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THE UNIVERSITY OF ALBERTA

THE EFFECTS OF SELF MOTIVATION AND STRUCTURED SOCIAL SUPPORT UPON EXERCISE PROGRAM ADHERENCE

by

JOHN KENNETH YARDLEY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE

OF MASTER OF ARTS IN RECREATION ADMINISTRATION

DEPARTMENT OF PHYSICAL EDUCATION

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FALL, 1982

THE UNIVERSITY OF ALBERTA

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Leonard D. Mitchell

Supervisor

Thomas L. Burton

DATE: June 30, 1982

DEDICATION

To Kay, Nicholas and our unborn child.

ABSTRACT

The three purposes of this study were: to ascertain whether a program of structured social support would increase adherence to physical activity; to investigate whether the social support program would be differentially effective for participants with different levels of self-motivation as measured by the Self-Motivation Inventory (SMI); and to determine which aspects of the structured social support program were the most useful to participants.

The sample consisted of 186, female participants enrolled in a 10 week YMCA Fitness Fantasia aerobic dance program, in Edmonton, Alberta.

The subjects were drawn from 16 classes, of which 7 were experimental and 9 control. A modified, stratified random sampling procedure was utilized. As the experimental treatment was implemented within the exercise classes, all subjects within a class were assigned to either the experimental or control treatment condition. As there were a number of significant extraneous factors which could affect attendance, (e.g. day versus night classes, same instructor for more than one class, geographical region, day of class meeting), control was exercised over these factors and then randomly assigning the classes within strata to the two treatment conditions. Equal numbers of subjects scoring high, medium and low on the SMI were selected from each class.

All subjects (experimental and control) were given the SMI questionnaire and a consent form to complete, on the first night. In addition, the subjects in the experimental condition received the structured social support intervention. It consisted of an educational booklet, wall charts for the exercise class and participants' homes, and

procedures for instituting buddy support, family support, group support and leader support. The intervention was introduced at the first class by the researchers, and thereafter was continued by the instructors. Evaluations of the experimental classes were carried out by questionnaires for last class participants, telephone interviews of participants who had dropped out, and face-to-face semi-structured interviews of experimental exercise class instructors.

The results provided support for the efficacy of a structured social support intervention increasing the adherence of participants in an aerobic dance physical activity program. In veiw of the lack of strict controls in carrying out this field experiment, it was recommended that further research be conducted to refine and substantiate the findings of this study. The results did not support the use of the SMI in identifying potential dropouts and there was no interaction found between the SMI and the experimental intervention. It was recommended that further study be carried out on the SMI to determine its usefulness in predicting adherence to physical activity. It was also recommended that alternate approaches to assessing self-motivation should be explored.

The evaluations of the intervention by the participants and the instructors were positive and generally the intervention was felt to have increased the amount of social interaction in the exercise classes. Leader support was rated as the most beneficial type of support, though other forms e.g. buddy, family and group were also rated as being beneficial.

ACKNOWLEDGEMENTS

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The typing and arrangement of this thesis are due to the considerable skill of Mrs. Gwen Simpson, to whom I am very thankful for the many changes and revisions which are part of preparing a document of this type.

My heartfelt thanks to my wife and family is noted by the dedication of this thesis to them. Every writer acknowledges the home and family support they receive and in my case the support I received was the most important contribution that facilitated the completion of the thesis.

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CHAPTER I

THE PROBLEM AND ITS SETTING

Introduction

Many governments have demonstrated their commitment to widespread physical activity, by supporting national fitness campaigns e.g. 'Trimm', Federal Republic of Germany (Palm, 1974); 'Come Alive', New Zealand (Stothart, 1978); 'Life Be In It', Australia (Becker, 1977) and 'Participaction', Canada (Jackson, 1979). In addition, Federal and Provincial Governments in Canada are involved in the promotion and support of physical activity programs, through a myriad of recreation and leisure related departments, agencies and branches (Burton and Kyllo, 1974). This physical activity program involvement also occurs at the local level with municipal departments of recreation, community leagues and private agencies. The commercial world has also had a promotional effect through the advertising and marketing of physical activity equipment and programs, one of the latest "fads" being aerobic dance.

In the last decade there has been a "boom" in the numbers of people involved in physical activity as evidenced by; an increase in estimated personal expenditures on recreation, entertainment, education and cultural services from $124.2 per capita, in 1961, to $378.5 per capita in 1978 (constant 1971 dollars), (Statistics Canada, 1980, p.111); the large percentage increases in households owning selected recreational equipment between 1971 and 1978, e.g. bicycles, 51%; canoes, 138%; sail boats, 44% (Statistics Canada, 1980, p.146); and the large increases in participation rates of Canadians in activities,

between 1972 and 1976 e.g. tennis, 197%; skiing, 153%; jogging, 148%; golf, 74%; and, swimming, 70% (Statistics Canada data cited in Lindsay, C., 1978). Whilst these figures are an indication of increased physical activity by Canadians, the problem remains that a large number of Canadians are not regularly physically active. Only 50%, of Canadians, participated one or more times in the 12 months preceding the 1976 Survey of Fitness, Physical Recreation and Sport (Statistics Canada, 1976). Further, of those participating, many do so at a frequency too low to result in significant health benefits. Coupled with this low involvement, is the problem of adherence to physical activity regimen. Not only do many Canadians not regularly exercise, but, among those who become involved in regular activity programs, anywhere between 30% - 70% 'drop out' of the program they become involved in (Wankel, 1980).

A great deal of research has indicated the physiological and psychological benefits that people may gain from regular physical activity, leading one of the foremost researchers in that area to state,

> "The psychologic and physiologic benefits of involvement in vigorous physical activity are so numerous and well documented that it is no longer fruitful for exercise scientists to continue asking questions related to beneficience."
> (Morgan, 1977, p.1)

In addition to research supporting the benefits of regular physical activity, it is generally accepted that people have a positive attitude toward physical activity, are aware of its benefits, and have knowledge of the campaigns being directed toward them (Wankel, 1980, pp.20-23).

Many factors have been promulgated as being important in determining whether a person will remain regularly active, or become a 'drop out statistic' (e.g. see Teraslina, Partenen, Koskela, and Oja, 1969; Heinzelmann and Bagley, 1970; Massie and Shephard, 1970; Baeklund and

Lundwall, 1975; Wanzel, 1977; Wankel, 1980; Olson and Zanna, 1981). One area that has been indicated as important, in maintaining regular involvement in physical activity, may be broadly called social support. Olson and Zanna (1981, p.51) state, "it is clear, however, that a potent motivator for maintaining activity levels is the social aspect of exercise." Several other writers have indicated that this area would be fruitful, in terms of increasing adherence, in physical activity programs (e.g. Heinzelmann, 1973; Orlick, 1974; Wanzel, 1977; and Wankel, 1980).

Despite this recognition of the importance of social interaction to continued activity, organized social support does not appear to have been used as a means of increasing adherence in physical activity programs. On the other hand, there is considerable mention of the use of social support in the weight control, smoking cessation, alcoholic treatment and community mental health literature (Gottlieb, 1981a). Generally speaking social support factors have been used to help a person reach his/her goals by encouragement, discussion of problems and guidance. A variety of approaches have been used such as self help groups (Levy, 1977), buddies (Hamilton and Bornstein, 1979; and Otteson, 1979), spouses (Matson, 1977), families (Stanton and Todd, 1981) and leaders/professionals (Froland, Pancoast, Chapman and Kimboko, 1981). These approaches would appear to be readily adaptible for use in helping to reduce the problem of lack of attendance in physical activity programs.

A related area, frequently reported as important in the literature of adherence to physical activity programs, is motivation (Baeklund and Lundwall, 1975). A related construct, self motivation, was selected

by Dishman, Ickes and Morgan (1980) as being a factor effecting adherence to physical activity. They developed a psychometric tool, the Self Motivation Inventory (SMI), to identify those participants who are prone to dropping out of a physical activity program. They report the SMI to be the best discriminating instrument, to date, between exercise adherers and dropouts. Limited support for the efficacy of the SMI has also been reported by Wankel and Graham (1980) and Dishman (1981).

There is a body of literature which supports the approach generally known as "the interactionist approach," to the study of human behaviour (Magnusson and Endler, 1977). This approach combines both personal and situational factors in explaining human behaviour, and provides a theoretical base upon which an effective behaviour change program can be designed (e.g. involvement in physical activity). This approach would combine factors such as a trait (e.g. SMI level) and a situational intervention designed to increase attendance in physical activity (e.g. social support factors). Several leisure and recreation writers have indicated the need for more experimental studies to complement the already existent descriptive and correlational research that has been carried out (e.g. Iso-Ahola, 1980b; Mannell, 1981; and Neulinger, 1981). In particular, Iso-Ahola (1980b:23) contends that, "both laboratory and field experiments are badly needed", in order for leisure research to become balanced in its search for the antecedents and consequences of leisure behaviour.

It would appear, therefore, that a significant problem, lack of adherence to physical activity programs, exists; that a plausible method of increasing adherence would be the use of a structured social support

program promoting support and social interaction; that an instrument for identifying potential dropouts, the SMI, has been developed, which warrants further study as an instrument for identifying individuals who might most benefit from external motivational interventions; and that an appropriate approach and design, to studying adherence to physical activity, would be to utilize an interactionist approach within an experimental setting.

The Statement of the Problem

The primary purpose of the study is to investigate whether an experimental intervention, of structured social support, will effectively increase the adherence of participants in the fitness program.

A secondary purpose of the study is to investigate whether the structured social support intervention will be differentially effective for participants with different levels of self-motivation. A further purpose is to investigate which particular facets of the social support program are felt to be particularly useful, by the participants.

The Hypotheses

To facilitate the examination of these purposes the following hypotheses will be tested.

1. The structured social support intervention will increase adherence, in the fitness program.
2. Subjects who score high on the SMI will attend the fitness program more regularly than those subjects who score intermediate on the SMI, who in turn will attend more frequently that those who score low on the SMI.

3. The structured social support intervention will have a greater facilitative effect on the adherence of low SMI scoring subjects, compared to intermediate SMI scoring subjects, who in turn will be facilitated more than high SMI scoring subjects.

The Delimitations

The study was delimited as follows:

1. To females enrolled in the fitness program. To female participants who completed and returned the SMI questionnaire and consent form, at the first class of the fitness program.
2. To those programs selected for the experimental treatment in which the instructor implemented the experimental intervention as designed, and to those participants who overtly agreed to be part of the experimental intervention.
3. To those subjects who scored within the SMI parameters defined below and who were selected for inclusion in the sample on the basis of equal numbers of subjects in each of the three SMI groups being drawn from each exercise class.
4. To the type of physical activity program (aerobic dance), and its setting (urban, private organization, and participation fee).

The Limitations

The study was limited as follows:

1. By the reliability and validity of the SMI.
2. By the degree of co-operation, of experimental group fitness class instructors, in implementing the designed structured social support program.

3. By the accuracy of attendance records kept by all fitness class instructors.

4. By uncontrollable environmental factors (e.g. winter weather, instructor changes, cancellation of classes).

The Definition of Terms

The fitness program. The fitness program was the 10 week, YMCA "Fitness Fantasia" aerobic dance program, winter, 1982 in Edmonton, Alberta.

Fitness program supervisor. The fitness program supervisor was the person employed by the YMCA to co-ordinate, administer and supervise the "Fitness Fantasia" aerobic dance program.

Control intervention. The control intervention was the completion of the SMI and Permission Form at the first class.

Social support. Social support was the help given or received by a subject, through positive interaction, with other people in regard to the "Fitness Fantasia" class in which the subject was enrolled. This help may take the form of verbal reinforcement, discussion of problems, sharing transport, etc.

Experimental intervention, structured social support. Structured social support was the experimental intervention, which included: the formation of an activity partner (buddy); home and class self-monitoring charts; communication with significant others in the home environment; instructor awareness of the principles of social support; and, discussion and reminders, in class, of the structured social support program.

Exercise class instructors. The exercise class instructors were those persons authorized by the YMCA to instruct the "Fitness Fantasia" aerobic dance program. This included those persons who were instructors in training.

Control exercise class participants. The control subjects consisted of those fitness program participants, selected for the study, who attended the first class at an exercise class location which was designated by the researchers as a control location.

Experimental exercise class participants. The experimental subjects consisted of those fitness program participants, selected for the study, from those who attended the first class at an exercise class location which was designated by the researchers as an experimental location.

Adherence. Adherence referred to the continued or recurrent participation, of individuals, in an exercise class. The subjects' adherence was measured by, the summation of, the number of times an exercise class participant attended her exercise class.

Dropout. A dropout was any exercise class participant who discontinued attendance through the remainder of her exercise classes.

Self-motivation. Self-motivation was defined as a general disposition to persevere at a task once it had been initiated.

Self Motivation Inventory (SMI). In the study, self-motivation was operationally defined by an individual's score on the Self Motivation Inventory, a 40 item instrument developed and tested by Dishman, Ickes and Morgan (1980), which yields a score ranging from 40 to 200.

Low self-motivation. Subjects who scored 132 or less on the SMI were classed as being in the low self-motivation group.

Medium self-motivation. Subjects who scored between 137 and 154, (both scores inclusive), were classified as being in the medium self-motivation group.

High self-motivation. Subjects who scored 160 or greater on the SMI were classified as being in the high self-motivation group.

