-wise." In other words, and especially with the Piers-Harris Scale which is in many ways a simpler type of test than the locus of control scale, students were seen by many

teachers as "faking" or putting down expected answers which would make them "look good." Piers (1969) noted that this phenomenon is more common with younger children, but the maturity level factor could place many learning disabled children in this category emotionally. At any rate, when the reported group mean of all students in the present study is compared with norms for students in grades four through eleven established by Piers, the present students rest rather comfortably at the sixty-sixth percentile; this would seem a little high for learning disabled students who have generally been credited with moderate to severe self-concept problems. The fact that less than half the total students improved at all in their self-concept would also appear problematical in light of Piers' suggestion that some moderate gains are to be expected simply as a result of retaking the same test. In other words, the question arises whether students were responding with their true feelings or responding as to what they knew would "look good," and this in spite of the stressed anonymity of the self-report surveys.

In regard to the non-significant finding for posttest comparisons of teacher reports of students' self-concept, several points should be noted also. Firstly, there was the difficulty of student transfers to different classes during the course of the study. In at least four cases,

this meant having a different teacher doing the post-evaluating than did the pre-evaluating. Secondly, the three-point Likert-type scale needs to be considered. The scale may simply have been too broad to have lent itself to finer discriminations which would have reflected more changes in self-concept.

The non-significant relationship between teacher ratings of students' self-concept and student self-reports on the Piers-Harris possibly raises the question of accuracy of both reports. However, as already mentioned, the difference in type of scales used with each evaluation may have contributed to some of this difference. On the other hand, the present findings support Ullman (1952), who found that children's self-reports correspond only slightly with the way their teachers and peers rate them. The question seems to concern whose report would be considered most accurate. In this regard, teacher evaluations have their supporters (Aldelman, et al., 1978), as do the student self-evaluations (Allport, 1961; Rogers, 1951). Lerner (1978) offered a third solution to the question, suggesting simply that the truth lies in neither the students' reports nor the teachers' reports, but in a comnbination of both.

Finally, the present study supported Piers' (1969) report of no significant difference among grade levels as

compared to scores on student self-report of self-concept. Since the majority of students were in grade eight or higher however, this finding is probably not so important as it might otherwise be with a range of students extending into the lower grades. A comparison of teacher ratings of students' self-concept with grade level also showed no significant association.

Locus of Control

Hypothesis 2 was supported. It was found that those learning disabled students who participated in the therapeutic riding program demonstrated a greater shift toward internal locus of control as measured on the Norwicki-Strickland Locus of Control Scale than students who did not participate in the riding program. As previously noted, the data utilized for showing significance were comparisons of the change scores for individuals in the two groups rather than a comparison of posttest scores, the latter of which showed no significant differences. The qualification was thus added, concerning significance, that there were strong indications that the riding program led to a shift toward internal locus of control, but the indications may not be strong enough to state that a definite relationship existed. However, the finding of significance also received some support from an examination

of within group differences in which it was found that the riding group alone evidenced significant (.05 level) movement toward internality on the posttest measure.

It is concluded that the therapeutic riding group of learning disabled students evidenced a significant gain over their non-riding group counterparts in internal locus of control. This indicates that the riding group made important advances, especially considering their disability toward a better adjustment to life with gains in feeling a mastery over their environment and in beliefs that their reinforcements are directly contingent upon their own behavior. Since several investigators (Joe, 1971; Phares, Wilson and Klyver, 1971) have associated externality with anxiety and defensiveness, one would also expect a decrease in these maladaptive traits among the experimental group.

The study did not lend support to Norwicki and Strickland's (1971) report of increasing internal locus of control with age, or at least age as measured by grade level, in the present study. However, the non-significant findings here are difficult to explain, but may have been due to the smallness of the present population. On the other hand, a significant relationship was found in relating teacher-rated academic achievement and internal locus of control; this finding supports Norwicki and Strickland's

(1973) report of internals having higher achievement orientation than externals. It may also suggest, as other researchers have noted (Bendell, Tollefson and Fine, 1980), that locus of control orientation may be quite an important consideration in the planning and structuring of academic and other programs.

