



The development and implementation of the health enhancement curriculum
by Timothy Allen Dunnagan

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in
Physical Education

Montana State University

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Abstract:

The purpose of this study was to develop a curriculum for physical activity that increases adherence to exercise within a wellness program. The curriculum was implemented and modified on three separate occasions to ensure that the model was workable within a naturalistic setting. The investigator used a variety of qualitative and quantitative evaluation techniques, although the majority of the data were derived from qualitative research methods. Several meaningful changes took place as a result of this investigation that were not related to exercise adherence. These conclusions are described in terms of meaningful changes for the participant, the instructor, and the curriculum.

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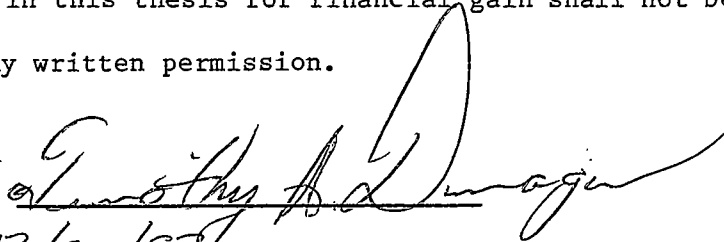
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I would like to dedicate this thesis to my mother, father, grandmother, and wife. Without your unquestioning support of my educational pursuits this paper would not have been possible. More importantly, all of you have helped me find my mission in life. I thank you all, and I love you very much.

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ABSTRACT

The purpose of this study was to develop a curriculum for physical activity that increases adherence to exercise within a wellness program. The curriculum was implemented and modified on three separate occasions to ensure that the model was workable within a naturalistic setting. The investigator used a variety of qualitative and quantitative evaluation techniques, although the majority of the data were derived from qualitative research methods. Several meaningful changes took place as a result of this investigation that were not related to exercise adherence. These conclusions are described in terms of meaningful changes for the participant, the instructor, and the curriculum.

CHAPTER 1

INTRODUCTION

The purpose of this curriculum is to develop and maintain adherence to exercise. This curriculum is needed because our economic structure can no longer afford to absorb the health care costs of a society that has for years contributed to negative lifestyle habits (Gastin and Shepard, 1984). The negative habit that this curriculum is concerned with is sedentary lifestyle. The United States Center for Disease Control (CDC) in 1979 concluded that 48% of all deaths are caused by lifestyle related diseases, and only 12% are diseases that traditional medicine can treat (United States Department of Health and Human Services, Public Health Services, Centers of Disease Control, 1979). "In 1980, the United States' employers paid over 60 billion dollars in premiums for employees' health care insurance, a cost that escalates at 16% a year for the same benefits" (O'Donnell and Ainsworth, 1984). Regular exercise has been identified as one of the seven basic healthy lifestyle habits (Belloc N., and L. Breslow, 1972).

Currently, 50-70% of the United States' population is not physically fit (O'Donnell and Ainsworth, 1984). This is significant because many degenerative diseases are associated with poor physical fitness. For example, a sedentary lifestyle has been associated with cardiovascular disease (Wilson, P., Fardy, P., and V. Froelicher,

1981). Cardiovascular disease in the United States has a total cost of 50 billion dollars a year (Stamler, J. 1973). Granted, physical fitness is not a panacea for all of the nation's health care problems. There are many critical health related problems that cannot be solved through lifestyle modification, and, it is naive for the public or the government to think that this is true (Ingham, 1985). However, the author believes that given the severity of the diseases and financial problems related to negative lifestyles, it is necessary to develop programs that can change negative lifestyles. Physical fitness is part of the necessary lifestyle change. The Health Enhancement Curriculum was developed to effectively and ethically bring about this change.

Because the intent of the curriculum is to change society, its value orientation is clearly social reconstruction. This orientation is based on three assumptions. First, it is assumed that societal change can most effectively be brought about by meeting the needs of the individual. The notion of the individual as the primary consideration in causing social reconstruction is different from the explanation given by Bain and Jewett (1986). The authors stated that "societal needs take precedence over individual needs." However, the author looks at societal change from a different perspective, the perspective is that significant societal change can take place if enough individuals' needs are collectively met.

Secondly, it is assumed that adherence to exercise can be increased if the participant is given the responsibility to make decisions regarding why and how they want to exercise. For years,

professionals in the area of physical fitness have been in the business of giving participants an exercise prescription. The concerns of the prescription were proper intensity, duration, frequency and mode (ACSM, 1978). Very little emphasis was given to helping the participants decide what mode of activity would be best for them. With this type of approach, exercise programs have dropout rates of approximately fifty-percent after six months (Dishman, 1982). Also, this approach can develop participant dependency on the instructor and/or the program. It is therefore assumed that the participants should be guided into deciding why and how they want to participate in physical activity. If this responsibility is given to the participant instead of the instructor, adherence rates will be increased and a more internal health locus will be developed by the participant.

Thirdly, the curriculum goals will be facilitated through a combination of adherence techniques. The possible techniques for increasing exercise adherence are numerous (Shepard, 1985; Dishman, 1986). This instructor currently can choose from seventeen different adherence techniques. These methods were picked because they are the most effective techniques available in the current adherence literature. The exact techniques that are used will depend on individual and group needs. Therefore, the techniques used must be specific to the individual and the setting where the curriculum is being implemented.

In conclusion, it is important to emphasize that the Health Enhancement Curriculum was developed because of a societal need. Our

country must take the responsibility for changing negative lifestyle habits. These poor habits have been developed and promoted by society for many years. It is, therefore, wrong to expect that individuals will make the necessary changes on their own. The individual needs the support and direction of the country's educational systems, businesses, and government. The Health Enhancement Curriculum is designed to help meet this need. The program was designed to change one aspect related to the overall problem; i.e. sedentary lifestyles.

Statement of the Problem

The purpose of this study was to develop a curriculum for physical activity that increased adherence to exercise in a wellness program. The curriculum was implemented, tested and modified within a naturalistic setting to ensure that the model was workable. The primary evaluation techniques used to facilitate this process were qualitative in nature.

