

THE EFFECT OF AN INTERNALLY DIRECTED TEACHING
APPROACH IN AEROBIC DANCE ON
SELECTED HEALTH VARIABLES

A DISSERTATION
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TEXAS WOMAN'S UNIVERSITY

COLLEGE OF HEALTH SCIENCES

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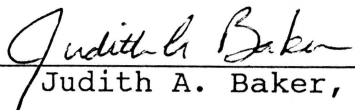
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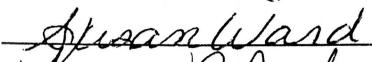
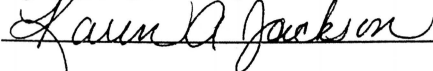

May 12, 1994

To the Associate Vice President for Research and Dean of the Graduate School:

I am submitting herewith a dissertation written by Deborah L. Kern entitled "The Effect of an Internally Directed Teaching Approach in Aerobic Dance on Selected Health Variables." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Health Education.

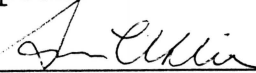

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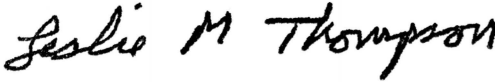
We have read this dissertation
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Chair, Department of Health Studies

Accepted:


Dean, College of Health Sciences


Associate Vice President for Research
and Dean of the Graduate School

DEDICATION

This dissertation is dedicated to my parents, Lee and Lynn Kern, who have provided me an unshakable foundation, have filled me to overflowing with unconditional love, and have taught me how to believe in myself.

ACKNOWLEDGMENTS

The process of writing this dissertation was only possible with the encouragement and support of family, mentors and friends. I am overcome with a sense of gratitude as I attempt to acknowledge each of them.

Many faculty members provided support to me. I would like to thank my advisor, Dr. Judy Baker, for exposing me to new ideas, reading and editing my work, nurturing me as my mentor and my friend, and always being honest. I would also like to thank Dr. Susan Ward for her gentle and comforting manner, for believing in my ideas and encouraging me to write about them; Dr. Cissell for helping me feel like part of the family in the department of Health Studies, for broadening my understanding of health education as a profession and serving as such a great role model; Dr. Karen Jackson for guiding me through data analysis and sharing her enthusiasm for NIA; Dr. Tandy for instilling in me a love for history and for being an inspiring office mate and mentor; Dr. Jean Pyfer for representing me to her faculty and allowing me to work with students from the department of kinesiology; and Dr. Linda King for being a friend, teacher and supporter from start to finish.

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Although I am responsible for conducting and documenting this research, the ideas on which it is based are not new nor my own. I would like to thank Debbie and Carlos Rosas for sharing NIA with me and supporting me in this project. Also, I am indebted to all of my NIA students, especially Judy, Ali, and Robyn, for showing me what it really means to teach an internally directed class.

ABSTRACT

COMPLETED RESEARCH IN HEALTH SCIENCES
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The purpose of this study was to investigate the effect of using an internally directed approach in teaching aerobics classes on the following variables: general self-esteem, physical self-esteem, and state-trait anxiety. General self-esteem was measured by Rosenberg's Self-Esteem Scale, and physical self-esteem was measured by Field and Steinhardt's Physical Self-Esteem Scale. State and trait anxiety were measured by the State-Trait Anxiety Inventory. A total of 68 female college students completed a pretest; next they received seven weeks of experimental or standard control treatment intervention; then they completed a posttest. The experimental treatment group received an internally directed teaching approach based on NIA (Neuromuscular Integrative Action) while the standard treatment control group received an externally directed teaching approach based on traditional aerobic dance instructional methods. An ANCOVA analysis of the data showed no significant difference between the groups on

posttest general self-esteem, physical self-esteem, and state anxiety. However, there was a significant difference in posttest trait anxiety ($p < .05$). The treatment group receiving an internally directed approach scored significantly lower trait anxiety than the standard treatment control group which had received an externally directed approach. Qualitative analysis of focus groups supported the finding that members of the internally directed group had improved their anxiety coping skills as a result of the aerobics, whereas members of the externally directed group did not make any changes in anxiety coping skills. These findings suggest that aerobic dance programs may be more effective in positively impacting trait anxiety if they incorporate internally directed teaching approaches.

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CHAPTER I

INTRODUCTION

Over the past 15 years Americans have begun taking a more active interest in health than ever before. Evidence that regular activity increases life expectancy, helps maintain functional independence into old age, and enhances quality of life has enticed many Americans to begin exercise programs. Unfortunately, few Americans engage in regular physical activity despite the potential benefits. With only 12 percent of the population reporting that they are moderately active seven days a week, the Department of Health and Human Services issued an objective for the year 2000 "to increase moderate daily physical activity to at least 30% of the people" (U.S. Department of Health and Human Services, 1992, p. 55).

The physiological benefits of exercise have been studied exhaustively and are now well-documented and substantial evidence indicates that aerobic activity performed on a regular basis will aid in the reduction of risk factors that may lead to cardiovascular disease (Barnard, 1975; Barnard, Weber, Weingarten, Bennett, & Pritikin, 1981; Cureton, 1969; Kasch, 1976; Kasch, Wallace,

Van Camp, & Verity, 1988; Pollock, Wilmore, & Fox, 1978; Sharkey, 1981; Wilcox, Bennett, Brown, & McDonald, 1982).

Recently, however, a new emphasis is being placed on the psychological benefits of aerobic activity. Studies have found that not only does one's physical health benefit from aerobic exercise, but also one's mental health (Dishman, 1988; Heaps, 1978; Ledwidge, 1980; Sachs & Buffone, 1984). Earlier anecdotal reports of post-exercise positive affect have been confirmed by numerous scientific investigations (Carmack & Martens, 1979; Morgan, 1981; Young & Ismail, 1976). Specifically, exercise appears to have a tranquilizing and antidepressant effect on participants; thus, anxiety and depression have been the two variables receiving the most scientific attention (Berger, 1984; Morgan, 1981).

Because much of the exercise literature related to psychological stress focuses on running (e.g., Morgan, 1979, 1987; Sachs & Buffone, 1984), possible psychological benefits of other types of exercise remain little known. Berger and Owen (1983, 1986, & 1987) examined the causal versus associative issue in the relationship between exercise and stress reduction. They found that swimming and jogging have similarities and that the psychological results from each activity were also similar. Both swimming and

jogging promote abdominal breathing. And, they are both competitive at recreational levels, repetitive and rhythmical, and temporally and spatially predictable, that is, they are closed motor skills.

Due to the lack of research examining the psychological effects of different types of aerobic dance classes, this study focused on the effects of two different teaching methods in aerobic dance classes on general self-esteem, physical self-esteem, and state-trait anxiety.

Statement of the Problem

The problem of this study was to investigate the effect of using an internally directed approach in teaching aerobics classes on the following variables: general self-esteem, physical self-esteem, and state-trait anxiety. A total of 75 female students completed a pretest; next they received seven weeks of experimental or standard control treatment intervention; then they completed a posttest. The experimental treatment group received an internally directed teaching approach while the standard treatment control group received an externally directed teaching approach.

Purpose of the Study

The purpose of this study was to determine if an internally directed approach is more effective in changing selected variables than an externally directed approach

using female students enrolled in aerobics classes at Texas Woman's University in an experimental design.

Hypotheses

The following four hypotheses were tested:

1. There is no difference in general self-esteem between treatment and standard treatment control group on the posttest.

2. There is no difference in physical self-esteem between treatment and standard treatment control group on the posttest.

3. There is no difference in state anxiety levels between treatment and standard treatment control group on the posttest.

4. There is no difference in trait anxiety levels between treatment and standard treatment control group on the posttest.

Definition of Terms

The following terms were operationally defined for this study:

1. Internally directed approach refers to a teaching approach in which the instructor encourages participants to direct their motions through internal cues, emphasizes the process rather than the goal of exercise, has a mind/body orientation, is a partner in the experience, uses

visualizations to instruct movement, fosters enjoyment of the movement, and allows individual expression of emotions (Rosas & Rosas, 1987).

2. Externally directed approach refers to a teaching approach in which the instructor directs the participants with external cues, emphasizes the goals of exercise, encourages participants to follow the leader and conform to the movement pattern that is established, has a body centered orientation, acts as the expert rather than a partner in the experience, uses technical language to instruct movement, and focuses on safe and correct execution of the movement (American College of Sports Medicine, 1991; International Dance Exercise Association, 1986).

3. Anxiety is subjective, consciously perceived feelings of apprehension and tension accompanied by or associated with activation or arousal of the autonomic nervous system (Spielberger, Gorsuch, & Lushene, 1970).

4. State anxiety is the anxiety an individual feels at a particular moment in time in terms of intensity of feelings (Spielberger, Gorsuch, & Lushene, 1970).

5. Trait anxiety is the anxiety an individual generally feels in terms of frequency of occurrence (Spielberger, Gorsuch, & Lushene, 1970).

6. Aerobics class is a movement class divided into the following segments: warm-up (5 minutes), aerobic activity (25-35 minutes), cool down (5 minutes), muscle toning (10-15 minutes) and stretch (5 minutes) (American Council on Exercise, 1992).

7. General self-esteem describes perception of self as measured by Rosenberg's Self-Esteem Scale (Field & Steinhardt, 1992).

8. Physical self-esteem describes perceptions of self as measured by the Physical Self-Esteem Scale (Field & Steinhardt, 1992).

9. A dropout was a participant who was absent from three or more aerobics classes during the seven week treatment phase or failed to complete the pretest or posttest.

10. Participants were considered absent if they missed an entire class or are more than 15 minutes tardy.

11. Energy is classically defined in physics as a force that does work. It is multifaceted, however. For example: mechanical energy is used when fingertips press on the keys of a computer to move them; emotional energy is used to create the responsive body sweat which can be measured by the galvanic skin response, and intellectual

energy, or thoughts, create an energy which is measured by magnetoencephalographic readings (Krieger, 1993)

12. Centering is a psychophysiological experience that occurs when the mind, body, and spirit become fully integrated in dynamic balance (Crum, 1987).

13. Connectedness refers to the connection within a person, such as feet being connected to ankles or breath being connected with abdominal movement, as well as a person's connection to the outside world (Rosas & Rosas, 1987).

Limitations and Delimitations

The following limitations were identified for this study:

1. A convenience sample was used.

2. There was a potential for instructor bias. In order to minimize this limitation, the instructor prepared for each class by reviewing the list of characteristics for each class that she taught. Also, the instructor was videotaped in each of the classes in order to monitor verbal and non-verbal differences in the class instruction.

3. Although participants were asked to refrain from talk about their aerobics class with other students, there was a potential that participants might inadvertently

contaminate the other group with information about their intervention.

The following delimitations were imposed on this study:

1. Only female students over the age of 17 and enrolled in aerobics classes during the Spring semester of 1994 at Texas Woman's University were permitted to volunteer for the study.

2. Physiological measures were not taken in order to prevent a "testing" threat to validity.

Background and Significance

Three centuries after Descartes, the sciences of medicine and health promotion are still based on "the notion of the body as a machine, of disease as the consequence of breakdown of the machine, and of the doctor's task as repairer of the machine" (Engel, 1977, p. 377). This paradigm has led to a prominence of "healthism" in the United States, a belief in which a physically fit body is equated with total health and wellness. Not only is a physically fit body considered the key criterion for health and wellness, it has become a moral imperative (Colquhoun, 1990; Crawford, 1980; Kirk & Colquhoun, 1989). Therefore, in their efforts to promote health, fitness professionals have focused on changing physical characteristics such as

body fat percentage, weight, resting heart rate, and aerobic capacity.

By emphasizing physical goals, fitness programs teach individuals to value discipline, self-restraint, denial, and external control. This value system has led to the development of countless diet programs and books which espouse restrained eating, self-discipline, and a regimented eating style in order to achieve a desired physical state. It has also led to the increase in personal fitness trainers who are hired to design exercise programs and motivate their clients who seek desired physical outcomes. In the arena of aerobics classes, this value system has led to a teaching style in which the instructor leads the class in uniform movement, focusing on isolated parts of the body in order to achieve desired physical outcomes (Johnston, 1994; Rosas & Rosas, 1987).

There are many criticisms of this approach to health promotion: the increasing number of individuals who exercise excessively (Davis, 1990b), the rising incidence of eating disorders (Kurtzman, Yager, & Landsverk, 1989; Yates, 1991), and the promotion of a thinness standard of body attractiveness as a panacea for life's difficulties (Kissling, 1991; Silverstein, Perdue, Peterson, & Kelly 1986).

CHAPTER II

REVIEW OF LITERATURE

This literature review examines studies related to exercise and the following variables: general self-esteem, physical self-esteem, and anxiety. An overview of the literature regarding the importance of psychological variables on overall health is also provided.

The literature in psychology, counseling, health education, occupational therapy, physical therapy, and medicine indicates that aerobic exercise can positively affect mental health (Buffone, 1980; Harper, 1979), as well as physical functioning (Cooper, 1968). Poor emotional and physical health have been known to be related since the times of Plato and Aristotle. Moreover, emotional growth is encouraged when the body is healthy, and regular aerobic exercise can contribute to such health (Brown, 1979). Regular exercise can enhance both physical and psychological components of health (Berger, 1984; Sharkey, 1981).

A recent study by Antoni, Schneiderman, Fletcher, Goldstein, Ironson, and Laperriere (1990) supported the theory that exercise can have important psychological and immunological effects. These researchers studied the

effects of aerobic exercise training on gay male subjects with asymptomatic HIV-Type 1. They found that a time-limited aerobic exercise training program appeared to enhance both cellular and humoral immune functioning among HIV-1 seropositives and, to a larger extent, seronegatives.

Notably, the majority of studies examining the effects of aerobic exercise on psychological variables have used running/jogging as the form of exercise. However, according to Dishman (1988, p. 328) "it seems unlikely that all types, volume, and settings of exercise will affect all aspects of mental health for all people." The mood elevating benefits of jogging cannot be generalized to other forms of physical exercise (Berger, 1984).