A significant relationship was found to exist between student's report of locus of control and his reported self-concept. This would lend support to the study by Fitch (1970), who found that the more internal an individual's locus of control, the more positive his self-concept.

Favorable and Unfavorable Experience

The riding group participants were evaluated at the end of the riding program on the overall favorableness or unfavorableness of their experience in the program. The evaluations were subjective and were made by the two individuals in charge of the field aspect of the riding program. It was felt that a knowledge of the effects of favorable or unfavorable attitudes toward the program might have some effect on the way students scored on the measures of self-concept or locus of control. It was found that favorable attitudes toward and experience with the riding program correlated significantly with positive gains in student reports of self-concept; a non-significant

relationship was found in a comparison of favorable experience in the riding program and gains in internal locus of control. The element of "favorableness of experience and attitude" was deemed an important consideration for a program of this type and one that deserved further investigation.

Implications

The implications from this study centered around the effectiveness of therapeutic horseback riding as a change agent with learning disabled students. Therapeutic riding, as utilized in this study, led to a significant shift toward an internal locus of control for the riding group of students as they reported it. These increased feelings of internality, and thus a belief that rewards and punishments are contingent on the individual's own behavior, were not matched in significance by a control group of similarly learning disabled students who participated in other therapeutic exercises and activities, but not in the therapeutic riding program. This would suggest that a program of therapeutic riding can be effective in bringing about an improved adjustment to life through the major beneficial aspects which have recommended it as a therapeutic approach, namely: (1) the non-discriminatory and essentially unconditional acceptance of rider by the

horse which releases the rider, and especially the handicapped rider, from debilitating judgmental concerns; (2) the dependence of the animal on the rider, which allows for feelings of increased independence and power in those controlling the much larger animal; (3) the realization by the rider that he or she need not depend on luck or the power of others to help him, and thus increases his faith in his own ability to confront and explore his environment.

The most obvious therapeutic implication from the change toward internal locus of control of the present riding participants is that there is a real need for this type of therapeutic approach in working with handicapped populations, with the learning disabled the case in point. The learning disabled have typically had a pattern of externality of locus of control, with its indications of poor self-control and dependence on others, lower academic achievement and feelings of powerlessness over his or her own destinies. Structured riding programs are an active alternative to more traditional therapeutic approaches for dealing with these problems. A riding program can also be fairly easily incorporated into a school schedule, as shown in the present study, and thus would tend to enhance any therapeutic recreational program already functioning. It may also add an element of risk that may be effective in motivating many students. The

fact that internal locus of control orientation correlates highly, in this study as in others, with higher academic achievement level and positive self-concept, would suggest that the introduction of a therapeutic riding program could be of great value in influencing a wide range of school-related difficulties for the learning disabled child. Educators, administrators and guidance personnel need to encourage the incorporation of non-academic pursuits into the school schedule which lead to development of the whole person and thus make that person more capable of dealing with the very tasks with which the school is most concerned. Perhaps it should be even more recognized in the area of special education that all children need to find areas in which they can excel on a par with other children and yet not feel a destructive competitiveness which tends to make them even less capable or desirous of approaching the mainstream of peer-related activities.

As mentioned above, internal locus of control and positive self-concept showed a significant correlation for participants in this study. However, the results of the study did not show significant improvement in self-concept for the riding group over the non-riding group on the basis of posttest or change scores. There would seem to be some conflict in findings here and the implication, while in a strict sense being that the riding program

is not a significantly influential factor in changing self-concept, is tempered by several considerations. Firstly, a greater length of time for running the program may have yielded more consistent and/or significant results; secondly, an initially more strongly structured and overall less-interrupted program might have the effect of at least not hampering movement toward more positive self-concept; thirdly, age of students and potentiality for self-concept changes along with "test-wiseness," are factors that might receive greater consideration in the utilization of certain instruments such as the Piers-Harris.