The Assumptions

In conducting the research, the following assumptions were necessary:

1. The stratified random assignment of exercise classes, and the members thereof, to the experimental or control conditions, resulted in comparable groups.
2. That the respondents honestly, and accurately answered the SMI.
3. That the exercise class leaders carried out the experimental intervention procedures, in the manner they were instructed.
4. That the attendance sheets, submitted to the fitness classes' program director, by the exercise class instructors were an accurate record of the class participants' attendance.

The Importance of the Study

This study was designed to extend knowledge about motivation for adherence to physical activity programs. Many writers have espoused the importance of social motivating factors, in the maintenance of a regular involvement in a physical activity program, though, to date, no experimental research of a social support nature has been carried out. Descriptive studies have indicated that social support was an important factor to be considered in this field of research.

The study provided an opportunity to further test the utility of the SMI as a screening device for identifying potential dropouts. The SMI has been used under two research conditions (Wankel and Graham, 1980 and Dishman, 1981) and has not been sufficiently tested in other settings. Further research with the SMI is needed to see if it can be effectively used to identify subjects who might benefit from an external motivational intervention, (structured social support).

In addition, to these theoretical considerations, the study has considerable practical relevance to those interested in promoting adherence to physical activity programs, as well as to individuals who wish to become involved in a more active lifestyle. The social support intervention has the adaptability to be utilized in many other physical activity settings. Therefore, should it be found to be a useful means of increasing adherence, it could be used by physical activity practitioners involved in the promotion and instruction of physical activity classes. The SMI, if proven as an effective screening device, could be utilized by others in the same types of settings, since it would provide a means of identifying those who need, and would most profit from, an external intervention.

CHAPTER II

THE REVIEW OF RELATED LITERATURE

Introduction

This review of related literature, has been subdivided into three major sections, each containing several smaller sections.

The first major section discusses several approaches to studying human behaviour, which have relevance to the study of adherence. The trait, psychodynamic, situationist and interactionist approaches to studying behaviour are discussed and then attention is focussed on the concept of motivation and its relevance to the study. Reference is also made to traits, attitudes, behaviourism, and exercise behaviour.

The second major section reviews factors concerned with attendance and adherence to physical activity. Internal motivations and experiences, as well as historical and external forces, are considered.

The last major section considers the literature concerned with social support. Attention is given to what is meant by social support, how it is measured, and to descriptive models of how it works and how it has been implemented in past research studies. This major section closes with a review of the specific areas of social support involved in this study, i.e. family, buddy, group, and leader support.

Approaches to Studying Exercise Behaviour With Reference to Adherence

Introduction

Before reviewing the literature concerning the study of exercise behaviour, it is pertinent to briefly review the models of behaviour in

traditional personality psychology, and motivation. The main reason for this is, that there is at present, an unresolved (for some) conflict regarding how behaviour should be studied, analyzed and interpreted. The conflict is best reviewed, at the theory level of personality psychology, before considering its consequences in physical activity settings. The four basic models to be discussed are Traits, Psychodynamics, Situationism, and Interactionism.[1] Each of these approaches, to studying behaviour, has been utilized in the past. For the purposes of this review, each approach is now briefly discussed. However, one note of caution should be made. Endler and Magnusson (1976:956) point out that the models under review are not clearly different in all respects and that, "it should be noted that there are differences of points-of view within each model and similarities between the models."

The Trait, Psychodynamic, Situationism and Interactionism Controversy

The Trait Approach. The trait approach to studying behaviour has been described, by Endler and Magnusson (1976:957), as the "dominant force in personality research and theory." The underlying belief, in this approach, is that traits are the main determinants of behaviour since they are, "relatively stable behavioural dispositions that individuals exhibit over time" (Epstein, 1977:83). The traits, that each individual possesses, account for consistencies in behaviour across a variety of situations. Examples of research instruments used to measure traits are, Cattell's 16-Personality Factor (16PF) Inventory,

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[1]This discussion is largely based on the comparative article of Endler, N. S. and Magnusson, D. Toward an interactional psychology of personality. Psychological Bulletin, 1976, 83, 5, 956-974.

the Minnesota Multiphasic Personality Inventory (MMPI), the Sport Competition Anxiety Test (SCAT) and the Self-Motivation Inventory (SMI). Respondents usually answer a series of questions designed to compare them with some standard score, which then allows the researcher to categorize that respondent, according to the trait being measured.

The Psychodynamic Approach. According to Endler and Magnusson (1976), the psychodynamic approach is similar to the trait approach, in that it assumes a basic personality core, i.e. it stresses person factors as being responsible for behaviour. Sigmund Freud is usually credited with the major emphasis in this approach, since it is mainly concerned with personality structure, dynamics and development, especially the interaction and conflict arising from the id, ego and superego (Freud, 1959 cited in Endler and Magnusson, 1976). Since Freud, the so-called "neo-Freudians" have concentrated less on the instinctual and psychosexual stages, and more on the ego, social factors and psychosocial stages of development. This approach is characterized by interviews and case histories, with the data being interpreted in a psychoanalytical manner. Since the psychodynamic approach is consistent with the trait approach, in that both acknowledge person factors as being responsible for behaviour, any further discussion will be limited to the trait approach. This trichotomy, trait, situationism and interactionism, is a very common occurrence in the literature (e.g. Straub, 1976; Bem and Funder, 1978; and Morgan, 1980). Sometimes the word "personologism" (Straub, 1976:178) is used to cover the person oriented approaches.

The Situationist Approach. Situationism views the primary cause of human behaviour as being determined by situation factors (stimuli in

the person's environment). This approach is closely allied with behaviourism which holds that the person's behaviour (response) is largely controlled by antecedent and resultant conditions in the environment (i.e. eliciting stimuli and reinforcers). Behaviour is therefore viewed as being situation specific i.e. will vary from situation to situation. This approach is most extremely, and simply, represented by the Stimulus-Response (S-R) paradigm. A note of caution should be made at this point, that this presentation of the situationist approach is simplistic and that many writers (e.g. Bandura and Schunk, 1981; and Grossberg, 1981) do not deny the existence and importance of cognitive factors as mediating influences in explanations of behaviour. An example of the "neo-behaviourist" approach, is that of social learning theory, which maintains that an individual's behavioural pattern is developed through social learning experiences, based on modelling, reinforcement and punishment (Bandura, 1969). This has been further developed by Bandura (1977) and Bandura and Schunk (1981) and will be discussed in a later section (Motvation).

The Interactionist Approach. This approach focuses on both the person and situation and how the two interrelate (interact) in determining behaviour. According to Magnusson and Endler (1977:4), "Persons and situations are regarded as indispensably linked to one another during the process of interaction. Neither the person factors nor the situation factors per se determine behaviour in isolation." As such, the cognitive and motivational components of the person factor and the psychological meaning of the situation factor, are regarded as very important. Two paradigims have appeared within the interactionist approach. They have been labelled as mechanistic (Magnusson and Endler,

1977) or additive (Overton, 1973 cited in Bowers, 1977) and dynamic (Magnusson and Endler, 1977) or interactive (Overton, 1973 cited in Bowers, 1977). The former view (mechanistic/additive) studies the effects of the main factors (e.g. situations, persons, and types of reactions), and is therefore more simplistic. The latter view (dynamic/interactive) stresses an interwoven structure of mediating variables, person reaction variables and situation variables which develop and maintain human behaviour, and is therefore more complex. Bowers (1977) maintains that the dynamic/interactive view is now becoming regarded as the more correct interactionist view. It does, however, suggest a much more complicated and complex view of human behaviour than the mechanistic/additive model, making interpretation of behaviour a difficult undertaking.

Epstein (1980) discusses the limitations of two commonly proposed solutions for overcoming the difficulty of interpretation. The first proposed solution which he discusses is that of attempting to achieve clarity through high levels of experimental control. If it is accepted that human behaviour is often situation specific, and that no matter what variables are controlled, there will be variables that could influence the outcome, then, "one is forced to the conclusion that no experimental design is adequate to the task of adequately controlling all potential sources of incidental influence" (Epstein, 1980:794). The second factor is the method of studying interactions as a means of predicting behaviour. Epstein (1980:794) quotes Cronbach (1957:119) as concluding that, "once we attend to interactions, we enter a hall of mirrors that extends to infinity." The conclusion is made due to the fact that higher and higher order interactions can be investigated

leading to an infinite regression. Thus, it would seem that the interactionist approach is conceptually the most acceptable method of studying adherence behaviour to physical activity. However, the complexity of human behaviour, the myriad of antecedents, mediators, and consequences, requires considerable caution in attempting to utilize this approach to identify the causes of behaviour.

Motivation

Motivation is one specific concept whose importance has frequently been identified in the adherence literature. Baeklund and Lundwall (1975:766), in their extensive review of medical compliance literature, found motivation to be clearly implicated in defection from treatment (34 out of 41 studies, 82.9%). Similarly Dishman et al (1980) found the term extensively used in the literature concerning adherence to physical activity. Unfortunately, both of the above groups of authors found that the term suffers from a lack of clarity in definition, and that it is partly a circular concept. To a large degree, these problems stem from the different theoretical perspectives on which psychologists base their studies. Madsen (1974) identifies many historical strands in the study of motivational psychology, and these strands basically account for the differing theoretical perspectives of motivation. Any definition of "motivation" is necessarily influenced by the theoretical perspective adopted by the particular writer. This influence in amply demonstrated by the contrasting view points expressed by Birch and Veroff (1966) and Deci (1975). Birch and Veroff (1966) clearly identify themselves with a "behaviourist perspective", as can be ascertained from the following statement from their introduction, "Other

psychologists look for the determinants of action in behavioral terms alone ... This is an approach in which we share" (Birch and Veroff, 1966:ix). In contrast, Deci (1975) clearly represents the "cognitive point of view", which he defined in the following manner,

> "This approach [the cognitive approach to motivation] asserts that humans process information and make choices about what behaviors to engage in. Implicit in this is the assumption that cognitions are casual determinants of behavior--an assumption which contradicts behavioral theories." (p.95)

In spite of this apparent opposition, between the behavioural and cognitive perspectives, there appears to be a move toward integrating these divergent approaches. As Buck (1976:5) points out, "an individual analyzing behavior from one point of view misses the true complexity of the causation of behavior." Excellent examples of this move toward "unification" are the writings of Bandura (1977) and Bandura and Schunk (1981). Three following statements indicate this bridging that is occurring in the literature. Bandura (1977:192) states that,

> "... it has now been amply documented that cognitive processes play a prominent role in the acquisition and retention of new behavior patterns ... Learning from response consequences is also conceived of largely as a cognitive process ... Changes in behavior produced by stimuli that either signify events to come or indicate probable response consequences also have been shown to rely heavily on cognitive representations of contingencies."

Bandura (1977) develops a unifying theory of behavioural change which he labels as Self-Efficacy Theory. This theory has, as two central aspects, the "cognitive" concepts of intrinsic interest and self-motivation. Bandura (1977) emphasizes the importance of the conceptualizations of competency and self-determination, which are directly related

to cognitive theorists' perspectives of intrinsic motivation. Bandura and Schunk (1981:587) draw the two theories together by stating,

> "conceptual analyses of intrinsic interest within the framework of both self-efficacy theory (Bandura, 1981) and intrinsic motivation theory (Deci, 1975; Lepper & Greene, 1979) assign perceived competence a mediating role."

The concept of self-determinedness is also common, since Bandura and Schunk (1981:586) explain that,

> "in social learning theory (Bandura, 1977b, in press), self directedness operates through a self system that comprises cognitive structures and subfunctions for perceiving, evaluating, motivating, and regulating behavior."

Thus intrinsic motivation can be seen as arising from those behaviours, which a person involves himself in, to gain a sense of competence and self-determination. Extrinsic motivation, on the other hand, comes from other than the involvement in the activity itself, e.g. the money reward, the trophy, the tissue satiation. Iso-Ahola (1980) notes however, that many activities are engaged in for extrinsic and intrinsic reasons, and that these reasons are subjectively defined since, "no matter how obvious extrinsic rewards may look to an observer, one cannot say for sure whether a person is engaged in an activity for extrinsic or intrinsic reasons" (p.23). The probability that extrinsic and intrinsic factors are often inextricably interwoven, is another reason for utilizing an interactionist paradigm to explain adherence to physical activity.

Self-Motivation

Self-motivation has been referred to, in the literature, as a separate concept. In summing up their extensive review of the literature on medical compliance, Baeklund and Lundwall (1975:767) indicated that motivation might exist, "as a personality trait in the

sense of a general tendency to persevere in endeavours once they are undertaken." Self-motivation, as a stable disposition, might also be inferred from; self-reports, as in Faulkner and Stewart (1978) who reported that 58.2% of continuing participants, in an exercise program, attribute "self-motivation" or "self-interest" as being a reason for their continuance; previous dropout history, as in Zax (1962) who reported that patients with previous dropout history are more likely to drop out of other programs; and self-reference, as in Goldfried (1969) who reported that patients referred by others, were more likely to drop out of treatment than those who came of their own volition. This inference, about self-motivation was empirically tested by Dishman, Ickes and Morgan (1980:117-118) who "hypothesized that self-motivation could be measured reliably as a stable disposition and that it would be positively related to adherence to programs of habitual physical activity." Through a series of studies they developed the Self-Motivation Inventory (see following section).