The most notable research that examined exercises other than running/jogging used swimming and aerobic dance. Berger and Owen (1983, 1986, 1987) investigated the mood benefits of swimming because of its similarities to jogging. Both include repetitive and rhythmical movements, aerobic qualities, self-pacing, and the freedom to tune into one's own internal dialogue. At the end of a 14 week semester swimmers reported significantly less tension depression, anger, confusion, and more vigor after exercise than immediately before.

Choi, Van Horn, Picker, and Roberts (1993) studied mood changes in 107 women after an aerobics class. They found that there were significant differences in mood and fatigue before and after the class. Mood improved and fatigue decreased.

Exercise and General Self-Esteem

Physical activity has been found to have a positive causal effect on self-esteem changes in adults (Sonstroem, 1984). Smith and Brandt (1979) found that exercise can improve self-esteem and body image, as well as reduce tension and insomnia. Many of these are direct results of the physical benefits of exercising. Self-esteem is often improved because a person has completed a chosen goal. But the key is that the exercisers are given a realistic approach so that they can feel good about what they accomplish.

Sonstroem and Morgan (1989) constructed a model for examining exercise and self-esteem interactions. This self-esteem model is based on the rationale that self-esteem is enhanced through exercise participation. Its dimensions include competence and self-acceptance, and it is operationally defined through measures of physical work expenditure, physical self-efficacy, physical competence,

physical acceptance, global self-esteem, and perceived importance of self-conception components.

Subjective feelings of positive well-being have been associated with aerobic running, which in turn enhances self-esteem (Gondola & Tuckman, 1983). According to Eischens, Greist, and McInvaille (1977), the thoughts people have while running may assist them in shaping and modifying their self-perceptions. A sense of personal exhilaration may also result from improvements in musculature (Greenwood, 1976). Moreover, self-esteem enhancing life-style changes such as positive alterations in diet, reduced alcohol consumption, improvement in sleep, and reductions in self-abusive behaviors may occur as a result of involvement in regular aerobic exercise.

Hawkins (1981) found that participants in a walking and jogging program reported significant improvements in self-esteem and body image. Carmack and Martens (1979) indicated that many adults run to improve self-image, self-respect, and sense of identity. In addition, Summers, Machin, and Sargent (1983) found that approximately 70% of the non-elite adult marathon runners in their survey attributed increased self-confidence and insight to running.

In the Netherlands, 455 men and 523 women participated in a study on the relationship between seven health

practices and seven personality factors (Vingerhoets, Croon, Jenga, & Menges, 1990). Results revealed that regular exercise was associated with a healthier profile which included higher scores on self-esteem.

Not all research supports the theory that exercise improves self-esteem. In a study using 85 women, Nagy and Frazier (1988) examined the impact of a 15-week aerobic training program on self-esteem. Results showed that there was no direct or indirect influence on the improvement of mood states from the aerobic training.

Exercise and Physical Self-Esteem in Women

The current thin beauty ideal for American women is not a new beauty standard. It emerged in the 1920s, disappeared during the 1940s and 1950s, came back into popularity with super model, Twiggy, in the 1960s and has dominated American culture ever since (Johnston, 1994). As culture has become increasingly complex, so have beauty standards. The past 30 years have brought an increasingly difficult beauty ideal. While the 1960s reintroduced the thin beauty ideal, during the 1970s and 1980s other beauty criteria was added: fitness and muscle tone. For most women, the beauty standards of the nineties have become impossible to achieve (Kilbourne, 1987).

Society's beauty standards are strongly communicated to individual women. For example, 90 percent of all American girls ages 3 to 11 years have a Barbie doll (Johnston, 1994), an early role model with a figure that is not attainable in real life. Following are some other messages women receive about ideal beauty through the media:

1. In 1992, the ten popular magazines most commonly read by young men and women were reviewed for articles and advertisements related to weight loss. The result was that women's magazines contained 10.5 times more articles related to dieting and weight loss than did the men's magazines (Johnston, 1994).

2. A study of the body measurements of Playboy magazine centerfolds and Miss America contestants for 1979 through 1988 found that the majority of women had a body weight 13 percent to 19 percent below the normal weight for women in that age group (Johnston, 1994).

3. Sixty-nine percent of female television characters are thin, and only 5 percent are overweight (Silverstein, Perdue, Peterson, & Kelly, 1986).

4. Diet (for weight loss) and exercise articles in six popular women's magazines dramatically escalated between 1959 and 1988 (Wiseman, Gray, Mosimann, & Ahrens, 1992).

5. The average person sees between 400 and 600 advertisements per day, and one of every eleven commercials has a direct message about beauty (Silverstein, Perdue, Peterson, & Kelly, 1986).

According to 1992 statistics provided by the National Association of Anorexia Nervosa and Associated Eating Disorders (Johnston, 1994), the thin beauty standard for women has influenced the following phenomena:

1. Eight million Americans have an eating disorder.
2. Seventy percent of teenage girls are on a diet.
3. Over 95 percent of all women overestimate their body size, often by as much as 25 percent.

4. A significant number of teenagers describe their "ideal self" as being 5'7" tall, weighing 110 pounds and having blue eyes and long blond hair. Many of them also describe her in terms of her resemblance to Barbie, the doll.

5. Plastic surgery tripled between 1986 and 1988; 80 percent of the surgeries were for cosmetic reasons.

There are good reasons to engage in regular aerobic exercise. As noted throughout this review of literature, studies support the benefits of aerobic exercise, both in terms of physical as well as psychological benefits.

However, in search of unattainable beauty ideals, many women are over exercising.

Research indicates, however, that too much exercise may be worse than none at all. Women whose body weight falls below a certain point can cease to menstruate, possibly caused by the fact that their bodies must attempt to conserve as much energy as possible (Barrow & Saha, 1988). Furthermore, research supports that over-exercise can overtax the body and leave it at risk for infections and other ailments (DeBenedette, 1990). Brownell, Steen, and Wilmore (1987) found that just as dieting sends starvation cues to our bodies, which respond by slowing the metabolism, over-exercise may send similar cues and have similar results. This means that people who over-exercise may actually have to eat less to weigh the same.

In her research, Johnston (1994) found that 30 percent of the runners that she surveyed, both male and female, believed that looking better was the primary motivation for working out. Although it is true that improved appearance can come from exercise, when looking good is overemphasized as a motivator for exercise, three things can occur.

First, exercisers are less likely to reap the stress management benefits right after a workout because it takes a while to see changes in muscle tone and appearance. Second,

feeling pressure to exercise for appearance can turn a potentially positive sign of self-care into a chore. Exercise becomes a mandatory activity to keep up with appearance. Then as the exerciser becomes focused on the outcome of the exercise, rather than enjoying the process of physical activity, exercise becomes a chore that can actually produce rather than alleviate stress.

Third, on an emotional level, exercising for weight and muscle tone shows that the way one looks is more important than the way one feels. Two recent studies (Adame, Johnson, & Cole, 1990; McDonald, & Thompson, 1992) found that women whose exercise motivation was attractiveness also had lower self-esteem and a higher dissatisfaction with their bodies. They were also more likely to diet and suffer from eating disturbances. Exercising for health and stress relief, on the other hand, was associated with higher self-esteem.

Imm and Pruitt's (1991) results, from a study examining body shape satisfaction in female exercisers and non exercisers, support the theory that over-exercising is related to low physical self-esteem. They found that high frequency exercisers had a significantly more negative view of their body shape than a group of moderate exercisers and non-exercisers. In addition, high frequency exercisers were

more likely to continue to exercise even when feeling ill than were moderate exercisers.

In a study examining the relationships between personality characteristics and physical variables of 86 female avid exercisers and 72 female non-exercisers, Davis (1990a) found that greater body dissatisfaction among avid exercisers was related to poorer emotional well-being and that self-esteem was related to physical appearance. She also found that dedication to regular exercise may foster a heightened degree of body narcissism, a distorted impression of body size, and an increased likelihood of developing an obsessive attitude toward weight control.

Exercise and Anxiety

The hypothesis that exercise is related to anxiety has been researched extensively. Perhaps this is because an estimated 25% of the population suffers from mild to moderate depression, anxiety, and other emotional disorders. Some cope with these disorders individually, without professional assistance (Berger & Owen, 1992a) but it has been found that chronic exercise can influence mood state positively and decrease anxiety in normal subjects (Brown, 1988). Hayden, Allen, and Camaione (1986) found that trait anxiety was reduced following participation in a 12-week endurance exercise program. But on the other hand,

excessive long-term exercise may lead to fatigue, anxiety, and depression (Dishman, 1988).

Numerous studies have examined the relationship between exercise and anxiety. Exercise, or at least jogging, has been associated with short-term decreases in anxiety and depression for members of the normal population (Bahrke & Morgan, 1978; Berger, 1984; Morgan, 1979; Wilson, Berger, & Bird, 1981) and clinical populations (Greist, Klein, Eischens, Faris, Gruman, & Morgan, 1979; McCann & Holmes, 1984). Studies on depressed patients have revealed that aerobic exercises are as effective as different forms of psychotherapy, and that the exercises have had an antidepressive effect on patients with mild to moderate forms of depression (Martinsen, 1987, 1990; North, McCullagh, & Van Tran, 1990). North et al. (1990) found that exercise activity is more beneficial than leisure activity for all varieties of depressive disorders.

Aerobic activity can reduce anxiety, depression, tension and stress, and vigor and clear-mindedness (Bahrke & Morgan, 1973; Berger, 1984; Blumenthal, Williams, Needels, & Wallace, 1982; Dishman, 1985; Morgan, 1979; Raglin & Morgan, 1987; Wilson, Berger, & Bird, 1981). Kobasa, Maddi, and Pucceti (1982) have found that exercise can help to buffer the stress-illness relationship. In their study of 137 male

business executives, Kobasa and colleagues found that the personality construct of "hardiness" (i.e., commitment, control, and challenge) and exercise interact with each other to help decrease illness in the face of stressful life events. While they found that hardiness enabled subjects to transform the stressful event cognitively, exercise helped to decrease the strain of stress on the organs. They found that those subjects who ranked highly in both hardiness and exercise were the healthiest.

Aerobic running has been proven to yield positive benefits in management of anxiety (Harper, 1978; Lion, 1978; Morgan, 1979). Included in these benefits are relaxation, awareness of bodily reactions to stress, and the development of psychological as well as physical resistance to stressors (Harper, 1979). King, Taylor, and Haskell (1993) found that exercisers who had been involved in a 12 month exercise training program showed reductions in perceived stress and anxiety in relation to the control group.

Orwin (1984) postulated that running causes breathlessness and increased autonomic activity, which, in turn, competes with and inhibits phobic anxiety. This suggests that the metabolic needs of vigorous physical activities such as aerobic running antagonize the anxiety response. Other investigators have maintained that

physiological changes as a function of regular aerobic running reduce the stress experience (Dienstbier et al., 1984; Edington & Edgerton, 1976).

Effects of Psychological Variables on Physical Health .

For some time, behavioral scientists have been aware of the mind's role in the etiology of certain physical complaints - headaches, ulcers, allergies, etc.-and recovery from them (Cox, Taylor, & Holley-Wilcox, 1982; Dreher, 1987; Leventhal, Meter, & Nerenz, 1980). In a classic study, Greer and his colleagues (1979) studied 69 women with second-stage nonmetastatic breast cancer who had been treated with simple mastectomy. Three months after surgery, each subject was given a structured interview in order to determine her adjustment to the cancer. The adjustments were characterized as follows: a) fighting spirit, b) denial, c) stoic acceptance, and d) helplessness or hopelessness. At a five-year follow-up, those with fighting spirit were statistically the most likely to be alive and free of recurrence of the disease. Those who fell into the denial category were more likely to have survived and still be free of the disease than those characterized by stoic acceptance or hopelessness/helplessness.

While depression is generally held to be an etiologic factor in many cases of cancer, chronic depression is even

more widely believed to increase the risk of death from the disease (Adler, 1990). However, Zondermand, Costa, and McCrae (1989) studied almost 9,000 adults over a period of ten years and found that "no significant risk for cancer morbidity or mortality was associated with depressive symptoms" (p. 1191). Nonetheless, this study has been criticized for focusing on depressive symptoms that do not meet DSM-III-R (American Psychiatric Association, 1987) criteria for depressive disorders.

From the foregoing discussion, it is clear that stress is somehow related to immunosuppression. Borysenko (1984) offered the following explanation: a) a potentially stressful stimulus is processed in the cortex of the brain; b) the limbic system relays emotional information to the hypothalamus, which is primarily concerned with the regulation of homeostasis; c) neurosecretory cells in the hypothalamus are then stimulated and release small neuropeptides which travel to the pituitary gland and other parts of the brain; d) these messengers modulate the release of hormones like adrenocorticotrophic hormone (ACTH); e) ACTH then amplifies the distress signal by causing release of potent systemically active corticosteroids from the cortex of the adrenal gland; f) hypothalamic neurons simultaneously increase activity of the sympathetic branch of the autonomic

nervous system; g) this then causes secretion of catecholamines (i.e., epinephrine and norepinephrine) from the adrenal medulla; h) it also causes the release of eight additional hormones, i) the corticosteroids and catecholemines are known to decrease the efficiency of the immune system via inhibition of both macrophages and lymphocytes; j) disease susceptibility is consequently enhanced.

Aerobic Dance Instruction Guidelines

A safe and successful aerobic dance program depends on the instructor's ability to apply sound instructional principles and practices. In fact, effective teaching may well be the most important aspect of the aerobic dance instructor's role. Inadequate leadership is often cited by participants as a reason for dropping out of formal exercise programs (Franklin, 1986; Neiman, 1986).