CHAPTER 2

REVIEW OF LITERATURE

It is well documented that regular exercise programs of the proper intensity, duration, frequency and mode can bring about positive physiologic (McArdle et al., 1981) and psychologic (Mihevic, 1982) adaptations. Also, there is evidence that the physically fit employee is more productive, absent from work less, and uses fewer health care dollars than the unfit employee (Howell, 1985). However, employee fitness programs are only able to recruit from twenty to fifty percent of the eligible participants (Wankle, 1984; Song, T., Shepard, R., and M. Cox, 1983). Investigators have shown that thirty to seventy percent of those who are recruited drop out from their exercise program (Morgan, Shepard, Finucane, Schimmelfing, and Jazmaji, 1984; Dishman, et al., 1980; Dishman, 1982; and Gettman et al., 1983). Typically, adult fitness programs average a fifty percent dropout rate after six to twelve months (Dishman, 1986, Shepard, 1985; Song et al., 1983). Therefore, it would appear that the methods used for recruitment and development of adherence to adult fitness programs are problematic. This review will focus on the relevant literature related to exercise adherence in adult fitness programs.

Several researchers have investigated factors related to predicting dropout from exercise programs (Norrid, 1984, 1986; Maddocks, 1983; and Dishman, 1980). Other researchers have

investigated factors related to exercise recruitment (Mirotznik, Speedling, Stein, and Bronz, 1985; Gale, Eckhoff, Mogel, and Rodnick, 1984). Overlap exists in the research that has been conducted in the areas of prediction, recruitment, and adherence to physical activity. This is especially true with adherence and prediction of dropout from adult exercise programs. Therefore, factors related to prediction will also be incorporated into the review. Information relating to exercise recruitment does not significantly apply to adherence. Consequently, this area of study has been omitted. The review of literature has been divided into three major sections: biological, psychological, and instructional aspects of exercise adherence.

Biological Factors

Several biological influences have been associated with exercise adherence. Gale and associates (1984) found that more physically fit women and less physically fit men adhered more regularly to a six month exercise program. Mirotznik and associates (1985) found that lower levels of fitness and excessive weight were associated with poor adherence rates in a cardiovascular fitness program. Allen (1984, 1986) also found that the less fat individual was more likely to adhere to an exercise program. Dishman (1981) concluded that the leaner, lighter, less fit individuals were more likely to adhere to a "long term" exercise program. However, he concluded that these variables alone provide little predictive potential for determining "dropout-proneness" in a clinical setting. Oldridge and associates (1983) found that duration and intensity of exercise was not a factor

in determining exercise adherence. However, smokers were found to be two and one-half times more likely to dropout than non-smokers. Also, blue collar workers were one and one-half times more likely to drop out than white collar workers.

Finally, investigators concluded that the participants' somatotype and body composition need to be considered in implementation and activity selection (Shepard, 1985; Ward, and Groppel, 1980). It has been shown that proper activity selection and progression can decrease participant injury rates (Miritznik, et al., 1985, Oldridge, 1977). Activity related injuries have been estimated at causing 17-34% of all dropouts from aerobic activity (Wankel, 1985; Pollock, Gettman, Milesis, Bah, Durstine, and R. Johnson, 1977).

Psychological Factors

Most of the exercise adherence research has incorporated behavioral and psychological techniques (Biddle, et al., 1985; Powers, et al., 1985; Riddle, 1980; Kircher, 1984; Allen, 1984/1986; Martin, Dubert, Katell, Thompson, Raczynski, Lake, Smith, Webster, Sikora, and Cohen, 1984; Morgan, et al., 1984; Dishman, et al., 1980; Keefe, 1980; Wysocki; 1979). These variables are divided into four sections: attitudes and beliefs, participant perceptions, motivation, and support systems.

Attitudes and Beliefs

Powers, and Associates (1985) found a positive relationship between attitudes towards physical activity, health value, physical

fitness value and exercise adherence. The investigators also found a negative correlation between those participants who had an external health locus of control (the participant attributes his/her health to chance and powerful other) and exercise adherence. The authors concluded that of the variables researched, attitudes toward physical activity was the strongest indicator of exercise behavior. Similarly, Sonstroem (1973) discovered that individuals who had more internal health locuses and favorable attitudes towards physical activity reported significantly greater amounts of voluntary physical activity. However, McCready and Long (1985) found that the combined effects of health locus of control and attitudes towards physical activity were not related to exercise adherence. According to this study the only factors that were associated with exercise adherence were exercising for social continuation and catharsis.

Participant Perceptions

Morgan (1984) found that those participants who perceived themselves as initially healthy were more likely to maintain a regular exercise program. The participants who did not adhere as well to the program found exercise to be "less fun and more discipline". Riddle (1980) found that the non-exercisers in a jogging program perceived that exercise required too much discipline, time, and made them too tired. Several other authors have shown that perceived inconvenience (i.e. inconvenient facility location, inadequate parking, dissatisfaction with the rigid schedule, lack of energy) and lack of time are major reasons for program dropout (Dishman, 1986; Wankel,

1985; Shepard, 1985; Goodrick et al., 1984; Morgan et al., 1984; Gettman et al., 1983; and Andrew et al., 1981).

Motivation

Motivation has been identified as a critical factor in the development of exercise adherence (Shepard, 1985; Ice, 1985; Dishman, et al., 1980). Many investigators simply asked the participants what they perceived as motivating them to exercise. An excellent summary of these "perceived motivators" is given in a review article by Shepard (1985). The most commonly cited perceived motivators include improved health, increased fitness, and decreased body weight.