There was also a non-significant finding evidenced in posttest comparisons of teachers' reports of students' self-concept. The implication here was that while the reports did not lend support to the present hypothesis, there was a need to reevaluate the type of test instrument used for this measure, the three-point Likert-type scale, and to assess its sensitivity effectiveness when finer discriminations might be called for.

A final implication was the desirability of considering the attitudinal and experiential dimension of favorableness or unfavorableness toward a program such as the present one. It was found, on a posttest evaluation of riding group participants, that overall reports of

"favorableness" toward the riding program were related to significant positive gains in self-concept; this would thus seem to be an area which could refine methods of selection for those involved in setting up their own riding programs. If a student evidenced an unfavorable attitude initially to participating in a riding program or if his initial experiences were evaluated, on the basis of selected criteria, to be negative or unfavorable, then the student's appropriateness for and ability to benefit from the program could be better assessed. This would tend to enhance chances of success for both the program and the individual child, who could be funneled into areas more appropriate to his needs.

Recommendations

The present study opens the door to further research and exploration. The program of therapeutic horseback riding in this study contributed significantly to increases in internal locus of control for the riding group of learning disabled students. Therefore, it is strongly recommended that additional research be undertaken in order to further substantiate the relation between therapeutic riding and locus of control. There are several available alternatives for this type of research.

Replication of the present study is, of course, a

possibility. Replications with modifications in the nature of the riding program are also possible, such as: tightly structured two hour, rather than one hour, sessions might be used throughout the program; sessions might be run twice a week rather than once a week, and might be considered as an after school activity that could be compared to a similar after school activity for a control group; and the program could be run for a longer period, say six months to a year, since research indicates results should be at their maximum and evidence more stability in this type of study over a longer period of time.

Since the present research showed no significant gains for self-concept in riding/non-riding group comparisons, further research is needed to explore the consistency of this report, especially in light of the significant correlation often obtained, and reported in this study, between student reports of positive self-concept and internal locus of control orientation. It is recommended that factors such as age of students and potential for change in self-concept be taken into account, as well as the degree of "test-wiseness" of students and thus verity of the responses. A younger population of learning disabled students might tend to yield more significant results on the self-concept measure utilized in this study.

A more refined instrument for measuring teacher report

of students' self-concept is recommended. The instrument should have greater discriminating power than the scale used in the present study, and thus also make correlations of student-teacher reports of self-concept more accurate.

A riding program with a larger population of learning disabled participants, which would increase the chances for accurate findings, is recommended. Also, investigation of the effects of the riding program with related handicapped populations, such as the emotionally disturbed, is suggested. Further research is also recommended to examine the relevancy of the present study for female learning disabled students.

Reports by parents of learning disabled children participating in a riding program would seem to yield significant information on changes in self-concept and locus of control. The role that the element of "risk" plays in therapeutic riding programs, such as the present one, that deal with a handicapped population and have graduated exercise to challenge the increasing skills of the riders, should be further investigated.

The present study showed a significant relationship between assessment of students' favorable or unfavorable attitudes and experience with the riding program and the positivity of their self-concept. A high, though non-significant, relationship was also shown between the

"favorableness" dimension and internal locus of control. It is thus recommended that a further investigation be made of the relevance of this favorable/unfavorable experience dimension for future riding programs.

APPENDICES

Appendix A

RESEARCH INSTRUMENTATION

PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE*

Here are a set of statements. Some of them are true of you and so you will circle the yes. Some are not true of you and so you will circle the no. Answer every question even if some are hard to decide, but do not circle both yes and no. Remember, circle the yes if the statement is generally like you, or circle the no if the statement is generally not like you. There are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

1. My classmates make fun of me ..... yes no
2. I am a happy person ..... yes no
3. It is hard for me to make friends ..... yes no
4. I am often sad ..... yes no
5. I am smart ..... yes no
6. I am shy ..... yes no
7. I get nervous when the teacher calls on me ..... yes no
8. My looks bother me ..... yes no
9. When I grow up, I will be an important person .. yes no
10. I get worried when we have tests in school ..... yes no
11. I am unpopular ..... yes no
12. I am well behaved in school ..... yes no
13. It is usually my fault when something goes wrong yes no
14. I cause trouble to my family ..... yes no
15. I am strong ..... yes no
16. I have good ideas ..... yes no
17. I am an important member of my family ..... yes no
18. I usually want my own way ..... yes no

19. I am good at making things with my hands ..... yes no

20. I give up easily ..... yes no

*Sample items from instrument.