One of the most commonly cited learning models in aerobic dance instruction guidelines was developed by Fitts and Posner (1967) who theorized that there are three stages of learning for a motor skill: cognitive, associative, and autonomous. Within the first or cognitive stage of learning, the learners make many errors and have highly variable performance. They know they are doing something wrong, but they do not know how to improve their

performance. Learners in the second or associative stage have mastered the basic fundamentals or mechanics of the skill. Their errors tend to be less gross in nature and they can now concentrate on refining their skills. During the third or autonomous stage, the skill becomes automatic or habitual. Learners can now perform without thinking and can detect their own errors.

Because participants are at these different stages of learning, The International Dance Exercise Association (IDEA) (1986) suggests that instructors use the "part approach" to teaching. The part approach breaks a skill down into its components and participants practice each part. Instructors should teach each step in its simplest form. Once participants have mastered the steps, the steps should be placed in the proper sequence.

The lesson plan for an aerobic dance instructor should consist of class objectives, planned activities and the time allotted for each activity, necessary equipment, and patterns of class organization. The following are example class objectives (The Exer-Safety Association, 1986; IDEA, 1986):

1. The participant will maintain or increase cardiorespiratory fitness by exercising aerobically for 15

to 30 minutes at an intensity of 65%-75% maximal heart rate reserve.

2. The participant will increase or maintain adequate and specific flexibility by performing the following stretching exercises to their fullest range of motion: hamstrings, quadriceps, etc.

3. The participant will increase or maintain adequate and specific strength by performing the following exercises for three sets of 12 repetitions: leg lifts, curl-ups, etc.

Instructors assume the responsibility for determining the participant's level of fitness, degree of motivation, reasons for exercising, objectives, and level of knowledge. Instructors are encouraged to focus on the purpose of each selected exercise and activity. Knowing the benefits of each exercise helps the instructors select appropriate class activities (Brick & Brick, 1988; Cooper Institute for Aerobics Research, 1992).

The tempo of the music in an aerobic dance class determines the progression of exercise and, because it dictates the speed of movement, the intensity of exercise. The guidelines are very specific in detailing the appropriate beats per minute for each activity. Likewise, the guidelines detail movements that are considered to be contraindicated such as hyperextension of

any joint, flinging limbs, and forward trunk flexion (The Exer-Safety Association, 1986; IDEA, 1989).

The style of teaching suggested in training manuals (Brick & Brick; 1988; IDEA, 1989) is one in which instructors make all the decisions about posture, rhythm, and duration while participants follow their directions and movements. The guidelines state that this style is most appropriate when instructors want to achieve immediate participant response, participant emulation of instructor as role model, participant control, safety, avoidance of alternatives and choices, efficient use of time, and perpetuation of aesthetic standards.

Internally Directed Approach to Aerobic Dance Instruction

The internally directed approach as defined in this study is represented in the literature by Yoga, martial arts, and Mind/Body Fitness instruction. Having been considered a passing fad in the 1960s and 1970s, yoga has once again become popular and is being integrated into mainstream fitness. One reason for this resurgence is the increased interest in the body-mind connection. This connection is created by using awareness of the breath and concentration of the mind throughout the poses. Unlike the traditional instructional approach in aerobic dance class, participants are encouraged to move according to their own

breathing patterns instead of to the beat of the music. Also, unlike the traditional instructional approach, there is not a list of contraindicated movements. Instead, participants are encouraged to move within their own comfort zone in order to prevent injury (Radha, 1978).

In an internally-directed or body/mind approach, exercises are drawn from ancient disciplines such as yoga, tai chi, and aikido as well as from modern systems, such as Feldenkrais and Alexander techniques, and from dance movement therapy. In this type of class, the warm-up is used to help participants achieve erect posture, relax, balance, and begin to move in a flowing manner that resembles a moving meditation (Eckstein & Keeling, 1991).

Exercises in an internally-directed class are not designed with specific body-centered objectives as found in the traditional aerobic dance guidelines. Instead, objectives include, but are not limited to, enhancing awareness of breathing, increasing ability to breathe, feeling the connection of feet to the ground, experiencing the interplay among the physical, mental, emotional, and spiritual aspects of well-being, feeling powerful and feeling graceful (Eckstein & Keeling, 1991).

The aerobic portion of this type of class allows creativity and spontaneity to emerge in students.

Instructors are encouraged to design choreography to inspire a sense of letting go, and to remember that students have individual rhythms. Therefore, choreography is simple in order to allow students to explore how the movement feels rather than just go through the motions. If possible, instructors are to have students turn away from the mirrors in order to help them feel the movements rather than watch them. It is more important in this type of class that students feel the movement rather than learn complicated steps. Inner creativity is the goal (Eckstein & Keeling, 1991).

McNab (1990) suggests adding several techniques to create a more internally-directed class. First, mental practice through visualization is the best way to achieve a state of concentration. Second, deep breathing releases tension and allows for optimal blood and oxygen flow to all parts of the body. Third, students are encouraged to focus totally on the present moment, putting aside all concerns or worries during the class.

Gavin (1989) found that exercise alone is no guarantee of high self-esteem. He noted that some exercisers use exercise to perpetuate low self-esteem. An example is the exerciser who is too self-critical or too competitive and uses exercise to reinforce those traits. In order for there

to be significant, lasting self-esteem benefits, participants have to be conscious of why they are exercising and the effects exercise is having. Therefore, to help students, instructors also have to be conscious of the messages they are giving.

In an article written to help traditional aerobic dance instructors make the transition from an externally-directed approach to an internally-directed approach, Williams (1988) suggested the following:

1. Give tips during class, especially during the cool-down, regarding stress management and the power of self-awareness.
2. Discuss the connection between the mind and body with participants, referring to some of the research discoveries.
3. Post inspirational quotes.
4. Provide a newsletter addressing health and wellness issues. For example, topics might explore self-defeating behavior patterns or the impossible demands of stress dieting.

Summary

Although the findings do not all agree on the effect that aerobic activity has on psychological variables, the research cited in this review of literature supports the

hypothesis that aerobic activity does affect psychological variables in some way. At present, however, research studies have not critically examined or compared traditional approaches to teaching aerobic activities to alternative methods of teaching. Therefore, this study examines two different aerobic dance teaching styles to determine their effectiveness in affecting psychological variables such as physical self-esteem, general self-esteem and anxiety.

CHAPTER III

DESIGN AND METHODOLOGY

The purpose of this study was to determine the effects of an internally directed teaching approach as compared to an externally directed teaching approach in aerobic dance instruction. This chapter presents the methodology of this quasi-experimental study in relation to its population, procedures used to sample the population, instruments used to measure the variables, procedures used to collect the data, and statistical analyses and descriptive techniques used to treat the data.

Population and Sample Selection

The population used for this study was female students, 18 years of age and older, enrolled in Spring 1994 aerobics classes in the Department of Kinesiology at Texas Woman's University. From this population, convenience samples of 37 subjects in a standard treatment control group and 40 subjects in an experimental group were selected. The 37 subjects in a standard control group were divided into two classes: one class of 18 and one class of 19 students. The 40 subjects in an experimental group were divided into two

classes: one class of 18 and one class of 19 students. The 40 subjects in an experimental group were divided into two classes of 20 students each. A coin toss was used to determine assignment of classes to treatment groups.

The two standard treatment control classes, class one and class two, met on Monday/Wednesday at 8:00 a.m. and 11:00 a.m. respectively. The two experimental treatment classes, class three and class four met on Tuesday/Thursday at 8:00 a.m. and 1:00 p.m. respectively. On the second class day, each class met in the same aerobics room at its specified time.

Protection of Human Subjects

Permission was requested and received from the Texas Woman's University Human Subjects Review Committee to conduct this study (Appendix A). All potential subjects received a written explanation (Appendix B) which included the purpose of the study, benefits and risks of participating in the study, and an assurance of anonymity. They were advised that participation was entirely voluntary and of their right to refuse or withdraw from the study at any time without affecting their grade in any way. The researcher offered to report the findings of the study to the students. Also, all potential subjects received a consent form to be videotaped (Appendix C). The researcher

explained that this videotape would only be used for the purpose of this study. The students were assured that should they choose not to videotaped, they would still be able to participate in the class on the day it would be videotaped by standing in a section of the room that was not in the scope of the camera's view.

Procedures

The study procedures are outlined in the following steps. These steps are: obtaining Department of Kinesiology consent, obtaining subject consent, pretest administration, aerobic dance intervention, videotape of sessions, administration of the posttest, and focus group.

Step One: Obtaining Department of Kinesiology Consent

Prior to requesting permission from the Human Subjects Review Committee to conduct this study, the researcher requested permission from the Chair of the Department of Kinesiology to use students enrolled that department's aerobic dance classes as subjects. The Department of Kinesiology faculty reviewed the prospectus and granted approval.

Step Two: Obtaining Subject Consent

On the first class day of the Spring Semester, 1994, the researcher explained to each of the four classes that she would be teaching the first seven weeks of the semester

in order to test a teaching method. Protection of human subjects procedures were followed. Of the 37 students enrolled in the standard treatment control classes, one student chose not to complete a pretest; and of the 40 students enrolled in the experimental classes, all students completed a pretest.

Also, on the first class day, students were informed that the class would be videotaped once during the semester for research purposes. Of the 37 students enrolled in the standard treatment control classes, three students chose not to sign the consent to be videotaped; and of the 40 students enrolled in the experimental classes, two students chose not to sign the consent form. At the time of videotaping, these students were still able to participate in the class because it was possible for them to stand in a section of the room that was not in the scope of the camera's vision.

Permission to conduct this study was granted by the Texas Woman's University Human Subjects Review Committee prior to the commencement of the study. Identification of the subjects was accomplished through the use of assigned code numbers which were used to construct matched pairs of pretests and posttests for data analysis.

Step Three: Pretest Administration

The researcher distributed the pretest questionnaire (Appendices D, E, and F) and gave the students as long as they needed to complete the questionnaire. In all four groups students averaged 25 minutes to complete the pretest questionnaire. In classes one and two, 18 out of 19 (94.7%) and 16 out of 18 (88.9%) students completed the pretest respectively. All 20 students in each of classes three and four completed the pretest. Thus, 34 standard treatment control group pretests and 40 experimental group pretest questionnaires were compiled.

Step Four: Aerobic Dance Intervention

Both groups, two classes per group, participated in a one hour aerobics classes twice a week for seven weeks. Classes were canceled for two days during the treatment period due to snow and icy conditions, therefore, the treatment consisted of 13 sessions. The instructor taught the experimental group using an internally-directed approach and the standard treatment control group with an externally-directed approach.

In this study, the researcher was also the instructor of both the standard treatment and experimental treatment groups in order to prevent the threat to validity that using two different instructors may have caused. The researcher

believed that although instructor bias was still a threat to validity, this threat was lessened by using one instructor instead of two or more instructors.

In order to determine the specific characteristics of the two teaching styles, the researcher collaborated with an expert in the aerobic dance field, Debbie Rosas, to create the two descriptions. Then, the descriptions were reviewed by two aerobic dance coordinators in the Dallas area. These coordinators made suggestions which were then used by Rosas and the researcher to create the final descriptions.

An internally directed approach to aerobic dance instruction refers to a teaching approach in which the following characteristics are present:

1. In the warm up, the instructor takes time to relate to the group, getting a sense of where the group's energy and attention is, setting up an environment of relaxation and blending her or his own energy with the group's energy.

2. The instructor uses the warm up as a process to help group members become aware of how their bodies feel, and at the same time the instructor's intent is to systemically heat up the core of the body using intrinsic and extrinsic muscle motions.

3. Warm-up verbalization imagery is designed to integrate the entire person: their mind, body, and spirit.

4. The instructor uses music at the beginning of class that supports breathing, centering, and relaxing into the motions as well as soothing the nervous system.

5. The teaching style uses words, actions, and visualizations that are feeling and process oriented.

6. Intensity builds slowly and is related to speed, physical level, changes in space, range of motion, balance, and complexity of movement.

7. Breath is a key component to working out and is used as the beginning of all motion to support the physical form.

8. The instructor encourages individuality and uniqueness of movement, allowing students time to reframe the motion to fit their own body language, coordination and timing.

9. The movement and teaching style use mind, body, and emotional energy.

10. The instructor stays connected to her/himself and to the group throughout the entire class by being aware of her/his own sensations and energy as well as the group's.

11. The entire workout focuses on contraction and extension of energy, balancing and blending the two to promote flexibility on an ongoing basis.

12. The instructor uses repetition as a way to reframe the motions, offering the student time to create new awareness and insight.

13. The instructor uses verbal instructions that are multidimensional so that the body feels and perceives, the mind makes choices, and the spirit expresses emotions.

14. The instructor uses emotions in movement as a way to release tension.

15. The instructor uses words, sounds, and silence as part of the available tools to energize and motivate the class.

16. All movement includes the core of the body, the head, chest, and pelvis.

17. The instructor selects music with a variety of styles, rhythms, beats, and ethnic diversity.

18. Choreography is designed to promote awareness and insight on mental, emotional, and physical levels as a way to maintain interest of the entire being.

19. All action is internally rooted, using the music, heart beat, breath, and body awareness of entire self to move.

20. The instructor's role is one of continually perceiving and learning through the process of teaching.

21. The instructor is simultaneously part of the group and a guide, creating an environment of discovery.

22. The instructor encourages participants to use intuitive, body wisdom as a guide for doing or not doing.

23. The instructor uses healing phrases, words, and visualizations that foster a positive self-image.

24. The instructor allows room in the choreography for free expression.

25. The instructor uses many styles of communication in order to promote learning for the audio, kinesthetic, and logical learner.

26. The instructor uses all body parts and is aware of how to integrate each part into the whole.

27. Teaching vocabulary is composed of words such as flow, relate, feel, integrate, relax, soften, and ground, express, breathe into, lengthen out of, and become aware of.

28. The instructor uses at least three levels of movement, showing variations of each movement as a way to include all levels of fitness in one class room and allow people to exercise in comfort.