Other researchers have investigated the relationship between goal setting and reward/punishment systems and exercise adherence. Kircher (1984) found that purposeful activity that was related to a specific goal serves as an intrinsic motivator to exercise. It has been argued that intrinsic motivation is a necessary factor for developing long term adherence to exercise (Shepard, 1985). Wysocki (1979) used behavioral contracting to encourage physical activity in college students. The participants would leave something of value with the instructor. The item would be returned when the participant accumulated a pre-determined number of aerobic points. The author concluded that this type of punishment system was effective for development of exercise "on an immediate basis". Martin and Dubert (1984) reviewed exercise goal setting techniques. Several factors were found to have bearing on exercise adherence including goal achievement, distal goal setting (setting long-term goals on a monthly

basis), flexible daily goals, and including the participant in the goal setting process.

Allen (1984, 1986) stated that the use of motivational tools such as exercise goals, periodic testing and contracts could be used to increase adherence. It was also suggested that reinforcement would be more suitable for long-term adherence. Martin, et al. (1984) used an attendance lottery as an extrinsic motivator for increasing exercise adherence. The authors concluded that this technique caused no significant change in exercise behavior. However, other investigators have found positive changes in exercise adherence from the use of rewards and incentives (Keefe and Blumenthal, 1980; Libb and Clements, 1969).

Dishman (1980) discovered that when the Dishman Self-Motivation Inventory was combined with select biologic traits (percent body fat and body weight), the participants' adherence status could be correctly identified 80% of the time. However, without the use of the biologic traits the self-motivation inventory predictive value was only 47%. Similarly, Gale, and Associates (1984) used the Dishman self-motivation scale and found that the early dropout men had the lowest self-motivation scores. The researchers concluded that "beyond the initial period of the program, self-motivation did not play a significant role in determining exercise adherence".

Social Support

Support groups have been associated with increased adherence to exercise. Martin and associates (1984) concluded that social support

was important in determining participant exercise behavior. Positive reinforcement (praise) and feedback from the instructor during exercise were particularly important for developing adherence to exercise. Wankle (1984) found that the students considered the leader support, "buddy system" support and group support (in that order of priority) to be the most beneficial for their class attendance. Contrary to the findings of other investigators (Andrew and Parker, 1979) the participants did not find the home support system (spousal support) very useful for developing adherence. Also, the instructors felt that the support groups positively affected the participant attendance rates. Wankle (1984) discovered several support groups that were important to a group of male employees. The support groups are listed in order of priority: supervisor's support, friendship within the exercise group, support from work friends, and encouragement from non-work friends.

Instructional Considerations

Most of the research that has been presented thus far can be used for developing more effective adult exercise programs in relation to adherence. However several authors have done research and/or made suggestions that directly apply to the "class" setting and the development of adult exercise curricula. The results are divided into three categories: instructional strategies, the instructor, and alternative course focuses.

Instructional Strategies

Many researchers have tested or suggested instructional techniques that can be used to increase exercise adherence. Thompson and Wankle (1980) conducted a study on adult women in a commercial fitness setting. The purpose of the study was to see what effect perceived activity choice had on exercise behavior. It was found that those participants who perceived that they had a choice of activities had significantly greater adherence rates. The authors went on to suggest that if the subjects were given an actual choice of activities an even more dramatic effect might be seen. Oldridge (1977) felt that a variety of activity choices and program orientations was a necessary component of an effective exercise program.

Other investigators have shown that altering participant beliefs/perceptions can facilitate exercise adherence. Shepard (1985), Goodrich (1984), and Allen (1984/1986) have all suggested the use of time management techniques to alter the perception of lack of time as a barrier to being physically activitive. Shepard (1985) concluded from the Canada Fitness Survey that changing the perception of lack of time would be more effective than providing information, facilities, leadership, or additional time. Other related barriers that could be altered included a dislike for physical activity, life stresses and lack of energy. Similarly, other investigators have suggested that changing the participants' negative perceptions about these barriers via education would be an effective way of increasing adherence (Goodrick et al., 1984).

Riddle (1980) gathered information from 296 male and female joggers and non-exercisers who filled out a questionnaire based on the Fishbien Behavioral Intervention Model. From this information it was concluded that behavior change (from poor exercise adherence) can be facilitated by altering negative beliefs and attitudes toward physical activity. Mirotznik and associates (1985) also concluded that a strong educational component aimed at changing participant's knowledge and beliefs should be a part of a cardiovascular fitness program. Finally, Cousineau (1985) developed several instructional strategies for altering these types of negative beliefs/perceptions, including decision making related to physical activity, physical activity barrier lists and exercises for prioritizing physical activity.

Martin and associates (1984) suggested several cognitive strategies for developing adherence during the initial stages of an exercise program. He found that those participants who used dissociative cognitive techniques had significantly higher attendance rates than those who used associative strategies. Martin also suggested that the use of coping thoughts (positive self statements) could be effective in developing a regular exercise habit. The author summarized techniques for developing long term adherence to exercise. These techniques are designed to increase the likelihood that the exercise behavior will be perpetuated after the termination of a class. It was suggested that support and reinforcement fading should be gradually worked into the program well before graduation. Also, Martin saw a need to progressively give the participants more responsibility throughout the time span of the program; i.e.,

self-monitoring, self-evaluation, and self-reinforcement. Finally, the researcher saw a need for relapse prevention training. This decision was based on the observation that most people relapse from health related activities. Several procedures were reviewed to effectively deal with this common phenomenon; e.g., discussions and cancelling class for a week.

Instructor

The instructor has been identified as the "pivot" upon which the success or failure of an exercise program rests (Oldridge, 1977). Oldridge et al. (1983) discovered that a common reason for non-compliance to exercise was an uninterested staff. Other investigators concluded that the personality of the instructor is an important factor in developing exercise adherence (Shepard, 1985; Morgan et al., 1984). Finally, Martin et al. (1984) found that social support that was individualized and given in a positive way from the instructor increased adherence rates.