One further consideration of self-motivation warrants some mention, since it neatly ties together the ideas of many of the previous writers. Bandura and Schunk (1981:586) state that,

> "an important, cognitively based source of self-motivation relies on the intervening processes of goal setting and self-evaluative reactions to one's own behavior. This form of self-motivation, which operates largely through internal comparison processes, requires personal standards against which to evaluate ongoing performance."

The writers then go on to explain that self-inducements are created, to persist at an activity, until performance matches the internal standard. In particular, factors such as the specificity of goals, their level and their proximity i.e. how immediate feedback is, are very important. The

formation of subgoals to provide more proximal feedback helps in the development of self-efficacy and feelings of competence. These self-perceptions, of efficacy and competence, "can affect people's choice of activities, how much effort they expend, and how long they will persist in the face of difficulties" (Bandura and Schunk, 1981:587). For these reasons self-motivation is a very important consideration when concerned with adherence behaviour.

Self-Motivation Inventory (SMI)

Dishman, Ickes and Morgan (1980) have extended the notion of self-motivation through their study, the purpose of which, "was to develop and refine a psychometric measure of self-motivation and assess its relationship to adherence to programs of habitual physical activity" (p.115). The development of this psychometric measure will now be discussed in detail, since it forms the basis of a large part of this thesis.

Initially, a pool of 60 items was written in concise simple sentences, phrased in the first person with an active voice, and were concerned with an individual's tendency to persevere or to be self-motivated. The 60 items were presented, in a 5 point Likert-scale format (1 = extremely uncharacteristic of me, to, 5 = extremely characteristic of me), to 401 undergraduate [illegible]rolled in introductory psychology classes at the University of Wisco[illegible]. Subsequently, 399 questionnaires were analyzed, 2 were inco[illegible]em was correlated with the summated score for all 60 ite[illegible]se items which correlated less than 0.30 were deleted. This resulted in a pool of 48 items from the original 60. The number of items was further reduced, to 40 items, by submitting the 48 items to an alpha factor analysis with varimax

rotation. Those items which loaded at least 0.30, on one of the 11 factors having an eigenvalue greater than unity, were selected. An item analysis, of the 40 retained items, revealed an alpha reliability coefficient of 0.91 and a standard error of measurement equalling 5.84. The authors claimed that these statistics indicated that, "support has been provided for the unitary nature of the underlying construct" (Dishman et al, 1980:118).

The resulting instrument, the Self-Motivation Inventory (SMI), consisted of 19 positively keyed items and 21 negatively keyed items, with a possible response range from 40 to 200. Scores from the 399 undergraduates produced a range of 84 to 184, a mean of 140.5, and a standard deviation of 19.38. Preliminary testing, of the student's scores, indicated that self-motivation was significantly correlated ($r=0.23$, $p < 0.01$) with the students' self reported exercise frequency. A further validation of the inventory, using a second independent sample of 48 undergraduates, produced an alpha coefficient of 0.86, as well as a test-retest reliability of 0.92 (d.f. = 46, $p < 0.001$) over a one month time interval. The SMI was also found to correlate significantly with two conceptually relevant measures, the Thomas-Zander (1973) Ego-Strength Scale ($r=0.63$, d.f.=62, $p<0.005$), and the Crowne-Marlowe Social Desirability Scale ($r=0.36$, d.f.=62, $p<0.01$). As a result of these correlations, two additional validation studies were conducted.

The first validation study was designed to demonstrate that the SMI would better predict adherence, in a voluntary program of physical activity, than the Thomas-Zander (1973) Ego Strength Scale and the Crowne-Marlowe Social Desirability scale. This study involved University of Wisconsin, female, undergraduate students, who had voluntarily

elected to participate in a women's rowing crew training program, for 32 weeks. On the basis of 63.5% agreeing to sign a consent form, and complete the questionnaires, plus a preliminary "cut" imposed due to the large participant turnout, the initial 126 female volunteers were reduced to 64, from which the data were gathered. The instrument constructors' claim that,

> "any bias due to self-selection was likely to be conservative and work against confirming the research hypothesis, since subjects who lacked the motivation to complete the measures were also more likely to drop out of the training program .... voluntary self-selection for a very rigorous exercise program had probably already reduced the range of self-motivation differences by excluding very low scorers and .... the naturalistic field setting of the research did not permit the degree of control that could be achieved within the laboratory context" (Dishman et al, 1980:120-121).

Planned comparisons showed that the mean self-motivation scores of the program dropouts were significantly ($p < 0.05$) lower than program adherents at each of the three break points, 10 days, 8 weeks and 32 weeks respectively. Ego strength and social desirability scores were not significantly different, ($p > 0.10$) in all cases. Even when the data were reanalyzed, using the subjects social desirability and ego strength scores as co-variates, the differences remained significant ($p < 0.07$). Further statistical validation, using stepwise multiple linear regression analysis, revealed that self-motivation entered the regression equation first (correlation coefficient 0.33, $p < 0.05$). In addition, a Chi-square test indicated a statistically significant difference ($\chi^2 = 9.32$, d.f. = 1, $p < 0.005$), between dichotomous groups, based on a median split of self-motivation scores of adherents remaining at the end of 32 weeks. The instrument constructors' conclude that,

> "self-motivation is an important factor underlying adherence to a program of habitual physical activity. It is also clear that related constructs such as social desirability and ego strength do not account for these findings" (Ibid:23).

The second validation study was carried out, to test the efficacy of the SMI, in a context more specifically relating to exercise programs of a therapeutic nature. Three different exercise locations, involving adult males enrolled in 20 week habitual physical activity programs, of both cardiovascular and muscular endurance training, were utilized in the study. The study group included healthy, non-risk individuals, as well as, individuals at risk or symptomatic with regard to coronary heart disease. Data were collected on various morphologic and physiologic variables, including body weight, percent body fat, and metabolic capacity, since Dishman (1980) had previously noted that these variables had a relationship with adherence. A test battery of four psychometric standardized questionnaires was also administered. They were: the SMI, the Physical Estimation and Attraction Scales (PEAS), the Health Locus of Control Scale (HLC), and the Attitude Toward Physical Activity Scales (ATPA).

Analysis of the data indicated that there was a significant overall difference between the program adherents, and dropouts (Wilks Lambda = 0.603 and a χ^2 = 29.06, d.f. = 13, $p < 0.01$). A stepwise multiple discriminant analysis revealed that only percent body fat, self-motivation and body weight contributed significantly ($p < 0.05$) to the group separation. The same variables were found to be the only variables that significantly ($p < 0.05$) enhanced the prediction of program adherence, in a stepwise multiple regression analysis. These results confirmed Dishman's (1978) earlier findings, that self-motivation in conjunction with percent body fat and body weight, best predicted adherence. The results further confirmed that self-motivation was a better predictor of exercise adherence, than such other psycho-

logical variables as attitude to physical activity, locus of control and health consciousness.

On the basis of the aforementioned evidence, the SMI appears to be a well constructed, valid, reliable means of identifying exercise program adherents and those prone to dropping out. To date, the SMI appears to have only been tested twice, in exercise settings other than the original validation studies. Firstly, by Wankel and Graham (1980), where the SMI appeared to have some predictive value when used in conjunction with a decision balance sheet intervention, to effect exercise attendance at fitness classes. The researchers found weak support for the use of the SMI. Although an analysis of variance of the attendance data indicated no significant main effect due to SMI level, an analysis of variance of the regression equation for dropout data indicated that the treatment intervention effectively reduced the dropout rate of the low SMI group. The weak effects together with the small numbers, and short length of the exercise program, limit the generalizations that can be made from the Wankel and Graham (1980) study. Dishman (1981) also utilized the SMI, in an exploratory study, with cross country runners. The instrument identified high self-motivation scorers, as being likely to train more extensively in terms of duration and intensity.

Attribution Theory and Locus of Causality

When considering the effect of motivation (internal, external or self) on physical activity behaviour, the perceptions of the individual play an important role. Of particular importance are the causal attributions for the events that occur during that physical activity. Attribution theory is concerned with the linking of an event, that has

occurred, with the conditions that underlie or cause it by considering the personal and environmental factors involved (Deci, 1975; Shaver, 1975). A person, by attributing causes for events, attempts to make sense of the world and in doing so increases the likelihood of understanding and predicting behaviour in similar circumstances. According to Deci (1975:241) this, "plays a part in his feeling a sense of competence and self-determination."

Shaver (1975) discusses the attribution model of Heider (1958) and its subsequent development by Jones and Davis (1965) and Kelley (1967, 1971). It is not within the scope of this review to explain these models, rather, the central concept of causality (attribution of causality) will be reviewed. Simply stated, a person can attribute the outcome of an event to either a dispositional quality of the actor (personal disposition) or to some external factor (environmental disposition). Shaver (1975:60-63) delineates examples of personal components of action as, intention, exertion and ability, and examples of environmental components as, task difficulty, opportunity, and luck. In attribution theory the loci of casuality have been referred to as external and internal (Weiner, 1974, and Deci, 1975). This should not be confused with locus of control, a similar but different term, developed from Rotter's (1966) work. Both Weiner (1974) and Deci (1975) describe the importance of internal and external causality to affect or motivation. Deci (1975:253) concludes that, "in sum, intrinsically motivated behaviours are characterized by internal causality ... extrinsic motivated behaviours are characterized by external casuality." It is of fundamental importance, therefore, when studying physical activity behaviour, to consider the attribution process, since it gives an

insight into the reasons for being involved in, and also why a person might persist, at physical activity.

Traits and Exercise Behaviour

Morgan (1980) traces the historical use of traits in sport psychology and notes, that from the 1940's to mid 1960's the trait approach was the dominant force. However, paralleling the controversy that occurred with personology in mainstream psychology, several sports psychologists proposed that the trait approach be abandoned (e.g. Martens, 1975; Rushall, 1973). In spite of this call, Morgan (1980) concludes, after reviewing a considerable literature in the area, that to dismiss this approach to studying behaviour is no more appropriate than utilizing the trait approach exclusively. There have been several studies which support the utility of the trait approach for explaining and predicting exercise behaviour.

Brunner (1969), using the Adjective Check List, found significant differences ($p < 0.05$) between regular exercisers (at least tri-weekly) and spasmodic exercisers (less than tri-weekly) on 8 of the list's scales. The regular exercisers were significantly higher on 6 scores, (intraception, number of favourable adjectives checked, defensiveness, achievement, dominance and self-confidence), whilst spasmodic exercisers scored significantly higher on 2 scores, (succorance, and counselling readiness). These differences led Brunner (1969) to conclude that regular exercisers were more extroverted while the spasmodic exercisers were more introverted.

Keith, Spurgeon, Blair and Carter (1974) utilized the Motivational Analysis Test (MAT) to test for personality differences between a physically active group and a physically inactive group. Despite some

methodological problems, that Keith et al (1974) acknowledge, they found significant differences ($p < 0.01$) between the groups. Compared with the active men, the sedentary men had a higher average score on the superego sentiment, and lower average scores for the mating erg and the narcism-comfort erg. The superego sentiment score reflects a greater conscience, the mating erg a lessened sex drive, and the narcism-comfort erg a lessened sensual indulgence for the sedentary sample. Keith et al (1974) also point out that their results (e.g. sedentary subjects having a greater conscience) parallel those of Ismail and Trachtman (1973) who found that physically unfit fitness program participants scored higher on the "guilt" factor (0).

Two trait studies, which Morgan (1980:68) regards as, "without question, two of the most significant experiments in the field of sport psychology" support the trait approach to studying sports behaviour. These experiments, by Ryan and Kovacic (1966) and Ryan and Foster (1967), were based on earlier work by Petrie (1960, cited in Morgan, 1980). Petrie's (1960) view was that certain "types" of people seem to constantly reduce the intensity of their perceptions and others seem to augment them. Ryan and Kovacic (1966) found that individuals involved in contact sports had a significantly greater tolerance for pain, than did non-contact sportsmen, who in turn had a greater tolerance than non-sportsmen. In the follow-up experiment, Ryan and Foster (1967) found that the differences were indeed due to the ability of some individuals to reduce the perception of the intensity of pain, or conversely the tendency of other individuals to augment their perception of the intensity of pain. These findings are important when considering physical fitness programs since "augmenters" might be more inclined to

dropout of the program, especially if the intensity of exercise is too high, which Pollock et al (1977) found to be a dropout factor in physical activity, due to injury.

Further support for the trait approach comes from a study by Young and Ismail (1977). They studied the following groups of men over four years: those who were regularly active before and during the study period (regularly active); those who were inactive before but became active for the initial part of study and then dropped out (dropouts); and those who were inactive before the study but became active and continued throughout the study (exercise converts). Utilizing the Cattell 16 Personality Factor Questionnaire, Young and Ismail (1977) found that the "regularly active" group remained significantly ($p < 0.05$) lower on Factor 0, (indicating greater self-confidence and emotional stability), over the four year test period. However, they also found that the "exercise converts" had ceased to be significantly different on Factor Q_1 (conservative of temperament), by the time the second test (1975) was carried out. The authors suggest that, over time, regular exercise may modify some personality characteristics.

An example of how information on traits might be utilized by exercise practitioners, in an attempt to increase exercise performance, was given in a study by Tu and Rothstein (1979). In this study, 40 female junior high school students were randomly assigned to one of two goal setting conditions (teacher imposed or student's own decision), after being classified as dependency-motive oriented or independency-motive oriented (using the Junior-Senior High School Personality

Questionnaire, JSHSPQ). It was found that jogging times decreased significantly over the 13 sessions and that,

> "independency-motive orientation subjects improved at a significantly faster rate when they set their own goals, while dependency-motive oriented subjects improved significantly faster when goals were teacher imposed" (Tu and Rothstein, 1979:97).