29. The instructor uses simple choreography to allow students to focus on how their bodies are responding to the movement.

30. The instructor teaches that less effort to do the same movement means true strength and efficiency.

An externally directed approach to aerobic dance instruction refers to a teaching approach in which the following characteristics are present:

1. As the instructor visits with class members before class time she emphasizes physical conditions (injuries, ability level, pregnancy, etc.).
2. The instructor uses the warm up as a way to prepare the body, focusing on isolating body parts and on active, full range of motion, rarely using small intrinsic muscle motions.
3. The instructional cues are action directed, "doing" oriented, calling attention to the teacher at the front of the room.
4. The instructor uses music at the beginning of class that is chosen based on beats per minute, usually with the desire to excite the student and the nervous system.
5. Intensity increases quickly and is based on speed as it relates to beats per minute.
6. Breath is used to support effort and is brought into play in the form of a reminder: "Breathe!"

7. The instructor encourages staying together as a group, following, keeping up with the speed and the movements regardless of one's own coordination and timing.

8. The movement and teaching style focus on body or on intellectual energy separately.

9. The instructor is either focused entirely on her/his own self or entirely on the members of the class. S/he does not merge the focus on self and class into one focus.

10. The workout focuses on contraction of energy and power motions until the end when stretching is then performed.

11. The instructor uses repetition as a way to build strength and stamina.

12. The instructor uses verbal instruction that is action based.

13. The instructor encourages participants to put forth effort in order to achieve desired results.

14. The instructor uses words and sound throughout the class. S/he avoids silence when energizing and motivating the class.

15. The instructor rarely uses the core of the body (chest, pelvis, and back), relying mostly on the arms and the legs as a way to raise the heart rate.

16. The instructor uses mostly canned music that is programmed for beats per minute, mostly electronic.

17. The instructor offers "do's" and "don'ts" as the way to help students make choices.

18. Choreography is based on adding new steps as a way to keep up the interest of the student.

19. Most of the action is cued by signals outside the body, using the beats per minute, the commands of the instructor and keeping up with the group as ways to keep the group moving.

20. The instructor projects the attitude that participants should conform to what the group is doing.

21. The instructor's role is one of being the expert. The act of teaching is separated from the act of learning.

22. The instructor is separate from the group as the teacher.

23. The instructor promotes action as the way to gain fitness.

24. The instructor uses pain and fear tactics as the mode to learn. For example, "If you don't step closer to the bench, you will hurt your achilles."

25. All teaching is projected by talking at the group, telling them what to do and what not to do.

26. The instructor often trivializes a negative body image. For example, she may say, "Boy do my thighs show how much I enjoyed the holidays! Let's really burn some fat today!"

27. The class is goal oriented and focused.

28. Empowerment is provided by the emphasis on repetition (after several repetitions of a certain move the instructor will congratulate them -"You got it!"), endurance, how far and how many ("Come on, you can do it").

29. Choreography expression is controlled by the instructor.

30. The instructor keeps moving throughout the duration of the class session, mostly in the front center.

Step Five: Videotaping of Classes

Each class was videotaped on the ninth session. Students who did not sign the consent form to be videotaped were able to participate in the class without appearing in the view of the camera.

Step Six: Administration of Posttest

On the last class day of the seven week period, participants in the study completed the posttest questionnaire which was identical to the pretest questionnaire (Appendices D, E, and F). As in the administration of the pretest questionnaire, students

finished filling out the questionnaires in an average of 25 minutes. Because there were no dropouts in the study, all students who had completed the pretest were eligible to complete the posttest. However, on the day that the posttest was administered, three members of group one, two members of group three and one member of group four did not come to class. Therefore, the total number of participants who had completed both the pretest and the posttest were: 15 students in class one, 16 students in class two, 18 students in class three, and 19 students in class four, for a total of 31 subjects in the standard treatment group and 37 in the experimental treatment group.

Step Seven: Focus Group

Following the posttest, students were asked to volunteer to participate in a focus group. Fourteen students in class one, 15 students in class two, 13 students in class three, and 14 students in class four (29 control group subjects and 27 experimental group subjects) agreed to participate in the focus group. The researcher tape-recorded the sessions in which she elicited responses to seven open-ended questions (Appendix D). The volunteers were informed that the session would be taped in order to capture all comments. They were encouraged to speak freely, but to talk only one at a time. The researcher emphasized

that there were no correct or incorrect answers and that it was important to her research that everyone share a point of view, even if it differed from what others had said.

Instrumentation

The following three instruments were used in this study: Field and Steinhardt's Physical Self-Esteem Scale (Appendix E), the Rosenberg Self-Esteem Scale (Appendix F), and the State-Trait Anxiety Inventory (Appendix G). The researcher designed the demographic data sheet seen at the top of Appendix E to collect appropriate information about the sample. It included age, number of years as an aerobic dance participant, and college major.

The Physical Self-Esteem Scale was developed by Field and Steinhardt (1992). It is an 11-item scale constructed to measure physical self-esteem. This scale was patterned after Rosenberg's Self-Esteem Scale and, in research done by Field and Steinhardt (1992), had an internal consistency coefficient of alpha .91. Using data collected in this study, the alpha coefficients for the pretest and posttest were .87 and .91 respectively.

The Physical Self-Esteem Scale scored items using a five-point Likert scale with responses ranging from "strongly disagree," which indicated high physical self-esteem, to "strongly agree," which indicated low physical

self-esteem. Because a response of "strongly agree" to items 4, 5, 8, and 11 would indicate low physical self-esteem these item responses were reversed in the calculation of the data. Permission was granted to use the Physical Self-Esteem Scale for this study (Appendix H)

The Rosenberg Self-Esteem Scale was originally developed by Rosenberg (1965) for use with adolescents. Since then, the scale has been used in studies including large numbers of adults and has been accepted as equally valid with the adult age population (Kaplan & Pokorny, 1969). The Rosenberg Scale consists of ten items with four response choices. Each item on the scale was scored from 1 to 4 according to the subject's response on a 4-point continuum. A score of 4 was assigned to the response "Strongly Agree" on items 1, 3, 7, and 10. These items were worded so that a positive response would indicate high self-esteem. Items 2, 4, 5, 6, 8, and 9 were worded so an answer of "Strongly Agree", which indicated low levels of self-esteem, was assigned a value of 1. The maximum score on this scale was 40, indicating a high level of self-esteem. The lowest possible score was 10. Permission for use of this instrument was obtained (Appendix I).

Rosenberg tested the scale on 5,024 high school juniors and seniors. He found this Self-Esteem Scale easy to

administer as well as economical. To establish reliability, Rosenberg used Guttman scaling attaining a coefficient of reproducibility of .92. A coefficient of reproducibility of .90 has been accepted as an arbitrary minimum indicating a satisfactorily reliable, unidimensional scale (Wylie, 1974). Construct validity was established through the use of correlations with other measures of self-esteem. Silber and Tippet (1965) correlated Rosenberg's Self-Esteem Scale scores against three other measures of self-esteem: Kelly Repertory Test, sum of (Self-Ideal) discrepancies, on 20 bipolar dimensions, $r=.67$; Health Self-Image Questionnaire, sum of 20 selected items, $r=.83$; Interviewers' rating of self-esteem, $r=.56$. All of them exceeded the correlation of $r=.53$ considered satisfactory. A reliability analysis of Rosenberg's Self-Esteem Scale using data collected in this study produced satisfactory alpha coefficients in the pretest and posttest of .85 and .91 respectively.

The State Trait Anxiety Inventory (STAI), developed by Spielberger, Gorsuch, and Lushene (1970) was used to measure the dependent variables, state and trait anxiety. State anxiety is conceptualized as a transitory emotional state or condition which may vary in intensity and fluctuate over time. Trait anxiety refers to relatively stable individual differences in anxiety proneness. The STAI is a forty item

questionnaire which asks questions to which the subject responds on a Likert scale. The first part of the questionnaire, the A-State scale, instructs respondents to indicate how they feel at a particular moment in time. The second part of the questionnaire, the A-Trait scale, instructs respondents to indicate how they generally feel. Both parts of the questionnaire have 20 questions.

Permission was received to use the STAI (Appendix J).

The forms are designed for self-administration, and there is no time limit. The average time, however, for college students is six to eight minutes to complete each test, and less than fifteen minutes to complete both. The range of scores on each test goes from a minimum of twenty (least anxiety) to a maximum of eighty (most anxiety). Because some items were worded in such a way that a high score would indicate low anxiety, these items were reversed in the calculation of data. On the A-State Scale, these items were: 1, 2, 3, 5, 8, 11, 15, 16, 19, and 20. On the A-Trait Scale, these items were: 1, 3, 6, 7, 10, 13, 14, 16, and 19.

The test-retest reliability correlation for A-Trait scales is relatively high. A study that involved undergraduate college students tested under varying circumstances on three different occasions exhibited ranges

from .73 to .86. The A-State scale values were low, with ranges from .16 to .54. The low test-retest reliability scores for the A-State scale were anticipated, however, because a valid measure of A-State should reflect the influence of unique situational factors existing at the time of the test (Spielberger, Gorsuch, & Lushene, 1970).

Given the transitory nature of anxiety states, a measure of internal consistency such as the alpha coefficient is a more meaningful index of reliability for A-State scales. The alpha coefficients for the STAI scales were computed normative data obtained on three groups of students. The ranges for the reliability coefficients were from .83 to .92 for the A-State, and .86 to .92 for A-Trait (Spielberger, Gorsuch, & Lushene, 1970). The alpha coefficient calculated in this study for A-State was .93 in both the pretest and posttest. For the A-Trait scale, the alpha coefficient was .91 in both the pretest and posttest.

Treatment of the Data

Originally, the researcher planned to analyze the videotape of instruction by counting the number of statements in certain categories that the instructor made as well as the number of times the instructor smiled. Unfortunately, the quality of the videotape was not high enough to be able to accurately discern facial expressions.

Therefore, the analysis of the videotape consists of a frequency count of the number of statements from the following categories that the instructor made during the aerobic class: a) statements which instruct participants to physically perform an activity, b) motivating statements, c) positive reinforcement statements, d) statements which instruct participants to feel something, e) visual imagery statements, f) statements which refer to the breath, and g) statements which ask the participants to become aware of something.

The focus groups were tape-recorded and the tapes were transcribed. Content was analyzed by discerning prevailing themes in the discussions and counting the frequency of statements made per theme group.

Data from the demographic portion of the questionnaire were used to describe the sample using frequencies and measures of tendency. Subjects in classes one and two had received the externally directed teaching approach. Therefore, their data were combined into one standard treatment control group. Subjects in classes three and four received the internally directed teaching approach. Therefore, their data were combined into one experimental treatment group.

Using pretest scores as covariates, ANCOVA was calculated to determine differences in posttest means. The level of significance used for this analysis was .05. Also, the effect of years of prior aerobic dance participation was used as a factor in an ANOVA analysis of the total pretest and posttest scores. The level of significance used for this analysis was .05. In the two scores that were significantly affected by the number of years of aerobic dance participation, a post-hoc analysis using the Student-Newman-Keuls test was conducted to determine which groups were significantly different. For the purpose of this analysis, the participants were divided into three categories of participation level. The first category included 24 participants who had no prior aerobic dance experience. The second category included 26 participants who had one to two years of experience; and the third category was comprised of 18 participants who had more than two years of experience.

CHAPTER IV

FINDINGS

In this chapter the researcher presents a descriptive statistical analysis of data collected regarding age, college major, and number of years of aerobics participation. Next, an ANCOVA analysis testing the four research hypotheses is presented. In this analysis, the posttest scores are compared using the pretests as covariates and a level of significance of .05. Next, a qualitative analysis of the focus group results is discussed. Then, frequencies listed from analysis of data generated from the videotaping of the classes.

Descriptive Characteristics of the Sample

The age of the participants in this study ranged from 18 to 51 years with a mean age of 22.2 years, a mode of 18 years, and a standard deviation of 5.89. The 31 participants who were assigned to the standard treatment control group had a mean age of 23.2 years with a standard deviation of 6.9, and the 37 participants assigned to the experimental treatment group had a mean age of 21.32 years with a standard deviation of 4.72.

There were 28 categories of college majors represented in the study. Twenty-five percent of the participants listed nursing as their major; 10 percent were occupational therapy majors; 10 percent were biology majors; 6 percent were nutrition majors; and 6 percent were dental hygiene majors. All other major categories were listed by less than three percent of subjects. Interestingly, 83.5 percent of the participants claimed majors in health-related fields. None of the participants, however, were kinesiology majors possibly because this aerobics class fulfills the physical education requirement for non-kinesiology majors only.

As seen in Appendix K, 35% of all subjects had never participated in aerobic dance, 22% had participated for one year, 16% had participated for 2 years and 28% had participated for three years or more. The mean number of years of participation was 1.9. The effect of number of years of aerobic dance participation was tested in post-hoc analyses. Subjects were divided into three groups based on experience level: the first group (35%) had zero years of experience; the second group (38%) had one to two years of experience; and the third group (28%) had three years or more of experience.

Tests of the Hypotheses

ANCOVA analyses were conducted to compare the posttest scores of the two treatment groups using the pretest scores as covariates. The results of each hypothesis test follow:

The first hypothesis stated that there is no difference in total general self-esteem scores between the experimental treatment and the standard treatment control group on the posttest. In an analysis of variance pretest scores for general self-esteem were compared to the posttest scores. The pretest means of 24.68 for the standard treatment control group and 24.51 for the experimental treatment group (Appendix L) were not significantly different $F(1, 66) = .112, p > .05$. Then, in an ANCOVA analysis of the posttest scores using the pretest scores as a covariate, it was determined that the posttest score means of 24.32 for the standard treatment control group and 24.29 for the experimental treatment group (Appendix L) were not significantly different, $F(1, 65) = .009, p > .05$ (Appendix M). Therefore, the first hypothesis was accepted.