Alternative Course Focuses

Most adult fitness programs are based on the physical and/or psychological benefits associated with regular exercise. These types of programs have had limited success in relation to exercise adherence. Consequently, several authors have seen a need to focus on aspects other than the health-related benefits of exercise. Wankel (1984) and Morgan et al. (1984) both concluded that continued involvement in regular physical activity is enhanced if the activity is enjoyable. Therefore, the effects of a more recreationally

oriented program on exercise adherence should be researched (Wankle, 1985). Lambert (1985) stated that most physical education curricula in use today are based on acquisition of motor skills. "It is wrong to base fitness programs on the same assumptions, planning and evaluation procedures". Fitness models that encourage lifetime physical activity need to be developed and implemented. Finally, the research of Kenyon (1968) showed that the meaning of physical activity varies depending on the individual; e.g., aesthetics, pursuit of vertigo, catharsis and social experience. Therefore, these types of course orientations need to be considered if the needs of a more diverse population are to be met.

Conclusions

To date, fifteen years of research on prediction and adherence to exercise has produced only modest results. Part of this problem can be attributed to the concepts, methods and measurements that have been used in adherence research (Dishman, 1986). What is definitively known about this area of study is of little use to the practitioner. The author's conclusions are similar to those of Dishman (1986) and are listed below:

1. Smokers, obese individuals, and blue collar workers are less likely to adopt or maintain a supervised exercise program.
 2. Lack of time is the number one reason given for dropout.
- However, the reliability of the self-reported data is questionable.

3. Perceived inconveniences are associated with dropout.
However, some people exercise despite these barriers.
4. The current research methods are not effectively discovering truths related to exercise adherence.
5. Reinforcement is important for developing exercise adherence.
However, the type of reinforcement and the person who provides the reinforcement will vary depending on the person and the setting.
6. Beliefs about health benefits, and the reasons for exercising are associated with exercise adherence.

Finally, the research related to the instructor/curriculum design and adherence is sparse and insufficient. Because the instructor represents the bridge between adherence research, curriculum theory, and program implementation, it would seem prudent to direct studies in this direction.

CHAPTER 3

THE HEALTH ENHANCEMENT CURRICULUM

Curriculum Goals

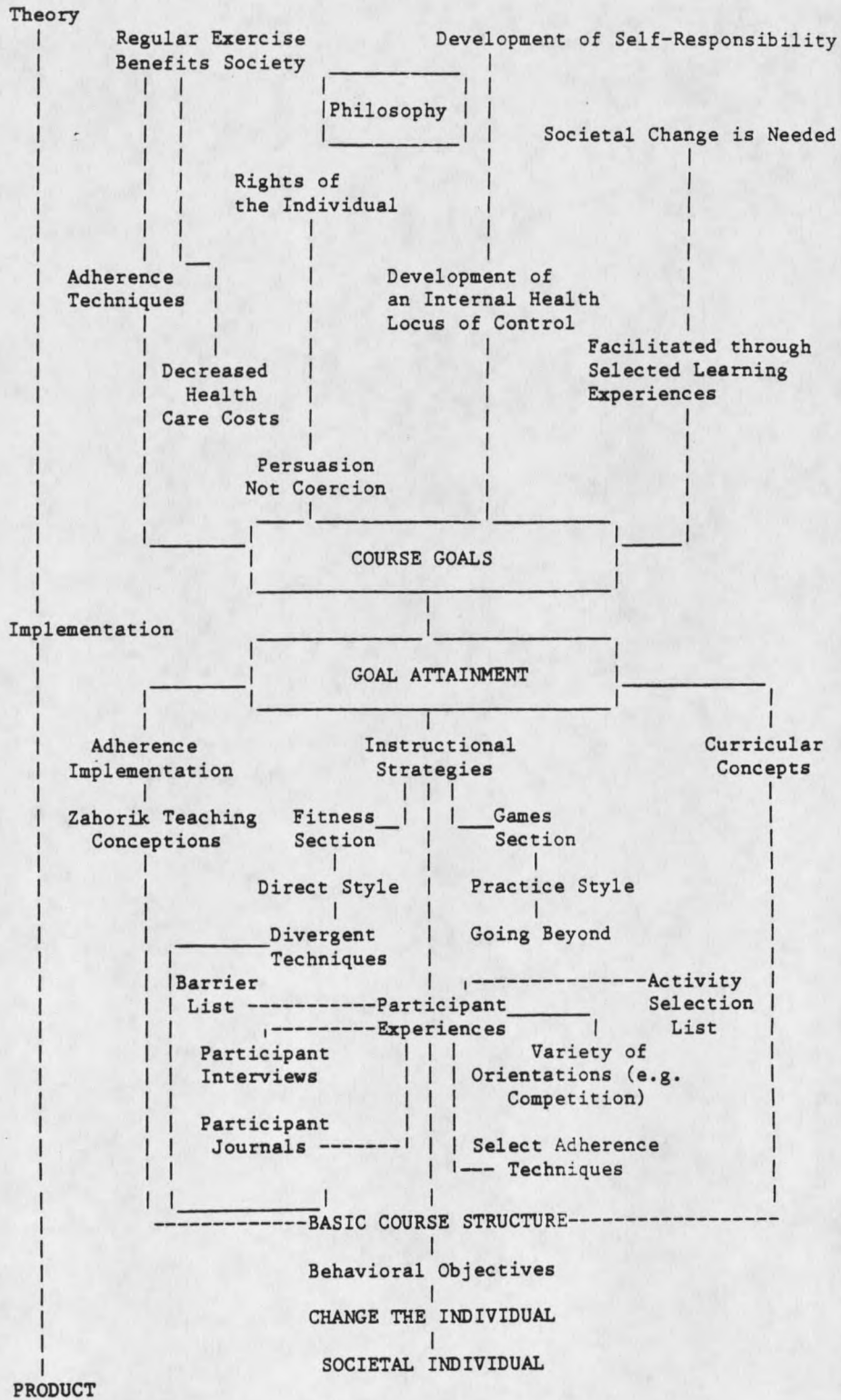
Please see footnote before proceeding with this chapter.¹ The entire curriculum is diagramed in Figure 1.

When developing goals for a curriculum, the value orientation (Jewett and Bain, 1985) and program ethics are primary concerns. There are five value orientations that the designer can adopt when developing a curriculum. These orientations include discipline mastery, social reconstruction, learning process, self-actualization, and ecologic validity. The Health Enhancement Curriculum's value orientation is social restructuring. However, meeting the needs of the individual is the means by which social change can take place. Therefore, social-cultural and self-actualization orientations are also highly valued within this curriculum.