No overall effect, due to the type of goal setting (situation intervention), or motive orientation (personal factor) was found, however, they did significantly interact in effecting increased jogging performance.

The Self-Motivation Inventory (SMI) has also been found to have some predictive value in terms of selecting participants who would benefit from motivational intervention (Wankel and Graham, 1980). Cross country runners who scored higher on the SMI were found to train more intensively and for a longer time period than lower scoring SMI runners (Dishman, 1981). (See previous section entitled Self-Motivation Inventory.)

A caution, regarding the use of traits in predicting exercise adherence, is provided by a paper by Sorrentino and Short (1977). They found, in a review of motive measures, that there is, "a pervasive inconsistency in the behavior of those who obtain moderate scores on various motive measures" (p.478). One of the identified shortcomings, of the Wankel and Graham (1980) study, was that all the SMI scores were used, with a median split dichotomizing high and low self-motivated subjects. Consequently, the use of more extreme groups of SMI subjects might give a better indication as to whether this trait is a useful predictor of adherence, to physical activity programs.

It would appear from these studies that traits account for enough variance, 20-45% (Morgan, 1980), to be useful in predicting

exercise adherence behaviour. The utility of these measures might be increased by incorporating them into an interactionist strategy. By adopting the interactionist strategy, a researcher is acknowledging the considerable value found in the trait literature, without narrowing the study to traits alone. Both Straub (1976) and Morgan (1980) are supportive of using traits in sport and physical activity research.

Attitudes and Exercise Behaviour

Another popular method used to study exercise behaviour has been utilizing relevant attitude constructs. Wankel (1980:7) explained the difference between attitudes and traits by stating,

> "like personality, an attitude is considered to be a relatively stable predisposition but unlike personality it entails orientation toward a given stimulus object."

In a physical activity program the given stimulus object is the program itself. Attitudes consist of three components, an affective or emotional component, a cognitive or thought components and a behavioural predisposition component. An individual may feel very positively, about participating in regular activity, because he or she believes that exercise is healthy, and that physical activity helps to reduce anxiety. In this situation the positive evaluation or feeling about activity is the affective component. The belief that activity is healthy or can reduce anxiety is the cognitive (or belief) component. Further, it is likely that, given these affective and cognitive aspects, the individual will be predisposed to behave in a consistent manner by being active.

Harris (1970) utilized the Physical Activity Attitude Inventory (PAAI)to study the attitudes of middle aged men, involved in physical activity. She found that, "once a positive attitude had been formed, the volitionally active man was motivated to learn new sports and games

whenever he was in an area where facilities were available" (Harris, 1970:208). She also found that, after a year-long program of regular vigorous exercise, the attitudes and behaviours of once sedentary men approximated those of men who had been regularly active throughout their adult lives.

Neale, Sonstroem and Metz (1969) carried out a study, using the Physical Activity Attitude Inventory (PAAI), in an attempt to understand why adolescent boys become involved in physical activity. They found no significant differences between high fit and low fit adolescent boys in either self-esteem or in level of voluntary physical activity. The PAAI utilizes two scales, the Attraction scale (which measures the individual's interest or attraction to physical activity) and an Estimation scale (which measures the individual's estimated physical ability, which in turn is related to that individual's self-esteem). In an attempt to improve upon this scale (PAAI), Sonstroem (1974) developed the PEAS (Physical Estimation and Attraction Scales). Sonstroem developed the PEAS scale utilizing high school students (710 males, grades 9-10), who were presented with a battery of tests which included an item pool of 155 attitude statements. The internal reliability of the final instrument and its significant correlation with other athletic variables (e.g. athletic experience, self acceptance and physical fitness), led Sonstroem (1974:102) to conclude that a measure of validity was provided for the PEAS and its underlying constructs. In a further development of the use of this scale Sonstroem and Kampper (1980) utilized the PEAS and Bialer's Locus of Control Scale with Grade 7 and 8 boys to examine whether these instruments predicted recruitment and adherence to fall sports (flag football, cross country). The PEAS

had a predictive efficiency of 75.8% for recruitment to the two sports. The Locus of Control measure was not predictive of recruitment, and neither the PEAS nor the Locus of Control measures were predictive of adherence, though the authors note that Locus of Control approached significance ($F=2.54$, $p < 0.11$).

This problem of attitude not predicting continued involvement in physical activity has direct application to the national mass media campaigns, for increased physical fitness awareness, carried out in many countries, (e.g. Trimm, West Germany; Life Be In It, Australia; Come Alive, New Zealand; and Participaction, Canada). These campaigns are directed toward changing people's attitudes, in order to increase their physical activity. As Wankel (1980:8-9) summarizes, these campaigns have been successful in increasing physical fitness awareness, but the positive feelings, and attitudes toward the campaigns, are not being translated (to any great degree) into increased physical activity behaviours.

One attempt to overcome this problem of predicting specific behaviours from general attitudes, has been the development of a model of behavioural intentions (Fishbein and Ajzen, 1975). This model will be explained in the context of predicting specific physical activity behaviour. According to the model, a person's specific physical activity behaviour (B) is determined by his/her intention (BI) to be physically active. This behavioural intention is the result of two components. The first, is the person's attitude toward physical activity (A_B), and the second, is the person's subjective normative

beliefs about physical activity (SN). These relations can be expressed symbolically by the following equation.

$$B \qquad BI = (A_B)_{w_1} + (SN)_{w_2}$$

The w_1 and w_2 are weighting factors, (beta weights, empirically determined by regression analysis), which vary according to the individuals involved, the behaviour in question, and the situation (Saltzer, 1981). The two components (A_B) and (SN) can be further defined. The person's attitude toward physical activity (A_B) is broken into two subcomponents, beliefs about the consequences of physical activity (b_i), and the evaluation of those consequences (e_i). This can be represented in the following way:

$$A_B = \sum_{i=1}^{n} b_i e_i$$

The subjective norm (SN) can be subdivided into normative beliefs (nb_i), the belief a person has regarding a referent's expectations of being involved in physical activity, and the motivation to comply (CM_i) with that referent's expectation concerning the person's participation in physical activity. This can be represented as follows:

$$SN = \sum_{i=1}^{n} nb_i MC_i$$

These beliefs, evaluations and motivations can be empirically measured, in an attempt to predict a person's behaviour toward physical activity.

Wankel and Beatty (1975) empirically tested the utility of the model in a field setting. The setting consisted of an 11 week organized exercise program, with adult males, who completed a battery of tests including a behavioural prediction questionnaire. The attendance of the participants was the criterion behaviour measure. The study provided

only limited support for the model, since the correlation between behavioural intention and actual attendance was small (r=0.11). However, the authors were of the opinion that several methodological weaknesses might have contributed to the lack of correlation. In particular, a lack of variability in the behavioural intentions scores (intentions were uniformly high), was felt to reduce the predictive efficiency of the measure.

Another study, carried out in a similar field setting, has been reported by Riddle (1981). She utilized data gathered from adult female and male joggers and non-exercisers, solicited from members of social service clubs and from joggers contacted while jogging in parks. Her results strongly supported the model in that: there was a high correlation between B and BI (r=0.820, $p < 0.001$); BI was adequately predicted from A_B and $\Sigma\, nb_iMC_i$ (r=0.742, $p < 0.001$); there was a high correlation between A_B and $\Sigma\, b_ie_i$ (r=0.764, $p < 0.001$) and SN and $\Sigma\, nb_iMC_i$ (0.726, $p < 0.001$); A_B was a better predictor (r=0.73, $p < 0.001$) of behaviour than $\Sigma\, b_ie_i$ (0.646, $p < 0.001$). Two findings inconsistent with Fishbein and Ajzen's Theory (1975), but supportive of other findings reported in the literature were also reported. They were that the indirect measure of the normative component ($\Sigma\, nb_iMC_i$) was a better predictor of BI than the direct measure (SN), (r=0.515 versus r=0.432); and that there was no difference on the attitude measures A_B (attitude to the behaviour) and A_o (attitude to the object), (0.730 versus 0.700). The finding, that the indirect measure was more significantly associated with behavioural intentions, means that researchers need to search further, than simply finding the participant's normative beliefs, regarding physical activity. The finding, that A_B and A_O are not

significantly different, in identifying physical activity behaviour, suggests that researchers could use generalized attitude measures (A_0) rather than the specific attitude (A_B) to the physical activity in question.

Two other studies, which temper these findings, are those of Saltzer (1981) and Brinberg (1977), though they are drawn from the fields of weight control and church attendance respectively and not physical activity. In Saltzer's (1981) study it was found, that a cognitive mediator (Weight Locus of Control), affected behavioural persistance in a weight loss program. Brinberg's (1977) study compared the Fishbein and Ajzen (1975) model and a similar model proposed by Triandis (1977). Brinberg (1977:573) found that, "For the prediction of intention, Triandis' model accounts for a greater percent of the variance in intention; for the prediction of behaviour, Fishbein's model is a more effective predictor." Further research is needed to find the best model.

From this brief review of attitudes and exercise, it is possible to conclude that there is at present no one identified best way of studying exercise behaviour using personality or attitude constructs. The next section describes the external environment's effects on exercise behaviour.

Behaviourist Approaches to Exercise Behaviour

This approach to exercise behaviour is based on behaviourist principles (e.g., Skinner 1953). With reference to human behaviour, the techniques of operant conditioning, and concomitant schedules of reinforcement have been the most utilized approach to behaviour modification. In his review of exercise management, Martin (1981) indicates

that a variety of reinforcing techniques such as, feedback, praise, token reinforcement, money, social reinforcers, contracting and lottery interventions have been used, with diverse population groups including normal adults and children, institutionalized geriatrics, prisoners, and mentally retarded people. In spite of this impressive list of techniques and subjects he states that, "the application of behavioural technologies to the problem of exercise adherence is relatively new" (Martin, 1981:5).

Perhaps one of the simplest and easiest means of affecting behaviour through reinforcement is the use of praise (social reinforcement). Katell, Martin, Webster and Zegman (1980) found, "an intensive feedback and praise procedure to be superior to a standard procedure .... in promoting adherence--both during the program and, perhaps more importantly, after it was over" (p.7). Evans and Lavoie (1978) concluded, after carrying out research utilizing four social-motivation techniques (personal feedback; personal and group feedback; personal and group feedback knowing group members; and personal and group feedback knowing group members plus meeting with them to discuss feedback), that the techniques were useful, though no one technique was significantly better than the others and that a three month program was not long enough to effect long term commitment to physical activity.

Contracting interventions (placing a deposit and earning it back by reaching a "goal" each week) have been carried out by Epstein, Wing, Thompson and Griffen (1980) and Wysocki, Hall, Iwata and Riordan (1979). In both studies, significant ($p < 0.05$) increases in exercise behaviour were demonstrated. The Epstein et al (1980) study also employed a lottery procedure (deposit placed at start, and chances for lottery draw

were contingent on weekly attendance). The lottery procedure also significantly ($p < 0.05$) increased the exercise behaviour of participants. The Wysocki et al (1979:62) study followed up participants a year later (the experiment ran for 10 weeks), and it found that, "7 of the 8 subjects were at that time engaging in more exercise than they had before exposure to the contract contingencies."

A problem associated with external reinforcers is that when they are withdrawn the behaviour that was contingent on those reinforcers begins to extinguish. Another important problem concerns the effects of extrinsic rewards on intrinsic motivation. The effects are not necessarily summative, in fact it has been shown that in some situations, extrinsic factors may have a deleterious effect on intrinsic motivation (Condry, 1977).

More recently several studies have been carried out to test the effects of extrinsic factors on on-going task motivation (Weinberg, 1979; Weinberg and Ragan, 1979; and McCaughan and McKinlay, 1981). Generally, it has been found that extrinsic factors, such as rewards, (e.g. Deci, 1971; Green & Lepper, 1974; Lepper & Greene, 1975) surveillance (Lepper & Greene, 1975) and competition (Weinberg, 1979; Weinberg and Ragan, 1979,; and McCaughan and McKinlay, 1981), decrease intrinsic motivation. However, this has to be tempered by the findings that salience (Ross, 1975), and contingency of rewards (Kruglanski, 1975; Ross, 1976; and McCaughan and McKinlay, 1981) are important also. If an award or reward is given without regard to the quality or relevance of the behaviour, then intrinsic motivation is undermined, whereas if awards or rewards are the norm, intrinsic motivation does not seem to be affected. Rewards that signal competence (provide feedback) also do not

seem to affect intrinsic motivation, and may actually strengthen the behaviour (Deci, 1975). One area particularly relevant to intrinsic motivation and persistence at a task has been found to be the effects of feedback of results, especially positive (successful) feedback, on attribution (Weinberg and Jackson, 1979; McCaughan and McKinlay, 1981). It should be cautioned, however, that the majority of studies have used children or adolescents as the subjects, and thus the generalizability of the results to adult populations may be questioned. Self-control and self-reinforcement have been promulgated as alternatives to the external reinforcement procedures outlined above.