The second hypothesis stated that there is no difference in physical self-esteem between the experimental treatment and the standard control group on the posttest. In an ANOVA, it was determined that the pretest score means for physical self-esteem of 34.16 for the standard treatment

control group and 34.13 for the experimental treatment group (Appendix L) were not significantly different, $F(1, 66) = .0002$, $p > .05$. The ANCOVA of posttest scores showed that there was no significant difference between the mean scores of 31.48 for the standard treatment control group and 30.62 for the experimental treatment group (Appendix L), $F(1, 65) = 1.675$, $p > .05$ (Appendix N). Therefore, the second hypothesis was accepted.

The third hypothesis stated that there were no differences in state anxiety between the experimental treatment and the standard control group on the posttest. In an ANOVA, it was determined that the pretest score means for state anxiety of 43.48 for the standard treatment control group and 44.0 for the experimental treatment group (Appendix L) were not significantly different, $F(1, 66) = .158$, $p > .05$. The ANCOVA analysis of the posttest scores showed that there was no significant difference between the group means of 46.32 for the standard treatment group and 44.75 for the experimental treatment group (Appendix L), $F(1, 65) = 2.897$, $p > .05$ (Appendix O). Therefore, the third hypothesis was accepted.

The fourth hypothesis stated that there were no differences in trait anxiety between the experimental treatment group and the standard treatment control group on

the posttest. In an ANOVA, it was determined that the pretest score means for trait anxiety of 46.13 for the standard treatment control group and 45.95 for the experimental treatment group (Appendix L) were not significantly different, $F(1,66) = .03, p > .05$. However, an ANCOVA analysis found that the posttest score means of 47.29 for the standard treatment control group and 45.05 for the treatment group (Appendix L) were significantly different, $F(1, 65) = 5.5, p < .05$ (Appendix P). Therefore, the fourth hypothesis was rejected.

Post-hoc Analyses

As was noted in Appendix K, the participants in this study had varying experience levels in aerobic dance. The researcher investigated the effect of years of aerobics on pretest and posttest scores for General Self-Esteem, Physical Self-Esteem, State Anxiety, and Trait Anxiety. An ANOVA analysis was performed on each of the total pretest and posttest scores using years of aerobic participation as the independent variable. The participants were grouped into three levels of experience: 24 participants comprised the group with zero years of experience; 26 participants had one to two years of experience; and 18 participants had greater than two years of experience. The effect of years of aerobic participation was only significant at a level of

.05 in two cases: the pretest score for Physical Self-Esteem, $F(2, 65) = 4.39$, $p < .05$, and the posttest score for General Self-Esteem, $F(2, 65) = 3.79$, $p < .05$. Using the Student-Neuman-Keuls post-hoc test with a significance level of .05 for comparison of the means, it was determined that the mean pretest score on the Physical Self-Esteem Scale for the group with zero years of aerobic dance experience (mean = 30.93) was significantly different from the mean pretest score of the groups with one to two years (mean = 35.0) and more than two years (mean = 37.22) of aerobic dance experience.

In comparing the mean scores for the General Self-Esteem posttest, an analysis using the Student-Neuman-Keuls post-hoc test with a significance level of .05 determined significant difference between the group that had zero years of aerobic dance experience (mean = 23.33) and the group that had more than two years of experience (mean = 25.17).

Focus Group Analysis

Following Krueger's (1992) suggested format, a focus group was conducted at the end of the last class for each of the four classes. The first two focus groups, standard treatment control group, had 14 and 15 volunteers respectively. There were 13 and 14 volunteers respectively in the experimental treatment focus groups. The groups met

in the aerobic dance room immediately following the last class session. Volunteers, along with the researcher, were seated on the floor in a circle. The researcher posed seven open-ended questions to which the volunteers were encouraged to respond freely. The sessions lasted for 18 to 25 minutes. Tapes of each of the four focus groups were transcribed following as closely as possible the volunteers' actual language. In all of the groups, when one person answered a question, the other members of the group often responded by nodding or saying one-word affirmations to the statement rather than making additional comments. These non-verbal responses were recorded and included in the analysis of the recorded sessions. In general, the groups were not extremely talkative and tended to simply concur with a statement by saying "yeah" or nodding rather than verbalizing the same statement.

The researcher began by asking volunteers how they felt right after this class. Seventy-one percent of the standard treatment control group responses referred to physical conditions, such as being out of breath, tired, or hungry. Half of the responses were positive in nature, such as "I had more energy after class" or "well worked", and half were negative in nature, such as "I felt dead, whipped and tired." Of the responses that referred to emotional

conditions, half were positive in nature and half were negative. Eighty-seven percent of the experimental treatment group responses dealt with emotional conditions, such as feeling awake, less stressed, relaxed, calm, uplifted and light. They also said they felt like they had more energy and strength, and felt more energized. All of the experimental treatment group responses to question one were positive in nature.

The second question asked volunteers how participation in this class had affected other areas of their lives. Again, the majority of the standard treatment control group's answers, 75%, had a physical condition theme and were positive in nature. The responses included: "I slept better; I ate better; and I lost weight." Of the responses that were emotional in nature, half were positive, such as "I felt good about myself for working out," and half were negative, such as "I felt guilty if I ate bad food because I had worked out". The experimental treatment group responses were evenly divided between positive physical statements and positive emotional statement. Their responses included: "during stressful times it has helped me to lengthen my body and breathe; I stretch when I feel stressed while working on the computer; I am able to concentrate in class better; I use the breathing when I get mad and it helps calm me down."

In the third question, the researcher asked the volunteers what feelings they experienced during this class. The majority of the standard treatment control group answers, 75%, dealt with emotional issues. Forty-four percent of the responses mentioned frustration. For instance, they expressed feeling "confusion; frustrated because I couldn't keep up; stressed to keep up with everyone else; incompetent; uncoordinated; and struggling." There were a few, however, who felt accomplished when they finally "got" the steps, and that the class was a release of frustration and aggression. Conversely, 77% of the experimental treatment group's answers focused on feelings of "joy, hope, appreciation for my body, moving freely, rejuvenation, power, and grace."

Responses to the fourth question were again very different between the two groups. The researcher asked if the volunteers had ever experienced the same kind of feeling that they received in this class during any other activity. The standard treatment control group was quick to list other rhythmic movement activities, such as "playing tennis, running, lifting weights, and any other physical activity that requires coordination because I feel like my arms and legs belong to someone else." Eighty-five percent of the responses to this question mentioned other physical

activities. Then, one student excitedly said that she got the same feeling as when she was in her English class, because in English class she was studying 12th to 16th century English literature, and she had to read and re-read it many times before she finally understood it. She said she felt the same kind of frustration in this class, and she also felt the same kind of pride when she finally could do a movement like the other participants in the class. The experimental treatment control group had difficulty in responding to this answer. One participant said that she felt the same as she did in this class when she played in the park with her husband, and several people nodded in agreement. Then, another participant said that when she was playing with her dog she had the same kinds of feelings as in this class. These were the only two responses that the group had. Interestingly, the experimental treatment group did not have the same feelings they had in this class during participation in any other physical activities.

In response to the fifth question, "What did you gain from this class," 82% of the standard treatment control group's responses were physical benefits, such as coordination, muscle tone, weight loss, increase in energy, "not so out of breath," and weight gain. The standard treatment group also mentioned psychological benefits, such

as self-respect and confidence. Eighty-two percent of the experimental treatment group responses were emotional/psychological benefits while 18% were physical benefits. These responses included "I loved the way you used images to help us really get into it - it really helped me learn to let go; I felt feminine and graceful for the first time in an aerobics class; a sense of focus; a sense of being freed up; stronger legs; better breath control; I don't feel beat up or bad about myself; and lost weight."

In the sixth question, the researcher asked if participants had been able to elevate their heart rates and exercise within target range during the classes. One hundred percent of the standard treatment control group responded with a resounding "yes" to the first part of the question and then 14% of the responses indicated that they were not able to keep it within target zone because it kept going too high when they tried to keep up with the instructor and with other class members. Many volunteers stated that they could not control their heart rate, and although they wanted to slow down, they believed that they would not have received a proper workout if they had slowed down. One hundred percent of the experimental treatment group also responded with an emphatic "yes" to the first part of the question. Ten percent of the responses stated

that their heart rate would exceed target zone because "when you played songs that I loved I worked harder than I ever have in my life." However, they added that "it's weird, but this class is calmer than other aerobics classes but my pulse went as high or higher, and my ankles and knees didn't hurt" and "in all my other aerobics classes I used to get bad breathing cramps, and in this class it only happened once."

Finally, the researcher asked if volunteers felt that their muscles were worked within a range of comfort during the classes. All participants in both groups stated that they had worked their muscles. Sixty-seven percent of the standard treatment control group responses indicated that they had worked the muscles but "not comfortably." Participants responded that their muscles "got very sore and burned in class." The experimental treatment group also said that their muscles had worked and that "even my husband says he can tell a difference in my legs." They mentioned several muscle areas that they could feel had changed, but that they did not notice the work during class, so they agreed that they had worked within a range of comfort.

Although the main themes of the responses differed between the two groups, there were common themes. All of the classes mentioned cardiovascular, respiratory, and

muscle conditioning benefits. Two focus group participants in the standard treatment control group and one in the experimental treatment group reported losing weight during the seven week period.

Analysis of the Videotaped Instruction Sessions

Each of the four classes was videotaped once during the seven-week treatment period. The researcher devised seven categories of comments made by the instructor in teaching the class. They are: a) statements which instruct participants to physically do something, b) motivating statements, c) positive reinforcement statements, d) statements which instruct participants to feel something, e) visual imagery statements, f) statements which refer to the breath, and g) statements which ask the participants to become aware of something. From the videotapes, a frequency count of types of statements made by the instructor was performed. Results of this frequency count are found in Appendix Q.

Further analysis of the statements made by the instructor during the session was conducted using t-tests at a significance level of .05 to compare the means. This analysis reveals no significant difference in the total number of instructor statements made during the session between the standard treatment control group ($M = 374$) and

the experimental treatment group (\bar{M} = 319.5), $t = .73$, $p > .05$. Following are the results of the t-test analysis for each type of instructor statement made during the session.

1. The mean number of statements instructing participants to do something in the experimental treatment group (\bar{M} = 172.5) was not significantly different from the standard treatment control group (\bar{M} = 273.5), $t = 1.8$, $p > .05$.

2. The mean number of statements relating to feeling in the experimental treatment group (\bar{M} = 29) was significantly greater than in the standard treatment group (\bar{M} = 1.5), $t = 24.6$, $p < .01$.

3. The mean number of statements motivating statements made in the experimental treatment group (\bar{M} = 14.5) was not statistically different from the standard treatment group (\bar{M} = 33), $t = 2.26$, $p > .05$.

4. The mean number of visual imagery statements made in the experimental treatment group (\bar{M} = 23.0) was significantly greater than in the standard treatment control group (\bar{M} = 7.5), $t = 13.86$, $p < .01$.

5. The mean number of statements relating to self-awareness made in the experimental treatment group (\bar{M} = 10.0) was significantly greater than in the standard treatment control group (\bar{M} = 1.0), $t = 6.36$, $p < .05$.

6. The mean number of statements relating to breath made in the experimental treatment group ($\bar{M} = 25.0$) was significantly greater than in the standard treatment control group ($\bar{M} = 1.5$), $t = 5.83$, $p < .05$.

7. The mean number of positive reinforcement statements made in the experimental treatment group ($\bar{M} = 45.5$) was not significantly different from the standard treatment control group ($\bar{M} = 56.6$), $t = .86$, $p > .05$.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

In Healthy People 2000 the Department of Health and Human Services identified psychological stress as an important factor to target in health promotion. Specifically, they set a goal to "reduce to less than 35 percent the proportion of people aged 18 and older who experienced adverse health effects from stress within the past year," (U.S. Department of Health and Human Services, 1992, p. 99).

Evidence is accumulating that aerobic exercise is an effective treatment for the deleterious effects of psychosocial stress. Numerous studies suggest that adults respond to group aerobic exercise with improvements in mental and emotional health (Berger, 1984; Berger & Owen, 1983, 1986, 1987; Brown, 1979; Buffone, 1980; Choi, Van Horn, Picker, & Roberts, 1993; Harper, 1979). Despite the well documented benefits of exercise, 40% of the American population does not exercise at all and an additional 40% does not exercise sufficiently to reap health benefits (Dishman, 1985). Therefore, health and fitness educators are challenged to create exercise environments which attract

this portion of the American public and which positively affect psychological states related to stress.

The researcher implemented a quasi-experimental study to determine if the type of teaching approach in an aerobic dance class affects the following psychological variables: physical self-esteem, general self-esteem, state anxiety, and trait anxiety.

Discussion

Although studies have shown the positive effects of aerobic activity on psychological well-being, the literature failed to provide documentation of the effect of different styles of teaching aerobic activity on psychological variables. The analysis of the data in this study uncovered information regarding the effect of and internally directed teaching approach as compared to an externally directed teaching approach on selected psychological variables.

General Self-Esteem

Although there were no significant changes in general self-esteem as a result of the seven-week exercise sessions, several studies have shown improvements in general self-esteem following exercise programs (Gondola & Tuckman, 1983; Smith & Brandt, 1979; Sonstroem, 1984). These studies ranged in duration from 12 weeks to one year, as opposed to the study cited in this paper, which was seven weeks. This

indicates that a seven week treatment period may not be sufficient to result in changes in self-esteem.

The post-hoc analysis of general self-esteem posttest scores showed a significant difference at a level of .05 between the group of participants who had zero years of aerobic dance (mean = 23.33) and the group that had more than two years of experience (mean = 25.17). Because there were no significant differences in the pretest scores among these groups, the post-hoc analysis suggests that those with prior aerobic dance experience are more likely to improve general self-esteem as a result of involvement in aerobic dance than those without prior aerobic dance experience.