The ethical bias of the curriculum is also important. Considers persuasion as the only acceptable method of producing long-term

¹This chapter is not written in past tense. The reason for this is that the curriculum represents a plan for the instructor to follow. Generally speaking, the plan that is described in this chapter was followed, however, this was not always the case. It would therefore be wrong to write the chapter in a way (past tense) that would lead the reader to believe that the program was implemented exactly in this manner. When the investigator deviated from the written curriculum an explanation is given in chapter five (Data Analysis).

Figure 1. Health Enhancement Diagram.



adherence to exercise. Persuasion can be defined as the act of exercise getting a participant to adopt a particular behavior through education, awareness, reasoning, participant experiences, enjoyment, or exhortation. When implementing a curriculum which is designed to change society, it is easy to forget the rights of the individual. If any techniques are used that interfere with individual rights, the educator/program has exceeded the boundaries of persuasion. Examples of techniques that would interfere with individual rights include:

1. Denying the participant the right to make his/her own decision about whether or not to exercise.
2. Imposing a lifestyle through unreasonable incentives for what an organization considers "to be the right life" (Winkler, 1978).
3. Manipulating the participant by selectively providing information that only points one way.
4. Deliberately providing false information to influence the participants' belief system (Winkler, 1978).

These methods would be considered coercive, or, at the very least unacceptable manipulation of the participant. Once a program incorporates coercive measures to cause social change it is no longer following the Health Enhancement Curriculum. Based on these premises, the program goals were developed as follows:

1. To increase adherence to exercise through instructional methods that are selected according to the group's needs.
2. To avoid participant exercise dependency on the program or the instructor.

3. To provide the participant with a variety of experiences and a base of knowledge related to physical activity.
4. To implement the program so that the participants enjoy their experiences within the class.

Behavioral Objectives

The behavioral objectives serve three purposes in this curriculum. First, they provide a specific approach for breaking down the goals into workable parts. For example, one of the goals is to increase adherence to exercise. Lack of time is the number one reason given for not adhering to an exercise program. Therefore, a behavioral objective would be to show the participants how to develop their own time management program. This directly relates to the curriculum goals, and it is something that can be done during one or two class periods.

Secondly, behavioral objectives force the instructor to have a daily lesson plan which focuses on the program goals. Too much reliance can be put on associative learning from the activity; e.g., desired behavioral outcomes will occur automatically from participation in the activity. The instructor must specifically design the activity so that the participants are assured of the desired experience. A desired experience in the game section is for the participant to experience playing the game with a competitive and process orientation. It is naive to assume that the participant will experience both of these orientations just by playing. The behavioral objectives can be designed so that the desired experiences take place.

Finally, the behavioral objectives provide a record system for the instructor. The system can be used as a formative and summative evaluation tool. It is difficult to evaluate how much time is being devoted to the program goals, and, which goals have not been addressed. The objectives show the concepts and the experiences that have been reviewed in relation to the goals. If it is discovered at the end of the quarter that a goal was neglected, it is too late to do anything about it. Behavioral objectives can prevent this 20/20 hind sight.

Related Curricular Concepts

The curriculum has four functions. The first is to identify the major concepts, operationally define them, and describe their relationship to one another. Secondly, adherence techniques, and the instructor's role will be discussed. Thirdly, the instructional strategies and the participant experiences will be reviewed. Finally, the basic course structure will be described. This process transforms the curriculum from a theoretical program, to one that has practical application within an adult exercise setting.

The first concept to be reviewed is adherence to exercise. Adherence to exercise can be defined as the consistency with which an individual voluntarily takes part in some type of exercise and/or recreationally oriented activity. Wankel, (1984) concluded that a more sensitive indication of the participants' commitment and motivation to physical activity was needed in studies dealing with exercise adherence. The majority of studies done on exercise class

adherence classify a participant as attending or absent. This method has no regard for the reason behind the absences (Martin, J., Dubbert, P., Katell, A., Thompson, K., Raczynski, J., Lake, M., Smith, P., Webster, J., and T., Sikora, 1984; Thompson, C., and L., Wankel, 1980; Gettman, L., Pollock, M., and A. Ward, 1983). The definition used in the Health Enhancement Curriculum identifies an excused absence as follows:

1. Business trips/meetings
2. Vacations
3. Sickness
4. Taking care of a sick/injured family member
5. Transportation problems on the way to the activity class
6. Taking part in another type of physical activity

This addition provides a more sensitive indication of actual adherence rates.

However, the participant is expected to make up the missed exercise session. To be classified as an adherer to physical activity a participant would have to participate three times a week for at least 20 minutes per session (ACSM, 1978). To be considered a long-term adherer, the participant would have to meet these standards in one or more activities for a minimum of six months (Shepard, 1985).

There are two differences between this adherence definition and others. First, the Health Enhancement Curriculum is not limited to activities that are "traditionally" considered exercise in nature; e.g., aerobics, swimming, or weight training. Examples of other activities that would be acceptable are fly fishing, outdoor

photography, hiking, sailing, and volleyball. This addition is different from the guidelines given by the American College of Sports Medicine (ACSM, 1978). The traditional types of activities such as running have been shown to enhance health both physically and mentally (Morgan, 1985). However, few individuals exhibit adherence to this type of physical activity. The more recreationally oriented activities are included in the Health Enhancement Curriculum because they can be important modes of activity for initiating an active lifestyle. Secondly, the guidelines given for an excused absence provides a more sensitive measure of adherence in a class setting:

The second concept to be considered is health locus of control (HLC). The HLC tool was originally developed by Wallston, Kaplan, and Maides (1976). Since this original instrument was designed, the Multidimensional Health Locus of Control (MHLC) scale has been developed. This is a more sensitive indicator of an individual's health locus (Wallston, K., and B. Wallston, 1978). The MHLC scale is used to evaluate what an individual believes is in control of his/her health. The MHLC has three basic health locus beliefs related to the control of one's health. They include chance (CHLC); powerful other (PHLC) and internality (IHLC) (Walston personal communication, 1987). If an individual believes that a higher force is in control of his/her health, the person is classified as PHLC. If he/she believes that nothing is in control of his/her health but chance, the person is classified as a CHLC. If he/she falls into either of these categories, they are classified as having an external health locus of control. The final category is internal health locus of control

(IHLC). A person is classified as a IHLC if he/she believes that he/she is primarily in control of his/her health. A goal of this curriculum is to develop adherence to exercise through internality; e.g., self responsibility. Developing exercise adherence through externality; i.e., when the program or instructor is the force that is in control of the participant's health, should be avoided at all costs in this approach.