NORWICKI-STRICKLAND LOCUS OF CONTROL SCALE*

Below are a set of questions. To each question circle yes if you agree, circle no if you do not agree. Answer every question, but do not circle both yes and no. There are no right or wrong answers.

1. Do you believe that most problems will solve themselves if you just don't fool with them? Yes No

2. Do you believe that you can stop yourself from catching a cold? Yes No

3. Are some kids just born lucky? Yes No

4. Most of the time do you feel that getting good grades means a great deal to you? Yes No

5. Are you often blamed for things that just aren't your fault? Yes No

6. Do you believe that if somebody studies hard enough he or she can pass any subject? Yes No

7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway? Yes No

8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do? Yes No

9. Do you feel that most of the time parents listen to what their children have to say? Yes No

10. Do you believe that wishing can make good things happen? Yes No

11. When you get punished does it usually seem it's for no good reason at all? Yes No

12. Most of the time do you find it hard to change a friend's (mind) opinion? Yes No

*Sample items from instrument.

SELF-CONCEPT EVALUATION
Teacher Form

Student _____ Teacher _____

Grade _____ Date _____

Please complete the item below, using one form for each student. This form will be used in collecting information for the therapeutic riding study being conducted in conjunction with your school. All responses will be kept confidential.

1. How would you rate this student's self-concept?

	Good	Medium	Poor
Score	3	2	1

Comments or observations: _____

EXPERIENCE/ATTITUDE SURVEY
Post-Experimental

Eugene Carlson
Therapeutic Riding Program Study

Evaluator: _____ Date: _____

In the spaces provided below, please make comments concerning students who participated under your supervision in the therapeutic riding program. Please evaluate the following areas for each student: (a) attitude and enjoyment; (b) problems encountered; (c) performance; and (d) adjustment and behavior.

	Overall Experience Rating	
	Favorable	Unfavorable
1. (Name) _____		
2. _____		
3. _____		
4. _____		
5. _____		

DEMOGRAPHIC SURVEY
Teacher Form

Directions: Please complete the items below, using one form for each student. this form will be used in gathering additional information for the therapeutic riding study being conducted in conjunction with your school. All responses will be kept confidential.

1. Name of student: _____

2. Grade: _____ Age: _____

3. How would you rate this student's general academic achievement level in your class:

Top Third _____ Middle Third _____ Bottom Third _____

Score 3 2 1

4. Number of siblings in family: _____

5. Father's occupation: _____

6. Has the student had previous experience riding horses? _____. If so, extent of experience: _____

_____

Has student participated in a structured program of therapeutic horsemanship? _____. Details, if known or obtainable: _____

_____

Appendix B

LETTER TO PARENTS

January 29, 1982

Dear Parents:

We are pleased that our school has been selected to participate in a program that will enable some pupils to have a series of about 10 horseback riding lessons at no cost to you. The lessons will be given by Frosty Kaiser, an experienced teacher, and the program is directed by Eugene Carlson. Those pupils who are selected will be asked to complete two surveys, one entitled "The Way I Feel About Myself" and the other a personal reaction survey.

We have found that most of our pupils enjoy activities of this type. Please sign the attached form and return it to the school via return mail.

Thank you for your assistance.

Very truly yours,

Barbara J. Rossier, Ed.D.

BJR/ls

Pupils Name: _____

I would _____ would not _____ like my child to participate in the horseback riding program.

_____ _____

Parent/Guardian Signature Date

(Please return this form to your child's teacher by February 2, 1982.)

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