This finding is supported by Dishman (1988, p. 328) who stated that "it seems unlikely that all types, volume, and settings of exercise will affect all aspects of mental health for all people." Also, the researcher noted that the focus group members who made comments such as "I wouldn't have done it if I hadn't have had to come to class" and "I was frustrated because I couldn't keep up" were those who had not participated in aerobic dance classes in the past.

Physical Self-Esteem

The analysis of Physical Self-Esteem posttest scores indicated no significant difference between the treatment and standard treatment control group. Considering the

enormous social pressures for women to achieve practically unattainable beauty standards as mentioned in Chapter 2, a 14-session intervention was probably not long enough to impact physical self-esteem attitudes, and perhaps only heightened body awareness.

Interestingly, the post-hoc analysis did show that there was a significant difference at a level of .05 in the mean pretest scores for Physical Self-Esteem between the group with zero years of aerobic experience (mean = 30.93) and the groups with one to two (mean = 35) and more than two years (mean = 37.22) of aerobic dance experience. These results indicate a relationship between participation in aerobic dance and physical self-esteem, however, causality cannot be established.

Instructor Bias

The same instructor taught all four of the classes in this study. In order to maintain the appropriate different teaching styles, the instructor prepared for one-half hour each day. On the days that she taught using an externally directed approach, she watched a nationally broadcast television workout in order to reinforce the language, movement, focus, and intent of an externally directed class. On the days that she taught using an internally directed approach, she spent 30 minutes doing yoga in order to

reinforce internal cues. She also reviewed the lists of characteristics for each teaching approach once a week.

Although the instructor strived to follow the guidelines set forth in Chapter 3, her personal interests may have interfered with her ability to separate the teaching styles. This could be a factor that led to no statistically significant differences between treatment groups on three of the variables. However, analysis of the videotaped instructions of the classes revealed appropriate differences in teaching styles between the treatment groups. The videotape analysis verified the differences in teaching approaches between the two classes. As expected, the instructor in an externally directed gave more verbal commands than in an internally directed class. Although she gave numerous directions in both classes, the internally directed objectives were to focus on feeling rather than doing. The internally directed classes were given suggestions using visual imagery three times more often than the standard treatment control group, and were instructed on proper use of breath more than ten times as often. Also, the internally directed group received recommendations to be aware of their bodies and comfort level throughout the workout whereas the standard treatment control group was given specific form to follow for each movement.

Because participants in the standard treatment control group had to constantly focus on the instructor and her instructions, they had little time to sense how they were feeling throughout the class. In contrast, the treatment group was asked to focus on their own feelings and not to worry about imitating the instructor or anyone else in the class.

State Anxiety

The studies cited in Chapter 2, which showed that aerobic exercise positively affected state anxiety, ranged in length from eight weeks to one year (Bahrke & Morgan, 1978; Berger & Owen, 1987; Morgan, 1979; Wilson, Berger, & Bird, 1981). Contrary to the procedure used in this study, the researchers in previous studies have measured the effect of aerobic activity on state anxiety by administering the pretest and posttest immediately following an exercise session. In this study, the researcher chose to administer the tests prior to an exercise session. Because the participants of this study were college students, state anxiety was impacted by the pressures of school. Many of the students had mid-term examinations on the day of the posttest administration. This could be the reason that there were no significant differences in posttest state anxiety scores.

Trait Anxiety

In their research, Hayden, Allen, and Camaione (1986) found that trait anxiety was reduced following participation in a 12-week exercise program. And following a 12 month program, King, Taylor, and Haskell (1993) also found that exercisers showed reductions in trait anxiety.

In this study, the Trait Anxiety posttest scores were significantly different ($F[1, 65]$, $p < .05$) between the treatment and standard treatment control groups. Both groups' trait anxiety scores did not decrease, however. Instead, the standard treatment control group score increased while the treatment group score decreased.

Results from the focus groups supports the findings in this analysis. Whereas members of the standard treatment control group stated that they felt "rushed" when class was over, "guilty" if they ate a fattening food, "stressed to keep up with everyone else", and "frustrated because it's taking so long to catch on", the members of the treatment group stated that they felt "less stressed", "relaxed", and "calm" when class was over and that they had learned to "use the breathing" techniques whenever they felt angry or stressed outside of class, and that they had learned to "let go" while participating in this class.

The Internally Directed Approach

Berger and Owen (1992a) compared the relative mood benefits of swimming and Hatha yoga. Hatha yoga is the physical exercise form of yoga and is an internally directed activity. The yoga participants tune inward to physical sensations in order to stretch their muscles as far as possible and yet avoid reaching a point of painfulness. This turning inward and the separate breathing exercises of yoga are thought to increase one's awareness of internal physical and mental states (Kabat-Zinn, 1990; Radha, 1978). Although yoga is not an aerobic activity, Berger and Owen (1992b) found that both swimming and yoga were effective in reducing stress. They theorized that the fact that both activities facilitated abdominal breathing was the mechanism that helped lower stress in the groups.

The internally directed teaching approach used in this study also used abdominal breathing and emphasized tuning inward and moving in comfort. The focus group responses from the internally directed groups support the theory that abdominal breathing and noticing internal stress cues is helpful in reducing trait anxiety.

Conclusions

Frequency counts were tabulated using demographic data, such as age, number of years of aerobic dance participation,

and college major. Also, frequency counts were used to provide a descriptive analysis of the instructor's teaching style in each of the classes and of the results from the focus groups. ANCOVA analyses were performed on each of the total posttest scores using the pretest scores as a covariate. The following hypotheses were not rejected at a significance level of .05:

1. There is no difference in general self-esteem between treatment and standard treatment control group on the posttest.

2. There is no difference in physical self-esteem between treatment and standard treatment control on the posttest.

3. There is no difference in state anxiety levels between treatment and standard treatment control group on the posttest.

The fourth hypothesis stated that there is no difference in trait anxiety levels between treatment and standard treatment control group on the posttest. This hypothesis was rejected at a significance level of .05.

Recommendations

Implications for Health Educators and Aerobics Instructors

Based on the results in this study, recommendations can be made for health educators and aerobics instructors.

Health educators should be aware that when they are teaching people to increase physical activity that some activities may be more conducive to helping people cope with stress more effectively in their lives, and other activities may actually add stress to their lives.

Aerobics instructors can learn from this study that when participants are encouraged to listen to their own mind and body signals, the movement in class can accomplish more than the physical goals of increasing aerobic capacity and burning body fat. Hopefully, aerobics instructors and health educators alike will be encouraged to learn teaching techniques that enable the participants in their classes to find direction from within themselves rather than from external sources.

Recommendations for Further Study

On the basis of the data and findings presented in this study, the following recommendations for future study were made:

1. Replicate the study using a larger and randomly selected sample in order to increase the power of the study.
2. Replicate the study with a treatment duration of at least six months in order to increase the effect of the treatment.

3. Replicate the study using other aerobic activities that are led by an instructor to determine if the results of this study can be generalized to other activities.

This study has several implications for health education in general, and fitness education in particular. Based on the results of this study, and fitness professional may wish to learn how to deliver internally directed aerobic dance programs, and health education professionals may wish to act as a resource in directing clients to these programs.

This study is the first quasi-experimental design research to compare an internally directed teaching approach in aerobic dance to an externally directed approach. In this way contributes to the literature which examines the relationship between aerobic activity and psychological variables. Furthermore, this study provides qualitative insight into the assumptions that aerobic activity improves psychological well-being by showing that the positive psychological effects may differ depending on the teaching approach that is used in the aerobic activity.

References

- Adame, D., Johnson, T., & Cole, P. (1990). Physical fitness in relation to amount of physical exercise, body image, and locus of control among college men and women. Perceptual and Motor Skills, 70, 1347-1350.
- Adler, T. (1990). Happiness-health link remains questionable. APA Monitor, January, 14.
- American College of Sports Medicine. (1991). Guidelines for exercise testing and prescription. Philadelphia: Lea & Febiger.
- American Council on Exercise. (1992). Guidelines for aerobics instructors. San Diego: American Council on Exercise.
- American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (3rd ed., rev.). Washington, DC: Author.
- Antoni, M.H., Schneiderman, N., Fletcher, M.A., Goldstein, D., Ironson, G., & Laperriere, A. (1990). Psychoneuroimmunology and HIV-1. Journal of Consulting and Clinical Psychology, 58(1), 38-49.
- Bahrke, M.S., & Morgan, W.P. (1978). Anxiety reduction following exercise and meditation. Cognitive Therapy Research, 2, 323-333.
- Barnard, R. (1975). Long-term effects of exercise on cardiac function. In J. Wilmore, & J. Keough (Eds.), Exercise and sport sciences reviews (p. 118). New York: Academic Press.
- Barnard, R., Weber, F., Weingarten, W., Bennett, C., & Pritikin, N. (1981). Effects of an intensive, short-term exercise nutrition program on patients with coronary heart disease. Journal of Cardiac Rehabilitation, 1, 99-105.

- Barrow, G.W., & Saha, S. (1988). Menstrual irregularity and stress fractures in collegiate female distance runners. American Journal of Sports Medicine, 16, 209-215.
- Berger, B.G. (1984). Running away from anxiety and depression: A female as well as male race. In M.L. Sachs & G. Buffone (Eds.), Running as therapy: An integrated approach. University of Nebraska Press Lincoln, pp. 138 - 171.
- Berger, B.G., & Owen, D.R. (1983). The mood enhancing effects of swimming - Swimmers really do "feel better". Psychosomatic Medicine, 45, 425-433.
- Berger, B.G., & Owen, D.R. (1986). Mood alteration with swimming: A reexamination. In L. Vander Velden & J.H. Humphrey (Eds.), Current Selected Research in the Psychology and Sociology of Sport (pp. 97-113). New York: AMS Press Princeton Book Co.
- Berger, B.G., & Owen, D.R. (1987). Anxiety reductions with swimming: relationships between exercise and state, trait, and somatic anxiety. International Journal of Sport Psychology, 18, 286-302.
- Berger, B.G., & Owen, D.R. (1992a). Mood alteration with with yoga and swimming: Aerobic exercise may not be necessary. Perceptual and Motor Skills, 75, 1331-1343.
- Berger, B.G., & Owen, D.R. (1992b). Preliminary analysis of a causal relationship between swimming and stress reduction: Intense exercise may negate the effects. International Journal of Sport Psychology, 23(1), 70-85.
- Blumenthal, J.A., Williams, R.S., Needels, T.L., & Wallace, A.G. (1982). Psychological changes accompany aerobic exercise in middle-aged adults. Psychosomatic Medicine, 44, 529-536.
- Borysenko, J. (1984). Psychoneuroimmunology: Behavioral factors and the immune response. Revision, 7(1), 56-65.

- Brick, L., & Brick, B. (1988). Aerobic program policy manual. Timonium, MD: Brick Bodies Fitness Services, Incorporated.
- Brown, D.R. (1988). Exercise, fitness and mental health. In C. Bouchard, R.J. Shephard, T. Stephens, J.R. Sutton, & B.D. McPherson (Eds.), Exercise, fitness and health (pp. 607-626). Champaign, IL: Human Kinetics.
- Brown, J.C. (1979). The therapeutic mile. Irmo, SC: Human Growth and Development Books.
- Brownell, K.D., Steen, S.N., & Wilmore, J.M. (1987). Weight regulation practices in athletes: Analysis of metabolic and health effects. Medicine and Science in Sports and Exercise, 19, 552-560.
- Buffone, G.W. (1980). Exercise as therapy: A closer look. Journal of Counseling and Psychotherapy, 3, 101-115.
- Carmack, D., & Martens, R. (1979). Measuring commitment to running: A survey of runners' attitudes and mental states. Journal of Sport Psychology, 1, 25-42.
- Choi, P.Y., Van Horn, J.D., Picker, D.E., & Roberts, H.I. (1993). Mood changes in women after an aerobics class: A preliminary study. Health Care Women International, 14(2), 167-177.
- Colquhoun, D. (1990). Images of healthism in health-based physical education. In D. Kirk & R. Tinning (Eds.), Physical education, curriculum and culture: Critical issues in the contemporary crisis (pp. 225-251). New York: Palmer Press.
- Cooper, K.H. (1968). Aerobics. New York: Bantam.
- Cooper Institute for Aerobics Research (1992). Aqua aerobics training manual. Dallas, TX: Cooper Institute for Aerobics Research.
- Crawford, R. (1980). Healthism and the medicalization of everyday life. International Journal of Health Services, 7, 663-680.
- Crum, T.F. (1987). The magic of conflict. New York, NY: Touchstone.

- Cox, D.J., Taylor, A.G., & Holley-Wilcox, P. (1982, March) The relationship of psychosocial variables to blood glucose fluctuations in adult insulin-dependent diabetics. Paper presented at the annual meeting of the Society of Behavioral Medicine, Chicago.
- Cureton, T. (1969). The physiological effects of exercise programs on adults. Springfield, IL: Thomas.
- Davis, C. (1990a). Body image and weight preoccupation: A comparison between exercising and non-exercising women. Appetite, 15(1), 13-21.
- Davis, C. (1990b). Weight and diet preoccupation and addictiveness: The role of exercise. Personality and Individual Differences, 11, 823-827.
- DeBenedette, V. (1990). Are your patients exercising too much? The Physician and Sportsmedicine, 18(8), 119,122.
- Dienstbier, R.A., Crabbe, J., Johnson, G.O., Thorland, W., J Jorgensen, J.A., Sadar, M.M., & LaVelle, D.C. (1984). Exercise and stress tolerance. In M.H. Sacks & M.L. Sachs (Eds.), Psychology of running (pp. 192-210). Lincoln: University of Nebraska Press.
- Dishman, R.K. (1985). Medical psychology in exercise and sport. Medical Clinics of North America, 69,123-143.
- Dishman, R.K. (1988). Exercise adherence: Its impact on public health. Champaign, IL: Human Kinetics.
- Dreher, H. (1987). Cancer and the mind: Current concepts in psycho-oncology. Advances, 4(3), 27-43.
- Eckstein, D., & Keeling, G. (1991). Principles of health from eastern disciplines are finding their way into western workouts: East meets west. IDEA Today, January, 47-50.
- Edington, D., & Edgerton, V.R. (1976). The biology of physical activity. Boston: Houghton Mifflin.
- Eischens, R.R., Greist, J.H., & McInvaille, T. (1977). Run to reality. Milwaukee, WI: Madison Running Press.