Brownell (1978) reviewed a number of theoretical and applied issues in self-control research. He claims that there is debate about whether self-control exists, especially since some "hard line" behaviourists attest to environmental factors as being the only determinants of human behaviour whereas social learning theorists (e.g. Bandura and Schunk, 1981) attest to cognitive mediating factors. In addition, Brownell (1978:292) states, "there is general agreement that the area of self-control is plagued by semantic problems." These problems aside, self-control factors such as self-reward, choice, and perceived control over one's own environment, have been experimentally verified (Brownell, 1978).

Keefe and Blumenthal (1980) carried out a research project with three middle-aged, overweight subjects in an attempt to induce a life-long exercise program which involved stimulus control, and self-reinforcement, as the two central components. Large changes in fitness level, and involvement, occurred over the 9 month period of study. Whilst caution must be exercised in view of the small number of

subjects, lack of a control group and the singular type of subjects, the study provides some support for the efficacy of self-control/self-reinforcement procedures. An interesting anecdotal report arising from the study was ... "that the reinforcement contract was important during the early phases of the program, but that over time the more intrinsically rewarding aspects of exercise assumed control over their exercise behavior" (Keefe and Blumenthal, 1980:33-34). Kau and Fischer (1974) also report success with self-modification of exercise behaviour. Once again caution is needed since there was only one subject in the study, but the notable aspect of the self-reinforcement contract was that the spouse helped monitor the program and was instrumental as a reinforcer. Another case study reported by Turner, Polly and Sherman (1976) also indicates the efficacy of a combination of self-control techniques in shaping and maintaining an increased involvement in exercise.

These studies show that behaviourist approaches to changing human behaviour, in a physical activity setting, have been quite successful with small groups of subjects. An important question arises as to whether these techniques could be effectively utilized in programs with larger groups of people.

Factors Associated With Attendance and Adherence to Physical Activity

Introduction

Many of the following factors could conveniently be subsumed under the preceeding section on approaches to studying exercise behaviour. However, they have been presented separately since the overlying psychological approach (e.g. Situationism, Personologism)

would determine how they would be categorized. Instead, these factors have been found to be important regardless of the mediating method that causes them to affect behaviour.

Self-Reported Reasons for Being Active/Inactive

People often begin exercising, for reasons, other than those that they report for continuing (Oldridge, 1977; Wankel, 1980). Wankel (1980) points out that often people begin exercising to gain some health benefit(s), whereas their continued involvement is more often dependent on reaction to the exercise program, and/or the program's interference in the person's daily routine. Iso-Ahola (1978:13) points out that leisure behaviour is dynamic, therefore reasons given at one time, place, situation will not apply to all persons, nor necessarily to that same person, at another time and space. Notwithstanding this problem, there is considerable value in trying to understand people's reasons for beginning and continuing exercise since they give an insight into the participants' motives and what parameters affect those motives.

London, Crandall and Fitzgibbons (1977) found that leisure activities were perceived in terms of three basic "need" dimensions, the feedback about one's competence, the liking of the activity and the amount of positive interpersonal involvement. More importantly they demonstrated that different people perceived the same leisure activity as meeting different leisure needs, some even saw the same activity in a diametrically opposing light. In practical terms, the person providing an exercise program has to be aware of the reasons for people attending, and that some people's reasons may be opposed to others (e.g. some may enjoy social interaction opportunities while others are just there to "work out").

Similar problems, to those mentioned above, occur when attempts are made to understand the reasons for people ceasing to participate in physical activity. One very commonly reported reason, for ceasing participation, is "the lack of time" (Wanzel and Danielson 1977; Statistics Canada, 1978; Perrin, 1979; and Boothby, Tungatt and Townsend, 1981). In the context of employee fitness programs, Wanzel and Danielson (1977) recommend time be taken during the working day or as close as possible to the employees' work hours. In addition, they found seasonal, weekly, and daily differences in terms of the times that work-outs occurred. Participants participated more in; winter (52.0%) and fall (51.6%) compared to summer (11.4%); Mondays (63.8%) and Wednesdays (65.4%) compared to Tuesday (37.0%) and Saturday (6.7%); noon--1:00 p.m. (19.7%) and 7:00 p.m.--8:00 p.m. (19.7%) compared to 1:00 p.m.--2:00 p.m. (7.9%). Again, program co-ordinators have to be aware of individual differences regarding time of use. In regard to the reason "lack of time", help would be needed in terms of structuring the work day, offering programs at convenient times, or making the programs short enough to decrease the inconvenience. Wanzel and Danielson (1977) also found that there was a large difference in attaining goals dependent on the days and times exercised. In particular Mondays and Fridays, were the best days, and people exercising from 10:00 a.m.--1:00 p.m. and 4:00 p.m.--6:00 p.m. achieved their goals more often, especially compared to 6:00 p.m.--8:00 p.m. There are other reasons for joining or dropping out of exercise programs but they will be discussed under other headings.

Goal Setting and Attainment

Participants may set many different goals for themselves when becoming physically active. It has been found that the attainment of goals is an important factor in terms of performance and attendance in physical activity programs (Orlick, 1974; Wanzel and Danielson, 1977; and Katell, Martin, Webster and Zegman, 1980). Wanzel and Danielson (1977) found that if a goal was set, that would be attained far in the future, or if it was too general, then it was unlikely to facilitate attendance. In Orlick's (1974) words the goals should be "realistic", "achieveable", "short term" and "long term". He stresses that goals which are based on past performances or achievements, and that are progressively increased, provide a continuous sense of success as they are achieved, and challenge as they are re-set. Orlick (1974) also mentions the use of keeping charts since they graphically represent progress and keep the desired goals in the awareness of the participants.

The different means of setting goals has also been found to be important (Tu and Rothstein, 1979 and Katell, Martin, Webster and Zugman, 1980). In the Katell et al (1980) study, participants who had some flexibility in setting their exercise goals adhered and performed better at jogging, than those whose goals were set by the researchers. Tu and Rothstein (1979) found that, for independency motive oriented (IMO) individuals, self set goals led to better jogging performance, but that for dependency motive oriented (DMO) individuals, teacher set goals led to better performance. In other words, Tu and Rothstein (1979) found no difference between self set goals and teacher set goals without considering the personality of the individual (an interactionist approach).

Choice

In a somewhat related manner, to the different means of setting goals, choice has been found to affect attendance in physical activity programs. On a broader front of inquiry, Burton (1976:18) states that, "the defining characteristic of leisure is choice. Choice, or freedom from obligations, is a constant theme permeating the many varied interpretations of leisure throughout history." Iso-Ahola (1980) uses the words "perceived freedom" to indicate the same sort of phenomenon and he states that it is the most important characteristic of people's subjective definitions of leisure. Perceived freedom (choice) has been found to be a most important factor in many settings; in children's play (Green and Lepper, 1974); in games of chance (Langer, 1975); in perceptions of leisure (Iso-Ahola, 1978 & 1979) in a laboratory study of activity involvement (Mannell, 1978); and in a physical exercise setting (Thompson and Wankel, 1980).

In the latter study, (Thompson and Wankel, 1980), "perceived choice" subjects were led to believe that their own exercise selections, from an earlier presented list, were the basis for their exercise programs. "No perceived choice" subjects were informed that their exercise program was a standardized club program. The overall attendance, for the 6-week monitoring period, was greater ($p < 0.10$)[2] for the perceived choice group than the no perceived choice group. Thompson and Wankel (1980) concluded that exercise leaders should be made aware of

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[2] The researchers set the level of significance at 0.10, since the experiment was carried out in the field, with a subsequent loss of control, and also since it was an exploratory study.

the importance that choice of exercises may have in an exercise program in terms of increased participant attendance and adherence.

Decision Making

Heinzelmann and Bagley (1970) found that a small group discussion and decision making method was more effective at recruiting and retaining middle-aged men to an exercise class, than was a large group lecture type method. They suggested that an important reason for the difference was that, the former method allowed the individual to be more closely involved with the decision making, which resulted in greater commitment to the decision the participants made.

In another decision making approach, Janis and his associates have developed a decision-balance sheet technique which can be used to help a participant join, and commit him or herself to, a program of physical activity. The decision balance sheet intervention has elements of goal setting, and choice in it since the respondent is required to consider the benefits and costs, to him/herself and significant others, in his decision to become more physically active. Hoyt and Janis (1975) found that the decision balance sheet intervention significantly increased the attendance of adult women to a physical activity program. In an extension of this study, Wankel and Thompson (1977) used the full decision balance sheet and a modified decision balance sheet intervention (anticipated positive effects only) by phoning some of a commercial fitness club's inactive members. They found a significantly ($p < 0.05$) better attendance for both types of decision balance sheet intervention compared to a control group, and also that the modified decision balance sheet was significantly ($p < 0.05$) better than the club's routine telephone call-back procedure. Further support for the effectiveness of

the decision balance sheet was provided by Wankel and Graham (1980). (See SMI sub-section).

Satisfaction

An important component of any physical activity program is the measure of satisfaction gained from it. It is rather obvious that unless a person is satisfied with a physical activity program, he or she will be unlikely to persist in it. A number of authors have described this in terms of "fun" or "enjoyment" and have postulated that it is a central component in physical activity programs (e.g. Massie and Shephard, 1971; Orlick, 1974; Jette, 1979; and Perrin, 1979). However, as Wankel (1980:20-21) points out, there is a need to research the dimensions underlying "fun or enjoyment", since it is a general term. Some of the previous, and following factors reviewed in this section, are ingredients in the mixture that leads to a person's perception of satisfaction e.g. mastery of skills, perceived choice, feelings of competence, achievement of goals.

An important contribution to the study of satisfaction is Csikszentmihalyi's (1975) model of the flow experience, which he developed through studying play (see Figure One p.46). The reason given by Csikszentmihalyi (1975:41) for selecting play activities as his object of study was that, "Of all patterned human activities, play is supposed to depend least on external incentives." The flow experience describes a holistic sensation which occurs when a "player" perceives the challenges (action opportunities) as matching his skills (action capabilities). When the situation demands more, than the "player's" skills can match, a state of worry and anxiety ensues. Conversely, a situation where the 'player's' skills are not tested results in boredom

and anxiety. An activity which allows the participant to experience flow therefore becomes intrinsically rewarding or more satisfying.

Social interaction is one factor that is important to leisure satisfaction. Crandall (1979) views social interaction as a central aspect of social leisure--a term used to encompass leisure pursuits carried out with others. He collected empirical evidence which showed that social leisure is an important part of leisure activities, though

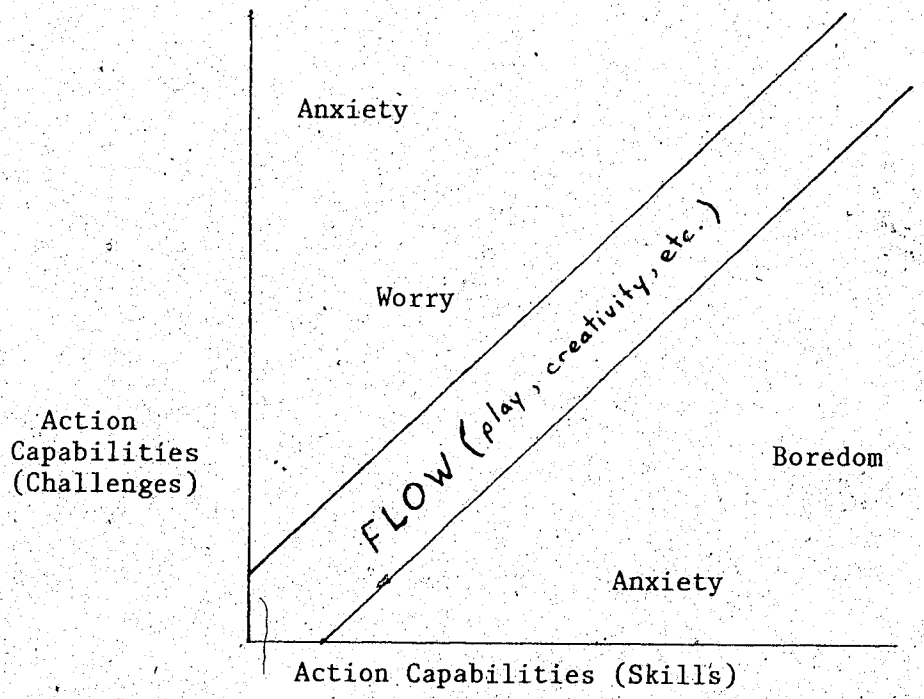

FIGURE 1.

Model of the Flow State
(from Csikszentmihalyi, 1975:56)

this does not presuppose that leisure cannot be gained through solitary leisure. In an exercise class, where people are congregating together it is important, therefore, to consider the compatibility of the people who are going to interact, and to create conditions whereby this interaction is facilitated. This area (social factors) will be considered in

more detail in a later section (see Social Support with reference to physical activity).

Studies by Tinsley, Barrett and Kass (1977) and Tinsley and Kass (1978) provide evidence that needs, as expressed by participants, are often activity specific, or rather, more readily satisfied through one leisure activity than others. Although the authors acknowledged the need for more research, in this area, these two studies again highlight the fact that individuals vary in their needs, and also that activities vary in their capacity to satisfy needs.