Adherence Techniques and the Instructor

Adherence techniques are designed to increase adherence to physical activity through participant decision making and self-responsibility. Possible techniques are listed below.

1. goal setting/goal attainment
2. testing when appropriate
3. time management
4. journal keeping
5. coping skills
6. participant instructor counseling sessions
7. participants designing their own activity programs
8. choice of activities
9. lifestyle management reports
10. motivational techniques
11. support systems
12. safe logical progression of activities
13. reinforcement techniques
14. developing positive perceptions about physical activity

15. variety of activities
16. individualization
17. information via lectures and readings.

The adherence techniques that are used vary depending on the setting and group characteristics; e.g., knowledge, experiences, and perceptions of physical activity. In order for instructor to be effective with these techniques, the instructor must incorporate three skills. The first skill would be what Zahorik (1986) has described as the Science Research Conception of good teaching. This conception is based upon following the evidence of previous research. Zahorik was referring to teacher models; e.g., mastery learning. However, in this curriculum the instructor needs to be familiar with the adherence research. The previously defined adherence techniques represent the instructor's "bag of tricks" for increasing exercise adherence. Without this knowledge of effective adherence techniques the instructor has no base from which to work. Secondly, the instructor needs to be philosophically aligned with the moral and ethical rationale upon which this curriculum is based. This rationale represents the methods that are acceptable for facilitating the program goals. If this dimension does not exist, the instructor could inadvertently send out conflicting messages that are not aligned with the program rationale. Thus, if an instructor is not in agreement with this philosophy, he/she should not try to implement the curriculum. This skill is what Zahorik calls Theory Philosophy Conceptions. The final teaching skill is the Art Craft Conception (Zahorik, 1986). Effective instructors have personal traits that they

can use to facilitate change within a learning environment. The traits vary from instructor to instructor. However, they include the ability to articulate ideas, thoughts, and feelings, or a persuasive personality that allows participants to be receptive to ideas and experiences that they would not normally accept. To be effective, the instructor's traits should be creatively applied to fit the needs of a given situation. In the Health Enhancement Curriculum the instructor needs to develop an environment within the gym in which the participant feels comfortable with trying, experiencing, and growing (Hellison, 1978). Without this environment, change cannot take place.

All three of these concepts are necessary to be an effective teacher in the Health Enhancement Curriculum. However, the Art Craft Concept is seen by this investigator as the key to the program's success. Effectively implementing the appropriate adherence techniques and activity experiences, in a way that the participants benefit from the intervention, is an art and craft. This skill is something that cannot be developed from reading this curriculum. Rather, it is a skill that comes from experiences, knowledge and an ability to understand and work with people.

Instructional Strategies/Participant Experiences

The instructional strategies proposed within each section are different. The fitness portion utilizes a direct teaching style to communicate information related to effective exercise prescription (Bain and Jewett, 1985). This information would include concepts such as initial level of fitness, fitness plan, warm up, cool down,

progression, overload principle, intensity, duration, frequency, and mode of exercise (McArdle, Katch and Katch, 1981; O'Donnell and Ainsworth, 1984). After the participant is exposed to this information and has experienced the activity, the teaching style changes. Using divergent instructional techniques (Mosston and Ashworth, 1986) the participant is given a problem: what is the best exercise prescription for me? However, only the participant can develop an exercise program that will be adhered to on a long-term basis. The instructor's function is to provide guidance so that the prescription is physiologically sound and right for the participant.

Activities within the games section of the Health Enhancement Curriculum will utilize a practice style of teaching. At the start of each class session, all of the students observe the instructor performing a skill; e.g., forehand drive serve in racquetball. After this short demonstration, the participants divide into groups to work on the skill. The instructor then observes each group and provides individualized instruction when necessary. When the students acquire the minimal skills necessary to participate, the play portion of the class starts. During the play section, the instructional strategies shift from practice to "going beyond" (Bain and Jewett, 1985). The instructor's challenge is to get the participants to ask themselves: "If I am going to play this game, what are my reasons for doing it?" Some possible answers could include:

1. I like to play competitively.
2. I enjoy the process more than the competition.

3. I want to play for social reasons.

4. I want to play for muscle tone.

Getting the participant to ask this question will be accomplished through the participant journals and by designing the class so that the participants experience competition, play, enjoyment, and the social aspects of physical activity. By asking this question, and clarifying their beliefs, the participants have taken a step towards long-term exercise adherence; in the future, participants can play in situations that meet their personal needs. For example, a process oriented player would not have an enjoyable game of tennis with a highly competitive player. The experience would be more positive with another participant who had a similar orientation.

If these instructional strategies are not working in any of the sections they will be changed. It is important that the strategies are adapted to fit the individual and group needs. These needs can vary depending on the demographics of the group.

An essential part of the curriculum is to provide the participants with the necessary experiences needed for long-term adherence. At the same time it is not necessary to provide them with all of the current information on exercise adherence. Shepard (1985) concluded that adherence rates could be increased if the instructor avoided giving too much intellectual information, however, there are six adherence techniques that should be introduced on the information days. They include:

1. time management skills
2. journal keeping (reflection and introspection)

3. goal setting skills
4. coping skills
5. reinforcement
6. support systems

These skills are taken from the list given earlier in this chapter and are essential to this model. The other techniques should be utilized when there is a group or individual need for additional methods.