- Engel, G.L. (1977). The need for a new medical model: A challenge for biomedicine. Science, April 8.
- The Exer-Safety Association (1986). The basic training program for safety certification: Seminar in aerobics, fitness and exercise. The Exer-Safety Association.
- Field, L.K., & Steinhardt, M.A. (1992). The relationship of internally directed behavior to self-reinforcement, self-esteem, and expectancy values for exercise. American Journal of Health Promotion, 7(1), 21-27.
- Fitts, P.M., & Posner, M.I. (1967). Human performance. Belmont, CA: Brooks/Cole.
- Franklin, B.A. (1986). Clinical components of a successful adult fitness program. American Journal of Health Promotion, 1(1), 6-13.
- Gavin, J. (1989). The psychology of exercise prescription. IDEA Today, November/December, 17-20.
- Greer, S., Morris, T.E., & Pettingaie, K.W. (1979). Psychological response to breast cancer: Effect on outcome. Lancet, 2, 785-787.
- Gondola, J.C., & Tuckman, B.W. (1983). Diet, exercise, and physical discomfort. Perceptual and Motor Skills, 57, 559-565.
- Greenwood, E.D. (1976). Emotional well-being through exercise: Therapeutic benefit for the adult. In T.T. Craig (Ed.), The humanistic and mental health aspects of sports, exercise, and recreation (pp. 130-133). Chicago: American Medical Association.
- Greist, J.G., Klein, M.H., Eischens, R.R., Faris, J., Gruman, A.S., & Morgan, W.P. (1979). Running as treatment for depression. Comprehensive Psychiatry, 20, 41-53.

- Harper, F.D. (1978) Outcomes of jogging: Implications for counseling. Personnel and Guidance Journal, 57, 74-78.
- Harper, F.D. (1979). Jogotherapy: Jogging as a therapeutic strategy. Alexandria, VA: Douglas.
- Hawkins, D.L. (1981). The effects of exercise on self-esteem and body image. (Doctoral dissertation, University of Georgia, 1981). Dissertation Abstracts International, 42, 2031A.
- Hayden, R.A., Allen, G.J., & Camaione, D.N. (1986). Some psychological benefits resulting from involvement in an aerobic fitness program from the perspective of participants and knowledgeable informants. Journal of Sports Medicine, 18, 399-408.
- Heaps, R. (1978). Relating physical and psychological fitness: A psychological point of view. Journal of Sports Medicine and Physical Fitness, 18, 399-408.
- Imm, P.S., & Pruitt, J. (1991). Body shape satisfaction in female exercisers and nonexercisers. Women and Health, 17(4), 87-96.
- International Dance Exercise Association Foundation. (1986). Aerobic dance-exercise instructor manual. San Diego, CA: IDEA Foundation.
- Johnston, J. (1994). Appearance Obsession. Deerfield Beach, FL: Health Communications, Inc.
- Kabat-Zinn, J. (1990). Full catastrophe living. New York: Dell Publishing.
- Kaplan, H.B., & Pokorny, A.D. (1969). Self-derogation and psychosocial adjustment. Journal of Nervous and Mental Disease, 149, 421-434.
- Kasch, F. (1976). The effects of exercise on the aging process. Physician and Sports Medicine, 4, 64-68.

- Kasch, F., Wallace, J., Van Camp, S., & Verity, L. (1988). A longitudinal study of cardiovascular stability in active men aged 45-65 years. The Physican and Sports Medicine, 16, 117-126.
- Kilbourne, J. (Producer, Director). (1987). Still killing us softly (Film). Cambridge, MA: Cambridge Documentary Films.
- King, A.C., Taylor, C.B., & Haskell, W.L. (1993). Effects of differeing intensities and formats of 12 months of exercise training on psychological outcomes in older adults. Health Psychology, 12(4), 292-300.
- Kirk, D., & Colquhoun, D. (1989). Healthism and physical education. British Journal of Sociology of Education, 10, 417-434.
- Kissling, E. (1991). One size does not fit all, or how I learned to stop dieting and love the body. Quest, 43, 135-147.
- Kobasa, S.C., Maddi, S.R., & Pucceti, M.C. (1982). Personality and exercise as buffers in the stress-illness relationship. Journal of Behavioral Medicine, 5, 393-403.
- Krieger, D. (1993). Accepting your power to heal. Santa Fe, NM: Bear & Company, Inc.
- Krueger, R.A. (1992, May). Designing and conducting focus group interviews. Workshop conducted at the Social Marketing in Public Health Conference, Tampa, FLA.
- Kurtzman, F., Yager, J., & Landsverk, J. (1989). Eating disorders among selected female student populations at UCLA. Journal of the American Dietetic Association, 89, 45-53.
- Ledwidge, B. (1980). Run for your mind: Aerobic exercise as a means of alleviating anxiety and depression. Canadian Journal of Behavioral Science, 12, 126-140.

- Leventhal, H., Meyer, D., & Nerenz, D. (1980). The common sense representation of illness danger. In S. Rachman (Ed.), Contributions to medical psychology (Vol. 2, pp. 7-30). Elmsford, NY: Pergamon Press.
- Lion, L.S. (1978). Psychological effects of jogging: A preliminary study. Perceptual and Motor Skills, 47, 1215-1218.
- Martinsen, E.W. (1987). Interaction of exercise and medication in the psychiatric patient. In W.P. Morgan & S.E. Goldston (Eds.), Exercise and mental health (pp. 85-95). Washington, DC: Hemisphere Publishing.
- Martinsen, E.W. (1990). Benefits of exercise for the treatment of depression. Sports Medicine, 9, 380-389.
- McCann, I.L., & Holmes, D.S. (1984). Influence of aerobic exercise on depression. Journal of Personality and Social Psychology, 46, 1142-1147.
- McDonald, K. & Thompson, J.K. (1992). Eating disturbance, body image dissatisfaction, and reasons for exercising: Gender differences and correlational findings. International Journal of Eating Disorders, 11(3), 289-292.
- McNab, D. (1990, April). Moves for the mind. IDEA Today, 32-35.
- Monroe, M. (1990, October). Soaring high with the magic of self-esteem. IDEA Today, 6-10.
- Morgan, W.P. (1981). Psychological benefits of physical activity. In F. Nagle & H. Montoye (Eds.), Exercise, health, and disease. Springfield, MO: Charles C. Thomas.
- Nagy, S. & Frazier, S. (1988). The impact of exercise on locus of control, self-esteem and mood states. Journal of Social Behavior and Personality, 3(3), 263-268.

- Nieman, D.C. (1986). The sports medicine fitness course. Palo Alto, CA: Bull Publishing Company.
- North, T.C., McCullagh, P., & Van Tran, Z. (1990). Effect of exercise on depression. Exercise and Sport Sciences Reviews, 18, 379-415.
- Orwin, A. (1984). The running treatment: A preliminary communication on a new use for an old therapy (physical activity) in the agoraphobic syndrome. In M.H. Sachs & M.L. Sachs (Eds.), Psychology of running (pp. 32-39). Lincoln: University of Nebraska Press.
- Pollock, M.L., Wilmore, J.H., & Fox, S.H. (1978). Health and fitness through physical activity. New York: Wiley.
- Radha, S.S. (1978). Hatha yoga: The hidden language. Boston: Shambhala.
- Raglin, J.S., & Morgan, W.P. (1987). Influence of exercise and quiet rest on state anxiety and blood pressure. Medicine and Science in Sports and Exercise, 19, 456-463.
- Rosas, D., & Rosas, C. (1987). Non-impact aerobics: The NIA technique. New York: Avon.
- Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.
- Sachs, M.L., & Buffone, G.W. (Eds.) (1984). Running as therapy: An integrated approach. Lincoln: University of Nebraska Press.
- Sharkey, B.J. (1981). Physiology and fitness. Champaign: Human Kinetics Publishing.
- Silber, E., & Tippet, J.S. (1965). Self-esteem: Clinical assessments and measurement validation. Psychological Reports, 16, 1017-1071.

- Silverstein, B., Perdue, L., Peterson, B., & Kelly, E. (1986). The role of the mass media in promoting a thin standard of bodily attractiveness for women. Sex Roles, 14, 519-532.
- Smith, A.E., & Brandt, S.H. (1979) Physical activity: A tool in promoting mental health. Journal of Psychiatric Nursing, 17, 24-25.
- Sonstroem, R.J.(1984). Exercise and self-esteem. In R.L. Tergung (Ed.), Exercise and sport sciences reviews (pp. 123-155). Lexington, MA: The Collmore Press.
- Sonstroem, R.J., & Morgan, W.P. (1989). Exercise and self-esteem: Rationale and model. Medicine and Science in Sports and Exercise, 21(3), 329-337.
- Spielberger, C.D., Gorsuch, R.L., & Lushene, R.E. (1970). STAI manual. Palo Alto, CA: Consulting Psychologists Press, Inc.
- Summers, J.J., Machin, M.J., & Sargent, G.I. (1983) Psychosocial factors related to marathon running. Journal of Sport Psychology, 5, 314-331.
- U.S. Department of Health and Human Services. (1992). Healthy people 2000: Summary report (DHHS Publication No. PHS 91-50213). Boston, MA: Jones and Bartlett Publishers.
- Vingerhoets, A.J., Croon, M., Jenga, A.J., & Menges, L.J. (1990). Personality and health habits. Psychology and Health, 4(4), 333-342.
- Wilcox, R., Bennett, T., Brown, A., & MacDonald, J. (1982). Is exercise good for blood pressure? British Medical Journal, 285, 767-769.
- Williams, K. (1988). The mind-body connection. Dance Exercise Today, June/July, 2-5.
- Wilson, V.E., Berger, B.G., & Bird, E.I. (1981). Effects of running and of exercise class on anxiety. Perceptual Motor Skills. 53, 472-474.

- Wiseman, C., Gray, J., Mosimann, J., & Ahrens, A. (1992). Cultural expectations of thinness in women: An update. Journal of Eating Disorders, 11(1), 85-89.
- Wyllie, R. (1974). The self-concept. Lincoln, NB: The University of Nebraska Press.
- Yates, A. (1991). Compulsive exercise and the eating disorders: Toward an integrated theory of activity. New York: Brunner/Mazel.
- Young, R., & Ismail, A. (1976). Relationships between anthropometric, physiological, biochemical and personality variables before and after a four-month conditioning program for middle-aged men. Journal of Sports Medicine, 16, 267.
- Zonderman, B., Costa, P.T., & McCrae, R.R. (1989). Depression as a risk for cancer morbidity in a nationally representative sample. Journal of the American Medical Association, 262, 1191-1195.

Appendices

Appendix A

Permission Letter From TWU Human
Subjects Review Committee .

TEXAS WOMAN'S UNIVERSITY
DENTON DALLAS HOUSTON

OFFICE OF RESEARCH AND GRANTS ADMINISTRATION
P.O. Box 22939, Denton, Texas 76204-0939 S17/S98-3375



HUMAN SUBJECTS REVIEW COMMITTEE

December 10, 1993

Deborah Kern
C/O Dr. Judy Baker
Health Studies

Dear Deborah Kern:

Your study entitled "The Effect of an Internally Directed Teaching Approach on Self-Esteem and State-Trait Anxiety" has been reviewed by a committee of the Human Subjects Review Committee and appears to meet our requirements in regard to protection of individuals' rights.

Be reminded that both the University and the Department of Health and Human Services (HHS) regulations typically require that agency approval letters and signatures indicating informed consent be obtained from all human subjects in your study. These are to be filed with the Human Subjects Review Committee. Any exception to this requirement is noted below. Furthermore, according to HHS regulations, another review by the Committee is required if your project changes.

Special provisions pertaining to your study are noted below:

- ☐ The filing of signatures of subjects with the Human Subjects Review Committee is not required.
- ☐ Other:
- ☒ No special provisions apply.

Sincerely,

A handwritten signature in cursive script that reads "Pat Hamilton".

Chairman
Human Subjects Review Committee

cc: Graduate School
Dr. Judy Baker, Health Studies
Dr. William Cissell, Health Studies

Appendix B
Consent Form for Participation
in Study

Texas Woman's University
Subject Consent To Participate In Research

The Effect of Teaching
Approaches on Health Attitudes

Investigator:
Deborah Kern

Phone Number:
817-991-5835

The purpose of this study is to determine the effect of teaching approaches on health attitudes. You will participate in an aerobics class for 7 weeks, twice a week. Classes will be taught using different approaches, but all of the classes are designed to be safe, fun and effective.

As is true with any exercise program, there is a risk of physical injury such as muscle or joint soreness, overuse or stress-related injuries, fatigue or overheating. However, you will be taught correct techniques and you will be encouraged to make any necessary modifications in order to prevent injury. You may expect to improve your physical fitness level during these classes.

You will be asked to fill out questionnaires during the first and last class meetings. The questionnaires have sixty-four questions. These questions ask about self-esteem and your style of coping with stress and anxiety and the answers are multiple choice. It will take you approximately thirty minutes to complete the questionnaire, and you will be given class time to do this. The results of these questionnaires will be kept confidential by using code numbers rather than names to identify them. You may also be asked to participate in one group discussion for about one hour.

If you have any questions about this research and research subjects' rights, and whom to contact in the event of a research-related injury, you may contact Deborah Kern at the following number: (metro) 817-991-5835.

Your participation in this study is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. Also, you may discontinue participation in this study at any time without penalty or loss of benefits to which you are otherwise entitled.