Ragheb and Beard (1980:334), in their review of literature pertaining to leisure satisfaction, found no reliable or valid measure of the concept as they attempted, "to identify the boundaries of leisure satisfaction, its indicators, and referents, and to formulate it as a construct." As a result they developed an instrument, the Leisure Satisfaction Scale, composed of six subscales: the psychological; the educational; the social; the relaxational; the physiological; and the aesthetic. They found that, though intercorrelations existed between the subscales, the amount of variance explained was small enough to indicate, "that there was a substantial amount of unique variance in each" (Ragheb and Beard, 1980:338). The authors concluded that more work needs to be done on the scale in terms of content and construct validity and that the scale's utility will only be able to be assessed after more extensive use. In spite of these limiting factors, evidence supports the existence of the construct of leisure satisfaction. For research and applied situations, this construct becomes an important factor. In terms of attendance and adherence to physical activity classes, it may be even more important, as it gives a means whereby an

objective assessment can be made of the satisfaction derived from that physical activity.

Previous Exercise and Health History

Considering the fact that most people believe that physical exercise is a healthy activity, it is not surprising to find, in the literature, that previous exercise and health history affect attendance and adherence.

In their study, on social factors and living habits associated with willingness to participate in physical activity, Terraslinna, Partanen, Oja and Koskela (1969) reported that, smokers and people who were already active, were more likely to join a program. However, Oldridge (1979) found that smoking was the single best predictor of dropping out of a physical activity program (59%). Perceptions of health have been predicted as being important in compliance to exercise programs (Becker, 1976 cited in Oldridge, 1979) and Type A behaviour patterns have been associated with adherence (Oldridge, Wicks, Hamley, Sutton and Jones, 1978). In opposition however, Morgan (1977), after reviewing literature pertaining to adherence to vigorous physical activity, states that these factors are inconsistently associated with adherence. Morgan (1977) also finds actual level of physical fitness, previous athletic history, height, weight and percent body fat as being inconsistently related to adherence in physical fitness programs, though he admits they would appear to be "logically discriminating." Other researchers have found that such biologic factors as excess weight and high percent body fat are discriminating factors for dropouts (e.g. Massie and Shephard, 1971; Andrew and Parker, 1979; and Dishman, 1981). Dishman added high metabolic capacity to the above two factors and found

that these three biologic factors, coupled with "low self-motivation", combined to give an increased discrimination for dropouts. There is obviously disagreement in the literature over these factors since Morgan (1977) had earlier concluded that biologic factors accounted for very little predictive utility.

The extent to which a participant remains free of injury is important, especially in terms of the intensity of exercise the participant is involved in. Injury is a commonly reported reason for dropping out (Morgan, 1977; Pollock, Gettman, Milesis, Bah, Durstine and Johnson, 1977; Wanzel and Danielson, 1977; and Boothby, Tungatt and Townsend, 1981). The intensity of exercise was found by Pollock et al. (1977) to be an important reason for becoming injured. They found that exercising with a heart rate greater than 90% of maximum, exercising more often than 5 days a week, and for longer than 45 minutes per day, significantly increased the incidence of injury.

Though previous history of exercise and health appear to be inconsistently related to adherence, an exercise leader would be well advised to take these factors into consideration. A quick and easy method for doing this, is the use of the Physical Activity Readiness Questionnaire (PAR-Q), developed by the British Columbia Ministry of Health (Stewart, Colles, Chisholm and Kulak, 1979). Another important consideration is the matching of the intensity of the fitness program to the individual, so that the likelihood of injury is lessened.

Opportunity to Exercise

Knowledge about the exercise programs available to participate in, is one part of the opportunity spectrum (education). Survey research on mass media approaches (e.g. Jackson, 1979) has indicated a

high awareness of the media message, but this doesn't solve the problem of local awareness (e.g. where to go, who to contact). Obviously, any exercise program has to be well promoted to attract participants. Having attracted the participants, however, doesn't preclude problems with accessibility, time of day, atmosphere of exercise situation, cleanliness of rooms, appropriate changing and toileting arrangements which are factors that would increase dropout rates (Orlick, 1974). There may be a problem with the lack of provision of appropriate facilities and equipment, but as Boothby et al. (1981) have pointed out, it was more often a problem with supply/demand (e.g. booked facilities, other people using equipment, transport problems). The facility being too far from the work place or home has been reported, (Teraslinna et al., 1969; and Wanzel and Danielson, 1977), as being a factor causing dropouts from a physical activity program. As well, Wanzel and Danielson (1977) report that work commitments as well as seasonal variations prevented people from regularly attending. A flexible working program, or flexible exercise program, would alleviate those difficulties. Feedback to a program leader, regarding an opportunity problem, would also help a participant reach a solution. Therefore ongoing monitoring and evaluation is important so that the program leader can take steps to ensure that this occurs.

Leadership and Other Exercise Program Considerations

Central to an exercise program is the exercise leader or instructor. Simply by his/her position of authority, but also by his/her interaction with the participants, the exercise leader can have a profound effect on the attendance and adherence of the exercise class participants (Orlick, 1974; Wankel, 1975; and Franklin, 1978). The

leader can shape the environment, the atmosphere, the types of activities, dispense reinforcement, act as a model, etc. Faulkner and Stewart (1978) document how personal interest, shown by an instructor, can increase the attendance of irregular attendees. Wankel (1975) points out that a leader can often unintentionally effect participants' attendance through expectations which alter the participants' behaviours to meet that expectation. In this respect Wankel (1975:15) emphasizes the need for a positive climate of acceptance without a constant threat of failure and negative evaluation for physical activity programs. Wanzel and Danielson's (1977) study revealed a significant sex of participant interaction with instructors' personalities. More women (11.1%) than men (1.6%) cited they left the fitness program because of the instructors' personalities, this was especially so for women 25 years of age and under. Andrew and Parker (1979) found that equal numbers of adherents and dropouts cited exercise staff as being the reason for their attendance/dropping out.

Exercise class leaders and instructors have to be aware of their influence on participants, in order to ensure that exercise class participants continue to attend. This is especially the case for classes where the instructor is male and the participants female or vice versa, since males tend to have different goals and attitudes toward their physical activity than females. In addition, they must be attentive to each participant's personality, so that they (the instructors) don't become reasons for the participant leaving the program.

Socialization and Socio-Demographic Factors

Socio-Demographic factors have been found to be inconsistently associated with attendance, or adherence, to physical activity (Morgan,

1977; Oldridge, 1979; Dottavio, O'Leary and Koth, 1980). However, Wanzel and Danielson (1977) found sex differences in rate of dropping out, reasons for dropping out, amount of participation, and type of goal set. In their exercise program, women dropped out more quickly, dropped out more because of personality problems with instructors, participated more with a friend, and often set goals pertaining to weight loss, muscle tone, and figure improvement, while men more often set goals pertaining to heart-lung efficiency.

Age, race, ethnicity, religion, economic indicators, birth order, sibling-sex status and job status, have also been cited as factors which differentially effect involvement in physical activity (Casher, 1977; Wanzel and Danielson, 1977; McPherson, 1980; Unkel, 1981). In an attempt to identify which socio-demographic factors, singularly, or in combination were most responsible for physical activity behaviour, Unkel (1981) studied the interaction that occurred between sex, age and family status, and the type of physical activity involved in, (individual/dual sports, outdoor activities and team sports). Her conclusions yield some insights into why contradictory findings exist, in the literature, regarding socio-demographic factors effects on attendance and adherence. She states,

> "for sex as a main effect all corresponding models, [type of physical activity with intensity and variety], yielded the same outcome; however, a significant interaction effect between sex and age was found for total intensity of participation, but not for total variety" (Unkel, 1981:23).

Unkel (1981) notes that age, sex, and family factors have effects on the type and intensity of activity. She found that participation in physical activity decreased with age especially for single people. As well, females were less involved than men, in team sports and outdoor

activities, but there were no differences in individual/dual sports. Marital status and number of children did not differentially affect participation of females and males. This is further support for the need to consider interactions rather than main effects, as tends to be the case with socio-demographic research.

The social groups, with whom people participated, were found to be more effective than socio-demographic indicators for predicting frequency of participation in various outdoor recreation pursuits (Dottavio, O'Leary and Koth, 1980). This study along with Unkel (1981) provides support for the need to research behaviour in a more complex manner than by describing simple demographics.

Another concept, which is useful to explore, is that of socialization or more specifically leisure socialization. In their review of leisure behaviour and socialization throughout the life course, Kleiber and Kelly (1980:91) used Zigler and Seitz's (1978) inclusive definition that states, "Socialization is a broad term for the whole process by which an individual develops, through transactions with other people, his specific patterns of socially relevant behaviour and experience." Kleiber and Kelly (1980) note that this definition excludes the idea that children or young adults are passive recipients of socializing influence, but rather maintains that socialization for any person is a dynamic and ongoing process. This socialization process, within a leisure context (intrinsically motivated and perceived as being freely chosen), has been researched by a number of people. The following is offered as a general sketch of this literature since, the importance of leisure socialization will be more fully discussed in the following sub-section under a variety of headings.

As mentioned above, the socialization process is a dynamic and ongoing process throughout a person's life cycle (Rapoport and Rapoport, 1975; Kelly, 1978). This means that the whole variety of people, (parent, sibling, teacher, priest, peers, etc.), that a person interacts with, effect that person's behaviour development. Similarly those activities engaged in, in a person's earlier life, carry over into his/her later life, approximately 40% as documented by Sofranko and Nolan (1972), Yoesting and Burkhead (1973) and Kelly (1977). An interesting observation of Iso-Ahola (1978:6) is that one should also consider that, a considerable proportion of later life activities, (60%), are dissimilar to childhood and adolescent activities which he views as evidence for the changing leisure interests across the life-span. The following sub-section reviews the leisure socialization literature, more fully, under a variety of topics associated with the concept of social support.

Social Support With Reference to Physical Activity

Introduction

One area of importance, for adherence to physical activity programs, appears to be social support, since it has been referred to several times in the literature as a "proposed" method of combatting the dropout problem (e.g. Heinzelmann, 1973; Orlick, 1974; Wanzel and Danielson, 1977; Franklin, 1978; Wankel, 1979 and 1980; McPherson, 1980; and Olson and Zanna, 1981). Typically, family or spouse support was reported as a method, but buddy support, group support and leader support were also reported as being important considerations. To date, however, no experimental research has been undertaken to validate the

use of social support as a method of reducing dropouts in physical activity. Reference to social support can be found in the medical literature, (e.g., weight control groups, smoking cessation procedures, myocardial infarction recovery programs, studies of alcoholics and mental health literature) from which most of the following review was drawn. Where possible, parallel concepts are discussed with reference to physical activity.

What is Social Support?

Increasingly, social science researchers have focused their attention on the study of social forces that contribute to the maintenance and promotion of people's health (Gottlieb, 1981a). Of fundamental importance, to this study of human welfare is the manner in which people interact in terms of systems of support and the resources that are shared or exchanged between members of the system. The breadth of research involving social support as a guiding conceptual reference, is outlined by Turkat (1980) who mentions the fields of Anthropology, Psychiatry, Psychology, Social Work and Sociology, as devoting increasing attention to the concept. Turkat (1980) pinpoints the fields of Anthropology and Sociology as the origins of social support, but both he and Gottlieb (1981a) concur that current research is an outgrowth from the community mental health field.

Before proceding further with this review, it is necessary to identify and define "social support". To do so, requires the identification and definition of a necessary and complementary concept, "social network". Social network may be viewed as the medium whereby social support is given or received. Wellman (1981:173) states, "a support system is a social network: a set of nodes (e.g., persons) connected by

a set of ties (e.g., relations of emotional support)." This definition encompasses the notion of a system, actors within it, and the relations between them. Turkat (1980) outlines that a social network may consist of groups such as immediate family, friends, neighbours, co-workers etc., who provide guidance and support during periods of stress.

Gottlieb (1981a:32) reviews the definitions of social support in the literature and explains that three meanings of social support appear to be prevalent. The first, the macro level, concerns people's levels of social integration/participation with institutions, voluntary associations, and informal social life of the community. The second, the mezzo level, concerns people's interactions in a social network with particular structural properties, a distinct social aggregate. Thirdly, the micro level, involves people's access to resources within their more intimate peer relations bound by confiding social ties. Two clear warnings are made, however, regarding meaning and definition within the literature. Gottlieb (1981a:33) states that the whole area of social support is in a "chrysalis state", that valid and reliable measures and instruments are only in their infancy, and that little confidence can be attributed to the role that social support has in moderating stress in people's lives. The other warning is in regard to the imprecision in the features and definitions of social networks with regard to network analysis (Pilisuk and Froland, 1978; and Wellman, 1981). In particular Wellman (1981) points out the oversimplification of the nature of ties and networks, since they may be supportive or nonsupportive; indirect or direct; more or less dense; voluntary or involuntary; reciprocal or one way. The list can be extended, using terms utilized by Pilisuk and Froland (1978), to indicate the diverse nature of social support, since

it can be differentiated by frequency; duration; symmetry; intensity; intimacy; and multiplexity. These problems need to be borne in mind when considering the rest of this review.

How is Social Support Measured?

In spite of the above definitional problems, attempts have been made to measure social support, albeit sometimes crudely. Wellman (1981:172) outlines the use of, "the number of ties in a social network, the frequency of contact with network members, and the differential presence of kin or friends in these networks", as relatively successful methods of measuring social support. An example of this type of measurement would be the survey carried out, by Boothby et al (1981), with regard to reasons why people cease participating in sports activities. Analysing their data by content analysis, they found that 138/763, or 18%, of the reasons could be subsumed by the term "state of social networks". This proportion is even greater if allied areas are also used (courtship, marriage, domestic commitments), which the authors put under the rubric "force of constraints and commitments", since the numbers are then 279/763 or 36.6%. Utilizing the results given under the main heading "Social", this number leaps to 464/763 or 60.8%. Quite clearly these figures support the contention that lack of social support is an important factor in the reasons why people cease participating in sports.