Basic Course Structure

Ideally the class taught in the Health Enhancement Curriculum should have fifteen to twenty students. Because the curriculum requires individualized attention, it would be unwise to exceed twenty-five participants.

The classes in the Health Enhancement Curriculum will meet three times a week. Each session will last approximately fifty-five minutes. The first ten minutes of each session will be used as an information period. During this time topics relevant to adherence, exercise, and play will be reviewed and discussed. Also, additional readings, slide shows, short movies, and guest lecturers will all be presented. Finally, the weekly journal question and class summaries will be presented to the participants. The journals are kept by the participants to help clarify their relationship to, and need for, physical activity. A more detailed explanation of the journal will be given later in this section. The other two class sessions will be spent on activity instruction and participation in the activities.

On the first day of class the participants will be put into a situation where they make decisions about what activities and adherence techniques will be implemented during the quarter. The class will be divided into two forty-day sections; fitness and games. The breakdown of these sections is shown in Table 1.

Table 1. The breakdown of class divided into two forty-day sections; fitness and games.

<u>Fitness</u>	<u>Games</u>
a. walk/jog	a. volleyball
b. weight training	b. tennis
c. stationary bike	c. racquetball
d. aerobic dance	d. hiking
e. basic exercise	e. soccer

The participants are asked to prioritize the activities in each section. Their selection is based on two considerations. First, the participants will prioritize the activities from an enjoyment standpoint. Secondly, the activities will be prioritized on their ability to fulfill the participants' health related needs. After both are considered the activities are ranked from one to five (one being the first choice and five being the last). A choice will be given because perceived activity choice has been shown to increase exercise adherence (Thompson and Wankel, 1980), the author suggested that giving the participants an actual choice of activities could produce an even more positive effect.

Next the participants will be given a list of factors that could act as barriers to physical activity (Table 2).

Table 2. List of factors that could act as barriers to participant's physical activity.

-
1. cost
 2. family responsibilities
 3. lack of time
 4. poor facilities
 5. too much work
 6. injuries
 7. sickness
 8. too tired
 9. more important things to do
 10. inaccessible facilities
 11. no one to exercise/recreate with
 12. lack of skill
 13. lacking spousal support
 14. physical activity is not important
 15. dropout from the activity will occur
 16. exercising with groups is a problem
-

From this list the participants will be asked to place the number one next to the strongest factor, the number two next to the next strongest factor, etc. Those factors that are not barriers will be left blank. The results will be used to help decide what adherence techniques need to be part of the program.

The last thing that will be done on the first day is to make individual appointments with each participant. During a ten-minute interview the instructor will attempt to achieve three objectives:

1. To get to know each person on an individual basis, and develop a positive relationship with them.
2. To get a feel for the type of people in the class.
3. To motivate the participants to stay with the class until the adherence information/practices can be implemented.

These interview sessions will be kept fun and light; a written summary will be kept for each interview. If the participant seems uncomfortable, any type of potentially sensitive questions will be avoided. The participant interviews are also done again at the end of the quarter. During this session information will be kept to see if the participant's responses have changed since the first interview. A more detailed description of this process is given in the evaluation section of the curriculum.

As mentioned earlier, the participants will make weekly journal entries. The journal questions are designed to get the students to reflect and become more introspective about physical activity. Specific questions related to physical activity need to be answered so that the participant can make decisions that will lead to long-term adherence. The entries will also be used as a formative and summative evaluation tool. For example, the instructor can use this information to see if he/she has gained the participant's confidence or if the participants are working towards the course goals. It is impossible to list the questions that should be used for this class. The exact questions will depend on the class interests, demographics, and motivational levels. The instructor's task will be to read these variables and ask the appropriate questions. Listed below are some sample questions that will help to clarify the author's thoughts.

1. If there was a scientific discovery that showed that physical activity did nothing to enhance or decrease your health, would you exercise? If the answer is no, why wouldn't you

exercise? If the answer is yes, what activity would you choose and why?

2. What factors are most critical in your activity program for long-term adherence; e.g., variety, competition, leadership, companionship, goal attainment, health enhancement, motivation, support? Also, explain why this (these) factor(s) are important to you.
3. What is the difference between competition and play?
4. What aspect of outdoor activities is most appealing to you fitness or the aesthetic experience?

These questions need to be sequenced into the course to coincide with appropriate activities. Therefore, question one could be asked at the beginning of the class while question three should be asked at the end of the games unit.

The final portion of the class represents a culmination of all the learning experiences. The participants can make one of two choices at this time. The first choice concerns continuing with any type of physical activity. If, after going through the course the participant does not want to have anything to do with physical activity, this is perfectly acceptable. Exercise is an individual choice. The instructor's responsibility is to provide the necessary experiences and information so that the participant can make an informed decision.

The second choice will be to continuing with some type of physical activity after the class is over. If this choice is made, the final requirement of the program is for the participant to develop

an activity program. Regardless of the activity that is selected, the participant will have the information and experiences to develop their program.

The program will be developed using the following format:

1. Fitness

- a. Why did you choose this activity?
- b. warm-up
- c. intensity
- d. duration
- e. frequency
- f. mode
- g. goals
- h. fitness plan for adherence
- i. testing
- j. cooldown
- k. motivational techniques

2. Games

- a. Why did you choose this activity?
- b. warm-up
- c. orientation; e.g., competition, process, hit and giggle
- d. duration
- e. organization or people that you will participate with after this class
- f. motivational techniques

Sequencing and Selection of Activities

Much of the information related to this section was discussed in the curriculum model. However, a more detailed description of the weekly course activities will be given.

Week One - Information/developing a positive relationship with the participants. The first week is very important and will be spent getting information from the participants. The information will come from the activity selection form, barrier selection list, HLC, waiver release, and individual interviews with the participants. Also, the

instructor will try to develop a positive relationship with the class. In part this will be facilitated through a slide/talk show that represents the instructor's philosophy of physical activity. Before anything else can be done the participants have to feel comfortable with the instructor and the class setting.