An offer to answer all of my questions regarding the study has been made and I have been given a copy of the dated and signed consent form. A description of the possible attendant discomfort and risks reasonable to expect have been discussed with me. I understand that I may terminate my participation in the study in the study at any time.

I understand that no medical service or compensation is provided to the subjects by the university as a result of injury from participation in research.

Subject signature: _____ Date: _____

Age as of January 15, 1994 _____

If you have any concerns about the way this research has been conducted, contact the Texas Woman's University Office of Research at (817) 898-3375.

Appendix C
Consent Form for Videotaping

Texas Woman's University

I have been informed that the aerobics class will be videotaped once for the purpose of evaluating the performance of the instructor. I understand that even if I do not agree to be included in the videotape I can still participate in the study by standing in the designated part of the room that will not be in the camera's view.

I, the undersigned, do hereby consent to the recording of my voice and/or my image by Deborah Kern, acting on this date under the authority of Texas Woman's University. I understand that the material recorded may be made available for educational, informational, and/or research purposes; and I do hereby consent to such use.

I hereby release Texas Woman's University from any and all claims arising out of such taking, recording, reproducing, publishing, transmitting, or exhibiting as is authorized by Texas Woman's University.

Signature of participant

Date

Authorized representative of Texas Woman's University

Date

Appendix D
Focus Group Questions

Focus Group Questions

1. How did you feel right after class was over?
2. How has participation in this class affected any other area of your life?
3. What feelings did you experience while participating in the class?
4. Did you ever experience the same kind of feelings you had in this class while doing any other activity?
5. What did you gain from participating in this class?
6. While participating in this class, were you able to get your heart rate up to target heart rate zone?
7. Did you work your muscles within a range of comfort in the class?

Appendix E

Demographic and Physical Self-Esteem
Questionnaire

PLEASE ANSWER THE FOLLOWING QUESTIONS. YOU DO NOT NEED TO PUT YOUR NAME ON THIS QUESTIONNAIRE. ALL ANSWERS ARE CONFIDENTIAL.

Age_____

Number of years as aerobics participant_____

College major_____

PLEASE INDICATE HOW STRONGLY YOU AGREE OR DISAGREE WITH EACH STATEMENT BELOW BY CIRCLING THE APPROPRIATE NUMBER.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. I have an attractive body.	1	2	3	4	5
2. I have a number of good physical qualities.	1	2	3	4	5
3. I am proud of what I can accomplish physically.	1	2	3	4	5
4. I feel negatively about my physical self.	1	2	3	4	5
5. I wish I had more respect for my physical self.	1	2	3	4	5
6. I feel confident about my physical appearance.	1	2	3	4	5
7. I am satisfied with the kind of person I am physically.	1	2	3	4	5
8. I lack confidence about my ability to maintain regular exercise.	1	2	3	4	5
9. I like the way my body looks in the mirror.	1	2	3	4	5
10. I am confident in performing physical activities.	1	2	3	4	5
11. I am not very good at most physical activities.	1	2	3	4	5

Appendix F
Rosenberg Self-Esteem Questionnaire

Directions: This scale has no right or wrong answer. You will be asked to check a box to indicate your agreement with each statement from A (strongly agree) through D (strongly disagree).

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. On the whole I am satisfied with myself.				
2. At times I think I am no good at all.				
3. I feel I have a number of good qualities.				
4. I am unable to do things as well as most other people.				
5. I feel I do not have much to be proud of.				
6. I certainly feel useless at times.				
7. I feel I am a person of worth, at least on an equal plane with others.				
8. I wish I could have more respect for myself.				
9. All in all, I am inclined to feel that I am a failure.				
10. I take a positive attitude toward myself.				

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Appendix G
State-Trait Anxiety Inventory

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

- | | NOT AT ALL | SOMEWHAT | MODERATELY SO | VERY MUCH SO |
|--|------------|----------|---------------|--------------|
| 1. I feel calm | ① | ② | ③ | ④ |
| 2. I feel secure | ① | ② | ③ | ④ |
| 3. I am tense | ① | ② | ③ | ④ |
| 4. I feel strained | ① | ② | ③ | ④ |
| 5. I feel at ease | ① | ② | ③ | ④ |
| 6. I feel upset | ① | ② | ③ | ④ |
| 7. I am presently worrying over possible misfortunes | ① | ② | ③ | ④ |
| 8. I feel satisfied | ① | ② | ③ | ④ |
| 9. I feel frightened | ① | ② | ③ | ④ |
| 10. I feel comfortable | ① | ② | ③ | ④ |
| 11. I feel self-confident | ① | ② | ③ | ④ |
| 12. I feel nervous | ① | ② | ③ | ④ |
| 13. I am jittery | ① | ② | ③ | ④ |
| 14. I feel indecisive | ① | ② | ③ | ④ |
| 15. I am relaxed | ① | ② | ③ | ④ |
| 16. I feel content | ① | ② | ③ | ④ |
| 17. I am worried | ① | ② | ③ | ④ |
| 18. I feel confused | ① | ② | ③ | ④ |
| 19. I feel steady | ① | ② | ③ | ④ |
| 20. I feel pleasant | ① | ② | ③ | ④ |

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I feel nervous and restless	①	②	③	④
23. I feel satisfied with myself	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I feel like a failure	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I have disturbing thoughts	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I make decisions easily	①	②	③	④
35. I feel inadequate	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	①	②	③	④

Appendix H

Permission Letter from Author of Physical
Self-Esteem Scale



COLLEGE OF EDUCATION

THE UNIVERSITY OF TEXAS AT AUSTIN

Department of Kinesiology and Health Education • Austin, Texas 78712 • (512) 471-1273

December 1, 1993

Deborah Kern
2197 S. Uecker, #1716
Lewisville, Texas 75067

Dear Deborah,

I am happy to grant you permission to use the Physical Self-Esteem Scale for your dissertation research. It will be interesting to see the results of your study. Please keep me posted.

Sincerely,

Mary Steinhardt

Mary Steinhardt, Ph.D.

Appendix I

Permission Letter from Author of General
Self-Esteem Scale

November 15, 1993

Ms. Florence Slade
Princeton University Press
41 William Street
Princeton, New Jersey 08540

Dear Ms. Slade,

I am a doctoral candidate at Texas Woman's University and I am requesting permission to use Morris Rosenberg's Self-Esteem Scale for my dissertation research. The topic of my dissertation is "The Effect of an Internally Directed Teaching Approach on Selected Health Variables." I will be using the Rosenberg Self-Esteem Scale as part of a pretest and a posttest for two exercise classes receiving an internally directed teaching approach and two exercise classes receiving an externally directed approach.

Please send a permission letter to:
Deborah Kern
2197 South Uecker Dr., #1716
Lewisville, Texas 75067

phone #: 214-315-2745

Thank you.

Sincerely,

Deborah Kern
Deborah Kern
Doctoral Candidate, Texas Woman's University

Judith A. Baker
Dr. Judith Baker, Advisor
Associate Professor, Texas Woman's University

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Appendix J

Premission Letter from Author of State-Trait
Anxiety Inventory

M I N D G A R D E N

sharing the garden of the minddate: 2/22/94

To whom it may concern,

This letter is to grant permission for Deborah Kern @ Texas Women's Univ.
to use the following copyrighted material;

State Trait Anxiety Inventory
for his or her research. In addition, 5 sample items from the instrument may be copied for
inclusion in a proposal or thesis. The entire measure may not at any time be copied or included
in other published material as this would violate our agreement with the author. .

Sincerely,

Theresa Muñoz

Assistant Manager of MIND GARDEN

A division of Consulting Psychologists Press.

Appendix K

Years of Aerobic Dance Participation
Prior to the Study

Table 1

Years of Prior Aerobic Dance Participation Prior to the Study, (n = 68)

<u>Years of participation in</u> <u>aerobic dance</u>	<u>Total Sample</u> <u>n</u>	<u>Percentage of</u> <u>Total</u>
0	24	35
1	15	22
2	11	16
3	4	6
4	5	8
5	5	8
6	1	1
10	1	1
11	2	3

Appendix L

Mean Scores and Standard Deviations for Pretests
and Posttests Measuring General Self-Esteem,
Physical Self-Esteem, State Anxiety, and
Trait Anxiety

Table 2

Mean Scores and Standard Deviations for Pretests and Posttests Measuring General Self-Esteem, Physical Self-Esteem, State Anxiety, and Trait Anxiety (n = 68)

	<u>Mean Scores</u>		<u>Standard Deviations</u>	
	<u>pretest</u>	<u>posttest</u>	<u>pretest</u>	<u>posttest</u>
<u>General Self-Esteem</u>				
Control(<u>n</u> = 31)	24.68	24.32	2.16	2.19
Experimental	24.51	24.29	1.88	2.31
(<u>n</u> = 37)				
<u>Physical Self-Esteem</u>				
Control (<u>n</u> = 31)	34.16	31.48	7.85	2.48
Experimental	34.13	30.62	7.15	2.96
(<u>n</u> = 37)				
<u>State Anxiety</u>				
Control (<u>n</u> = 31)	43.48	46.32	4.85	4.97
Experimental	44.00	44.76	5.69	4.18
(<u>n</u> = 37)				

(table continues)

Table 2

Mean Scores and Standard Deviations for Pretests and Posttests Measuring General Self-Esteem, Physical Self-Esteem, State Anxiety, and Trait Anxiety (n = 68)

	<u>Mean Scores</u>		<u>Standard Deviations</u>	
	<u>pretest</u>	<u>posttest</u>	<u>pretest</u>	<u>posttest</u>
<u>Trait Anxiety</u>				
Control (<u>n</u> = 31)	46.12	47.29	4.28	4.96
Experimental	45.94	45.05	4.35	4.53
(<u>n</u> = 37)				

Appendix M

Analysis of Variance of Total General Self-Esteem Posttest
Scores by Treatment with Total General
Self-Esteem Pretest Scores as a Covariate

Table 3

Analysis of Variance of Total General Self-Esteem
Posttest Scores by Treatment Group with Total General
Self-Esteem Pretest Scores

<u>Source of</u> <u>Variation</u>	<u>Sum of</u> <u>Squares</u>	<u>DF</u>	<u>Mean</u> <u>Squares</u>	<u>F</u>	<u>Sig. of</u> <u>F</u>
<u>Covariates</u> <u>Pretest</u>	54.25	1	54.25	12.49	.001
<u>Main Effects</u> <u>Class</u>	.04	1	.04	.01	.924
<u>Explained</u>	54.26	2	27.13	6.25	.003
<u>Residual</u>	282.26	65	4.34		
<u>Total</u>	336.52	67	5.02		

Appendix N

Analysis of Variance of Total Physical Self-Esteem Scores by
Treatment with Total Physical Self-Esteem Pretest Scores as
a Covariate

Table 4

Analysis of Variance of Total Physical Self-Esteem Posttest
Scores by Treatment with Total Physical Self-Esteem Pretest
Scores as a Covariate

<u>Source of</u> <u>Variation</u>	<u>Sum of</u> <u>Squares</u>	<u>DF</u>	<u>Mean</u> <u>Square</u>	<u>F</u>	<u>Sig. of</u> <u>F</u>
<u>Covariates</u> <u>Pretest</u>	17.95	1	17.95	2.41	.126
<u>Main Effects</u> <u>Treatment</u>	12.49	1	12.49	1.68	.2
<u>Explained</u>	30.49	2	15.25	2.05	.138
<u>Residual</u>	484.49	65	7.45		
<u>Total</u>	514.99	67	7.69		

Appendix O

Analysis of Variance of Total State Anxiety Scores by
Treatment with Total State Anxiety Pretest
Scores as a Covariate

Table 5

Analysis of Variance of Total State Anxiety Posttest
Scores by Treatment with Total State Anxiety Pretest
Scores as a Covariate

<u>Source of</u> <u>Variation</u>	<u>Sum of</u> <u>Squares</u>	<u>DF</u>	<u>Mean</u> <u>Square</u>	<u>F</u>	<u>Sig.</u> <u>of F</u>
<u>Covariates</u> <u>Pretest</u>	224.45	1	224.45	12.69	.001
<u>Main Effects</u> <u>Treatment</u>	51.21	1	51.21	2.89	.094
<u>Explained</u>	265.81	2	132.90	7.50	.001
<u>Residual</u>	1149.14	65	17.69		
<u>Total</u>	1414.94	67	21.12		

Appendix P

Analysis of Variance of Total Posttest Scores for Trait
Anxiety by Treatment with TotalTrait Anxiety Pretest
Scores as a Covariate

Table 6

Analysis of Variance of Total Posttest Scores for Trait
Anxiety by Treatment Group with total Trait Anxiety Pretest
Scores as a Covariate

<u>Source of</u> <u>Vairation</u>	<u>Sum of</u> <u>Squares</u>	<u>DF</u>	<u>Mean</u> <u>Square</u>	<u>F</u>	<u>Sig. of</u> <u>F</u>
<u>Covariates</u> <u>Pretest</u>	594.98	1	594.98	43.68	.000
<u>Main Effects</u> <u>Treatment</u>	74.99	1	74.99	5.50	.022
<u>Explained</u>	679.33	2	339.67	24.94	.000
<u>Residual</u>	885.29	65	13.62		
<u>Total</u>	1564.63	67	23.35		

Appendix Q

Frequency of Statements Made by the Aerobic Dance Instructor
by Type of Statement

Table 7

Frequency of Statements Made by the Aerobic Dance Instructor by Type of Statement

<u>Type of Statement</u>	<u>Control 1</u>	<u>Control 2</u>	<u>Experimental 1</u>	<u>Experimental 2</u>
Do Something	325	221	152	193
Motivate	38	28	8	21
Positively Reinforce	69	44	48	43
Feel Something	2	1	28	30
Visual Imagery	7	8	24	22
Breath	2	1	21	29
Awareness	0	2	9	11
Total Statements	443	305	290	349

Mean Total Statements

Control Groups = 374

Experimental Groups = 319.5