Other social support measuring instruments reported have been constructed by the researchers specifically for their study (e.g. Lin, Ensel, Simeone and Kuo, 1979; and Wilcox, 1981), or, were a combination of other related scales or subscales (e.g. Wandersman, Wandersman and Kahn, 1980; and Oxley, Barrera, and Sadalla, 1981). An attempt has been

made by Barrera, Sandler and Ramsay (1981) to construct an instrument for measuring social support, the Inventory of Socially Supportive Behaviours (ISSB). However, the authors suggest that further research is needed to substantiate its utility, especially since it was developed utilizing a single subject population, college undergraduates in psychology.

How Does Social Support Work?

As already mentioned, Gottlieb (1981a.) warns that the role of social support is not yet clear. However, several reasons have been put forward as to why social support has effects on people's behaviours. Gottlieb (1981b.) discusses social support in the context of a systems perspective in fact, the label social support system is not uncommon (e.g. Caplan, 1974, cited in Gottlieb, 1981b.; Barrera, Sandler and Ramsay, 1981; Froland, Pancoast, Chapman and Kimboko, 1981; and Mitchell and Hurky, 1981). In this respect the social support system can be viewed as mediating, for the individual concerned, the turbulent external environment. However the problem, as Gottlieb (1981b.) describes it, is that though the systems perspective is often utilized, the concommitant definitions of the boundaries, and the structural properties of the system are not adequately explained.

A common explanation for the efficacy of social support is the buffering hypothesis. Wilcox (1981), in reviewing the literature concerning how social support works, found that many authors were in agreement with Cassel's (1974:478, cited in Wilcox, 1981:372-373) statement that social supports serve as, "protective factors buffering or cushioning the individual from the physiologic or psychologic consequences to the stressor situation." Wilcox (1981) carried out research

to test this hypothesis. He found, using a collection of other's instruments, that the mediating or buffering effects of social support were supported. Due to the correlational analysis used, Wilcox (1981) cautions that competing hypotheses might explain the results. He maintains that,

> "Variables such as self-esteem and social competence might possibly account for the present results. For example, it could be that deficits in self-esteem produce the elevated levels of psychological distress for undersupported persons. Additionally, low self-esteem might account for the lower levels of support they report" (Wilcox, 1981:383).

These ideas are echoed by Caplan, Robinson, French, Caldwell and Shinn (1976) who suggest that the influence of social support is indirect, being mediated by other variables e.g. self-esteem. It is interesting that Caplan et al. (1976:39) operationalized social support as, "any input directly provided by another person (or group) which moves the receiving person towards goals which the receiver desires." Note that self-esteem, social competence and goal attainment have all been found to be important variables, when considering intrinsic motivation and adherence to physical activity. (See previous sub-section on motivation.)

A number of other explanations have been suggested by a series of authors as to why social support works. Wandersman, Wandersman and Kahn (1980) identify the following explanations: it provides the opportunity to engage in social comparison; it fulfills the need for affiliation; it counteracts feelings of isolation and alienation; and it emphasizes personal identification. Further explanations are provided by Berger and Wuescher (1975) who note that social support serves the basic social needs of intimacy, social integration, nurturance, reassurance of worth, and dissonance reduction. Parallel concepts such as

social interaction, social comparison, need for affiliation, self-esteem and perceived self-competence were shown to be important in adherence to physical activity. Therefore it would seem reasonable to assume that social support would increase adherence to physical activity.

Although it is unlikely that physical activity programs produce the types of stressors indicated in the medical social support literature, the concept of stress can be applied to the physical activity situation. This is especially so for people who are changing to a more active life-style, and to people who are unfit, who suddenly involve themselves in vigorous physical activity. In these situations, stress is likely to arise (change in routine, sore muscles) and social support may be an effective means of reducing or coping with the levels of stress encountered. In addition social support would appear to provide some basic social needs, and increase the quality of involvement, in physical activity.

How Has Social Support Been Implemented?

An important component of implementing social support is, identifying, and then mobilizing the support of significant members of the social network (Turkat, 1980). This relies, therefore, on members of the natural network, and since this will mean some personal sacrifice, the willingness of the members becomes a crucial concern. Turkat (1980) suggests that an alternative, to natural networks, is the formation of devised networks composed of volunteers, paraprofessionals, religious leaders or people with similar problems. A problem with this sort of network is that individuals, utilizing temporary networks, face the problem of becoming isolated when the network withdraws. This is the case when an individual joins or becomes involved in a short term

activity group such as a short term physical activity class and is one important reason why people do not persist in exercises once the classes finish. In spite of this problem the multitude of self-help groups, referral centers, drop in centres, etc. testify to the popularity of temporary or devised networks.

Social support interventions can be categorized in two ways, those focusing on improving the quality of support, and interventions that foster contact with similar peers (Gottlieb, 1981b.). An example of the former type of intervention was the campaign "Have you hugged your kid today?" which used bumper stickers. This campaign attempted to make parents aware (by education) of the quality of support they were giving to their children. A parallel type of campaign has been carried out by Participaction and other mass media physical fitness campaigns. An example of the second type of intervention is the formation of groups with similar problems, e.g. alcoholics anonymous. People who enroll in physical activity programs often express similar reasons for joining and therefore an opportunity is presented for utilizing a social support intervention to help achieve the similar goals. After reviewing interventions aimed at increasing the quality of support given, Gottlieb (1981b.) states two methods of overcoming past weaknesses in the use of social support interventions. The first is, that assessment of prevailing forms and impact, of social support, should be carried out to guide the subsequent actions, to improve that support. In other words social support cannot be improved unless it has been identified and evaluated. Secondly, the structural components must be taken into consideration, through correctly identifying who is significant to the person to be supported, ensuring that the intervention spreads to the

"significant others" or a good proportion of them, and to guage the appropriateness of the approach being used.

The intervention approach of bringing similar peers into contact with each other, is well exemplified by self help groups. A problem with this approach is that important personological variables intervene, (e.g. coping styles, attitudes toward help seeking and social skills), and make it difficult for meaningful interactions to take place (Gottlieb, 1981b.).

In a study of 30 agencies, Froland, Pancoast, Chapman and Kimboko (1981), found 5 strategies being utilized to implement social support (See Table 1, page 63). The strategies were: a personal network intervention which focused on the individual's own personal support system; a volunteer linking network where matched individuals were paired; mutual-aid networks composed of individuals with common problems; a neighbourhood helper strategy, where central figures in the neighbourhood who were informally involved in support, were helped to continue their support; and community empowerment, where existing informal opinion leaders were brought together to facilitate community support services and resources.

Family Support

A problem exists with identifying what a family is, since there are nuclear families, extended families, single parent families, foster families, married families, common-law families and so on. Whichever way "family" is viewed it can be perceived as a system, with interdependent parts that have relational ties with each other. The key elements in any family are the "parent(s)". In terms of importance to physical activity participation and adherence, both Heinzelmann and Bagley (1970)

TABLE 1
Strategies Being Utilized to Implement Social Support

APPROACH	STRATEGY	ACTORS
Personal network	o consult with client's significant others; support existing efforts o convene network of providers and family, friends, and others to resolve problems o expand client's range of social ties	o family members, friends, neighbors, service providers
Volunteer linking	o provide lay therapists for counseling o establish companionate relationships o recruit and link volunteer advocates to clients	o citizen volunteers o people with skills, interests relevant to client's needs o people with similar experience
Mutual aid networks	o establish peer support groups o consult with existing groups and support activities	o local religious associations o clients with similar problems o people with shared concerns
Neighborhood helpers	o establish consultative arrangement with neighbor to monitor problems o convene neighbors to promote local helping	o neighbors o clerks, managers in local businesses o religious leaders
Community empowerment	o establish local task forces for meeting community needs o provide for community forums to have input into local policies	o opinion leaders in local business, religious institutions o members of local voluntary associations o neighborhood leaders

(From Froland, Pancoast, Chapman and Kimboko, 1981)

and Andrew and Parker (1979) found that spouses had an important role to play. In the former study, the researchers found that 80% of husbands, whose wives had positive attitudes toward the exercise program, had excellent patterns of adherence, whereas a smaller portion of husbands (40%), whose wives had neutral or negative attitudes, had the same excellent adherence patterns. Franklin (1978) suggests that spouses should be included periodically in the program, especially in a social manner, so that positive attitudes are more likely to prevail thereby facilitating adherence.

Another family factor which effects support is that of the family life cycle. Marriage and parenthood decrease the proportion of leisure activities carried out alone or with friends (Kelly, 1978). Role constraints are cited as the most compelling reason to engage in leisure activities with one's family but, this constraint does not affect the perceived satisfaction from these activities (Kelly, 1978). In their study on barriers to leisure enjoyment and family stages, Witt and Goodale (1981) found that the barriers varied in a non-linear fashion with family stage, and that family stage explained a small percentage of the variance found. This study highlights the need to consider families as individual groups, which means that family social support interventions may apply to one family, but not to another, in leisure situations.

A factor, within families, that has effects on social support, is family cohesiveness. This factor can be described in terms of marital interaction (e.g. Orthner 1975 and 1976).. Orthner (1976) found, however, that even families with higher degrees of conflict can have high amounts of marital interaction, though the probability is much

less. In particular, the best indicator of increased leisure interaction was open communication, rather than role sharing, and that marital interaction decreased with the presence of children. West and Merriam (1970) found that outdoor recreation activities appeared to promote family cohesiveness, which might indicate more social support within families who participate together in outdoor activities. If any particular member of the family, then decided to become involved, singly, in an activity, considerable family stress might occur. Using a systems perspective, it is possible to theorize what would occur if a family member changes his/her behaviour.[3] Since the parts of a system are interdependent, and as systems move toward homeostasis, any change effected by one member of the family, has ramifications for what the others do in response. Montgomery (1981:5) describes this in the following manner,

> "Families stabilize with a certain internal state, a particular set of dynamic patterns. When this state and these patterns are disturbed, the family attempts to re-establish them and thereby regain homeostasis."

No family is a completely closed system, and the more open it is the greater the amount of communication that can occur. In order for one family member to take part in the outside activity, the other family members must be willing to revise their behaviour and support that person. This can be illustrated by the example of a family situation where the mother becomes involved in an evening physical activity program. In order for her to regularly attend, the husband and children

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[3] This explanation of family change makes considerable use of Montgomery, J. Family Crisis as Process: Persistence and Change. Washington: University Press of America, 1981:1-8. It should be noted however that the context has been changed to one of physical activity, not divorce, death, etc. that Montgomery describes as family crises.

must compensate for her absence (e.g. help with meals, cleaning up, putting young children to bed, allowing her the exclusive use of the family car for transport on that night). Therefore it is important to involve the whole family in any decision where a member of that family decides to become physically active.

Within the context of leisure socialization, the importance of parents and family has been clearly documented (Snyder and Spreitzer, 1976; McElroy and Kirkendall, 1980; and Overman and Prakasa Rao, 1981). With regard to sport and leisure socialization, supportive families, especially fathers for boys and mothers for girls, play a large role in determining attitudes to self, motivation to participate and enduring activity life styles. These factors then become important in regard to adherence to physical activity later in life since they affect variables such as self-esteem and perceived competence.

Buddy Support

Another frame of reference, to use when considering social support, can be labelled buddy, friend or peer support. In particular, it can be considered from a dyadic perspective, though it might also be considered from a small group perspective. Within physical activity settings, the use of buddy pairs has been suggested by Wanzel (1977) and Wankel (1979), among others.

Having friend or buddy support was found to be very important in the study carried out by Wanzel and Danielson (1977). They found: a sex difference, females exercised more often with friends (61.9%) than did males (25.8%); an age difference, younger males and females (under 25) were inclined to exercise more with friends than were older participants (36% compared to 25% for over 45's); a job status difference,

clerical workers exercised more with friends (40.9%) compared to management (15.4%); and goal attainment, for the under 25 group, 62.5% who exercised with a friend attained their goal(s) whereas 18.2% of those who exercised alone attained their goal(s). Therefore, it would seem, buddy support could be better utilized to effect adherence, but within a selected frame i.e. with younger females who are not in managerial positions. In addition, the large effect on goal attainment would, in the light of previous literature, have large effects on adherence to the program.

Buddy groups have been successfully used with schizophrenics (Otteson, 1979) and with smoking cessation groups (Hamilton and Bornstein, 1979). The study by Otteson (1979) reported positive effects in reducing recidivism which might be construed as evidence for the efficacy of buddies in physical activity settings since one buddy could similarly help the other if he/she were contemplating dropping out of the exercise class. The Hamilton and Bornstein (1979) study is interesting for two aspects. Firstly the adoption of buddies was part of a wider social support setting which included a group of peers, leader or professional support, public contracts, and successful abstainers who were utilized as leaders in follow-up programs. Social support and being involved as a leader in another program were found to have significant ($p < 0.01$) effects on maintenance at three months, though by six months these effects were considerably less. The Hamilton and Bornstein (1979) study also utilized telephone calls between buddies as part of their support program which is a form of support that Turkat (1980:104) views as being, "an appropriate and economical method for the operations of a devised social network."