Week Two - Journal keeping skills/aerobic exercise. The fundamentals related to aerobic exercise prescription are presented via lectures and handouts. The quantity of information will be determined by the needs and receptiveness of the group. More importantly, the participants will be introduced to journal keeping skills.

Week Three - Goal setting/buddy system. Goal setting techniques will be stressed during this week. The instructor's challenge is to show the participants how to set practical and achievable goals that meet their needs. Often, a conflict arises between the activities that will meet the participants health related goals and the activities they enjoy. Participants need to become aware of, and work this conflict out.

Week Four - Time management/LMR. Lack of time is the number one reason given for dropping out of exercise programs (Burton, B., 1984; Gettman, L., Pollock, M., and A. Ward, 1983; R. Shepard, 1985). Management skills will be introduced early in the program to show the participant that they have time for exercise; if they choose not to exercise they cannot use lack of time as an excuse. Rather, they will have to search for the actual answer via introspection and reflection.

Finally, the option of taking the Lifestyle Health Risk Appraisal is presented to the participants.

Week Five - Coping/introduction to the games section. Coping thoughts can be used by the participants to provide themselves with positive reinforcement (Martin, J., and P. dubbert, 1984). For example, instead of saying; "I didn't work hard enough today", a more positive statement would be: "I did a great job in just making it here today".

The games will be presented using a logical skill progression. Also, during the initial stages positive reinforcement will be stressed. After the basic skills have been reviewed the concepts of competition and play (process) orientations will be incorporated into the class. It is necessary for the participants to decide what type of orientation is best for them.

Week Six - Relapse prevention. Researchers have suggested that relapse from an active lifestyle is similar to the behavior exhibited by addicts who relapse after abstention from drugs (Martin, J., and P. Dubbert, 1984). To prevent the feeling that all is lost if one or two exercise sessions are missed when the participants are exercising on their own the class will be cancelled for one week. What the participants choose to do during this period is their choice. The only difference is that they cannot rely on the class or the instructor for physical activity.

Week Seven - Support fading. Support fading will be facilitated by cancelling one of the exercise sessions. This will be done for two reasons. Firstly, it gradually moves the participants away from the

support of the instructor and the program. Secondly, this allows the participants to make decisions and take more responsibility for their involvement in physical activity.

Week Eight - Testing. This week will be spent describing testing procedures that can be used to evaluate physiologic changes that have occurred due to physical activity. Primarily the testing relates to fitness related activities; e.g., twelve-minute walk/run, body compositions. The testing can be a part of goal setting and used as a motivational tool.

Week Nine - Open/development of individual activity plan. This week will be open for topics that are of interest to the participants e.g., nutrition and exercise, stress management, and physical activity. Also, the participants will complete their activity programs.

CHAPTER 4

METHODOLOGY

Justification of Research Methods

This investigation employed qualitative and quantitative research techniques. However, most of the evaluation tools were qualitative in nature, primarily for two reasons.

First, the research techniques used within the natural science paradigm historically have not satisfactorily provided methods for increasing or maintaining adherence to exercise. As a result, investigators have seen a need for the use of alternative research methods. Dishman (1982) concluded that research has been atheoretical, and that several factors could be attributed to lack of knowledge in this area. Most notable was the "model or paradigm employed to study adherence and the level of analysis subsequently permitted". In a subsequent review article, Dishman (1986) concluded that adherence researchers have not utilized the most appropriate research techniques. Investigators were doing "research that was strictly product oriented". By ignoring the process, these methods were not satisfactorily explaining the exercise compliance problem. Wankel (1984) found a need for refining the current adherence techniques and designing more effective ways for the instructor to present these techniques to the participants. Research that has been

done thus far has "emphasized standard interventions that could be implemented in various exercise programs under specifically controlled conditions". Wankle suggested that other research technique such as the case study would be more effective for accomplishing these ends.

Second, qualitative research methods could produce the most significant insight into the Health Enhancement Curriculum and its implementation, because the assumptions inherent in the study's design were not congruent with the assumptions of the natural science paradigm. According to Schemmp (1987), the assumptions of the natural science paradigm include:

1. There is one best solution to every problem.
2. Phenomena must be investigated objectively. Therefore, unwanted variations in the environment such as the instructor or the participants must be controlled.
3. Truth can "only" be derived from that which is observable. This disregards many of the needs, thoughts, feelings, intentions, interests, and desires of the students and the instructor.

Concerning the first assumption, the investigator was interested in finding a workable process, rather than focusing only on the product; i.e., the extent of exercise adherence. This is a fundamental difference between the qualitative and quantitative research paradigms (Schemmp, 1987). It was assumed that not single answer, law, or generalization could explain the complex behavior of adherence to exercise. However, it was believed that a process orientation would be conducive for the development of a hypothesis about exercise

adherence (Overholt and Stallings, 1976), which would hopefully generate more traditional studies related to exercise adherence. Concerning the second assumption, this study was carried out within a naturalistic setting. Therefore, factors such as the pupil or the instructor were not controlled because they are essential components of the environment. The instructor utilized as many instructional strategies as possible to actively influence the results of the investigation. These techniques were used because they seemed most appropriate for the instructor, setting, time, and group. By doing this the investigator could execute his actions at all levels and generate as many alternatives as possible (Allender, 1986). Manicas and Secord (1983) argue that quantitative research cannot be done properly in open every day environments. Rather, qualitative methods are needed for these research settings. This investigation was clearly conducted within an "open" environment. Concerning the third assumption, many of the curricular and instructional decisions were based on the thoughts, feelings, and interests of the students. This was done because it allowed information to be gathered about the quality of the participants' experience. Wankel (1985) found that very little attention had been focused on the reaction of the participants' exercise experience. If progress is to be made in making exercise a more enjoyable and regular part of the participants' life, methods must be developed for gaining information about the quality of the participants' experience. This information was facilitated through qualitative techniques such as participants