Some support for the probability of mediators effecting buddy support, has been reported by O'Donnell and Fo (1976), in a study with deviant youths. They found that relative locus of control i.e. the difference between the buddy dyad's locus of control scores was an important factor influencing the effectiveness of buddy system. In particular if one of the pair was highly external compared to the other, the desired target behaviours (goals) were less likely to be attained for the more internal person.

Buddy influence is pervasive in the leisure socialization literature, where it is indicated that peers, friends, and co-workers play an important role in effecting leisure behaviours. In particular, this influence appears to function as a result of positive social comparison and social feedback (Evans, 1974; Evans and Lavoie, 1978; and Heaps, 1978). Heaps (1978:404) considers that this process of comparison and feedback has, "the effect of increasing the relationship between a person's fitness self-estimate and personal self-attitudes," therefore social comparison would have positive effects on physical activity adherence.

Kanfer (1979), when reviewing literature on altruism or prosocial behaviour, found that prosocial behaviours can serve as the basis for self-reinforcement, increased self-esteem, and self-efficacy, i.e. enhancing the well-being of another promotes those feelings within the person exhibiting the prosocial behaviour. These ideas correspond with the concepts perceived competence, self-esteem, intrinsic motivation and self-efficacy which have been demonstrated to be important in the initiation and persistance of physical activity behaviour. Therefore it would seem reasonable to assume that being involved in a social support

system would increase these important internal factors and therefore increase adherence to a physical activity program.

Group Support

Continued involvement in physical activity has been found to be positively associated with interacting in a physical activity group (Massie and Shephard, 1971; Heinzelmann, 1973; Faulkner and Stewart, 1978; and Brawley, 1979). Brawley (1979) identifies a number of motivational factors which appear to be involved in effecting continued participation in fitness groups. They are: the development of a group motive which develops over time and can be enhanced through discussion; the feeling of belonging that indicates group solidarity and therefore increases the attractiveness of the group, to the individual, which in turn motivates the individual to identify with the group; the presence of social obligation which increases as solidarity and cohesion improves; social environmental factors which mediate interest and participation (e.g. car pooling, buddy phoning, variety, etc.); and the fitness group achievements or successes which allow for consequences such as social comparison and modelling to develop.

Cohesiveness in sports situations has been indicated as important in terms of how the team performs (e.g. Widmeyer and Martens, 1978; and Carron and Chelladurai, 1981). Carron and Chelladurai (1981:123) utilize concepts developed by Kurt Lewin to describe cohesion as, "activity concerned with the development and maintenance of the group." They found, in their study, that cohesion is a multidimensional construct, with five individual measures which contributed significantly to the variance (sense of belonging, value of membership, enjoyment, teamwork, and closeness). A variable which showed consistency across

the two sport types studied, (basketball, an interdependent sport and wrestling, an independent sport), was task motivation which reflects a strong goal orientation, a factor which has been reported as important in physical activity groups (Wanzel and Danielson, 1977; and Brawley, 1979). It seems reasonable to assume, therefore, that physical activity group cohesiveness would be important in maintaining members' interest and attendance in that physical activity group.

The self help literature reviewed by Levy (1977) gives an insight into the psychological processes which mediate the effects that groups have on their members. He found two types of psychological processes at work, the behavioural and the cognitive. Each is now briefly reviewed since they expose features of group programs that should be emphasized to help increase the positive effects of groups and help enhance commitment to the group's activities. The behavioural processes were: direct and vicarious social reinforcement; the promotion of self-control behaviours; provisions of models which helped cope with stress; and provision of means to change their own social environment. The seven cognitive processes identified which were: provision of a rationale for their problems and distress; provision of normative and instrumental information and advice; extension of the range of alternatives the members might use to cope with their problems; enhancement of the members' discrimination of stimuli and events in their lives; provision of support for changes in attitude; reduction in the members' sense of isolation about their problem being unique; and facilitation of the development of new identities and norms upon which members could base their self-esteem. Although, these psychological processes might appear more pertinent to changes in behaviour related to psychological or drug

(alcoholic, narcotic or smoking) problems, they are also processes which take place in groups such as physical fitness groups. The changes in behaviour may not be so large or traumatic, but the promotion of a positive, helping atmosphere within the group should help to moderate the stresses and strains of adherence to a fitness regimen. These processes (behavioural and cognitive) could be promoted within a social support framework and thereby facilitate attendance in a physical activity class.

Leader Support

The leader plays a central and crucial role in any group. Some leadership considerations have already been discussed in an earlier section and they apply equally well to the notion of leader support. In addition however, the leader is important, in a group, to facilitate the necessary interactions which promote social support. Both Franklin (1978) and Brawley (1979) promote the role of the leader, in a physical activity group, as being a vital component in the attainment of group solidarity, motivation and goals.

The leader's support extends to the individual as well, as evidenced by the finding of Heinzelmann and Bagley (1970), that adherents (32%) reported organization and leadership as one of the reasons that they had stayed in the physical activity program. Faulkner and Stewart (1978) report a lower figure, 18.2%, for program leadership and format, as being important for continued attendance. Franklin (1978:15) points out that, "sincere encouragement from the exercise leader may often be sufficient to carry the person through the 'I want to quit stage'". He offers, amongst other alternatives, the method of telephoning participants, especially if they have missed a session or two, a method which Faulkner and Stewart (1978:27) advocate as well.

The exercise class leader can have a detrimental effect as well, as noted by Wanzel and Danielson (1977) and it is worthy to note that although 69.6%, of those surveyed in their study, felt that the leaders should motivate participants this figure leaves just over 30% indicating otherwise. So Wanzel and Danielson (1977:36) go on to say,

> "some people respond well to motivation by an instructor. Others work best with a friend's encouragement, while still others respond best to peer group motivation."

Obviously it is best to find out just how each participant responds to different forms and sources of motivation or support. This idea closely fits with the idea expressed by Diane Abbey-Livingstone (1980:35), in her address, at a fitness counselling workshop. She stated that counselling in that context was, "The provision of support and a relationship through which a client can develop and carry out realistic and appropriate action plans for improved fitness." She emphasized this point further by pointing out that, "not all clients need counselling" (Ibid:35). The same might be said for social support, and that an empathic leader is one who is able to best structure support to the client's needs and desires.

Summary

There appears to be strong support for the use of an interactionist approach when researching human behaviour, though this necessarily means that the analysis and understanding of the causes and consequences of that behaviour will be difficult and complex. In the context of a physical activity program, therefore, the use of an appropriate personality instrument (SMI) in conjunction with an experimental intervention, seems to be warranted. A myriad of factors have been identified as being important, when considering physical activity

adherence, but the use of a structured social support system (including family, buddy, group and leader support) would seem to be a useful method to combat the dropout problem. In the light of past problems concerned with identifying appropriate methods for behaviour change, a comprehensive evaluation of the importance and benefits of a structured social support intervention, should be undertaken.

CHAPTER III

METHODOLOGY

METHOD

The Sample

The population consisted of participants pre-enrolled in the 10 week, YMCA "Fitness Fantasia" aerobic dance program, winter, 1982, in Edmonton, Alberta. The sample drawn, from this population, was delimited to those female exercise class participants who attended the first night of the exercise class, completed and returned a SMI and permission form, and fell within the SMI motivation levels (high, medium, low). There were originally 20 classes, offered at various locations throughout the city, but two were cancelled prior to the start of the program due to the unavailability of aerobic dance instructors. A further two classes had to be deleted from the study after the commencement of the activity program. One, was deleted due to a problem with instructor availability and improper SMI distribution within the class. The second was deleted due to instructor-participant incompatibility and a refusal on the part of some class members to comply with the experimental intervention.

There were 7 experimental class locations and 9 control class locations. Two experimental classes, led by the same instructor, were held at the same location at the same time on two different days. Since a large proportion, (46%), of the subjects were registered on both days, the groups were collapsed for analysis purposes, resulting in 6 experimental groups.

Drawing from the total population of Fitness Fantasia classes (N=498), a study population was derived by the following deletions:

those classes where the intervention was unsuccessful (subject N=61); those subjects who were male (N=11); those subjects who did not answer a SMI questionnaire (N=52); those subjects who missed the first class and therefore did not receive the social support intervention from R_1 or R_2 (N=41). Therefore the study population contained 333 subjects meeting the study's criteria, outlined above. The study's population was further reduced, from those 333 subjects, using the following criteria: those "high" self-motivated subjects whose SMI scores were greater than or equal to 160; those "medium" self-motivated subjects whose SMI scores were greater than or equal to 137 and less than or equal to 154; those "low" self-motivated subjects whose SMI scores were less than or equal to 132. This left a total of 288 subjects classified by the labels high, medium or low self-motivated. The cut off points were derived by the criteria that subjects for the final sample were to be drawn from each class location. One final criterion was used to derive the study's sample. In order to assure that any differences in SMI effects would not merely be due to the effects of different class locations, equal numbers of high, medium and low, self-motivated subjects, from each class location, were randomly drawn. This resulted in a study sample of 186 subjects with 35 subjects in each of the control categories (high, medium, low) and 27 subjects in each of the experimental categories (high, medium, low).

The Setting

The fitness program was based on the "Fitness Fantasia" aerobic dance series developed for the YMCA. The classes were held for 10 consecutive weeks, beginning the week of January 18th, 1982. The exercise classes met for a 1¼ hour period, once a week, at a local school gymnasium or community league centre.

The fitness program was relatively standardized across the venues, in that the volunteer instructors had all attended at least one training workshop, held over a weekend. Almost all had also attended previous training workshops, as well as having had previous aerobic dance or fitness class experience. The "Fitness Fantasia" program is a standardized format, with a series of dance routines set to modern "pop" tunes, which are progressively introduced and learnt over the 10 weeks. This formed the basis of the aerobic dance classes, but instructors were actively encouraged by the supervisor of the YMCA program to include new material and routines, to help maintain participant interest. Half-way through the 10 week program almost all the instructors met, to share new ideas and music, with each other. Therefore, within the limits of field experimentation, the exercise class format was controlled. Basically, each exercise class consisted of a warm-up period, aerobic dance routine period, a section devoted to muscular strength and endurance, and a warm-down period. Participants were given standardized age target heart rates, which they used during the exercise class as a monitoring tool, to ensure that their heart rates were between 70% and 85% of the estimated maximum heart rate for their age. Heart rates were also used as monitoring tools during the warm up and warm down period. Each class included an educational component, where the instructors provided information on a variety of topics, eg. nutrition, proper exercise habits, and exercise shoes. Participants were also encouraged to do "extra" activities at home, since one aerobic dance class a week wasn't sufficient to improve their cardiovascular efficiency. To this end, several handouts were given out in the earlier classes, and instructors provided information through class discussion.

The Instruments

Self-Motivation Inventory. The SMI, (See Appendix One), is a 40 item, Likert-type, 5 point scale, designed to measure self-motivation. There are 21 negatively stated, and 19 positively stated items, distributed through the questionnaire. The points, for each item, range from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). The scoring for negatively stated items, is therefore the reverse of the positively stated items. Consequently, the range of possible scores is from 40 to 200, the higher the score, the more highly self-motivated the subject is said to be. According to the instrument's authors, (Dishman, Ickes and Morgan, 1980), the SMI is reliable, logically valid and internally consistent and "the best discriminator of adherence behaviour when compared to other conceptually relevant psychometric variables" (p.129).

Permission form. The permission form, (see Appendix Two) was designed to be used in conjunction with the SMI. The permission form named the researchers, the type of data required, an assurance of the subjects anonymity and a space for the subject's signature, the date and the class location.

The experimental intervention booklet. The experimental intervention booklet A Winning Combination: Physical Activity and You, (see Appendix Three), was developed by Dr. L. Wankel and this writer,

expressly for use within exercise programs where social support was being reinforced, or, where missing, instigated. It consisted of:

(a) A cover containing a picture of people, physically involved, in a variety of activities,[4] and the title.

(b) Four pages, outlining psychological and physiological benefits of regular physical activity.

(c) One and a half pages, explaining what the drop out problem is and how it may be alleviated.

(d) Four and a half pages, delineating what the structured social intervention included i.e. family/friend support, buddy support, group support and leader support.

(e) Two pages, detailing how the social support program would be set up and continued, in the exercise class, and how participants might establish family/friend support, at home.

The attendance and social support chart. The attendance and social support chart (See Appendix Four) was provided for each experimental subject to take home and place in some conspicuous place. It consisted of:

(a) A short introduction pertaining to the importance of using the chart.

(b) Brief directions on how to fill out the chart correctly.

(c) Spaces for names and phone numbers of buddy pairs.

(d) A week by week grid with spaces for recording attendance, buddy support given and received, family/friend support received and a class social support.

The chart was printed on white, 8½ inch by 11 inch, light cardboard.

The exercise class wall chart. The wall chart (See Appendix Five), which was provided for each experimental exercise class, was

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[4]The writer would like to record his appreciation, to the Ontario Ministry of Fitness and Culture, for permission to use the front page which was originally part of the publication Physical Activity Patterns in Ontario: A Research Report from the Ministry of Culture and Recreation.

placed on a wall each week, in a conspicuous place, at the class location. It consisted of:

(a) A title, indicating that it was an attendance and buddy support record for the exercise class (name and location).

(b) A week by week grid, with spaces, for buddy pairs or groups to check whether they attended the class, and whether they had received buddy support prior to that class.

The wall chart was drawn on pale yellow, 29 inch by 22 inch, medium weight Bristol board.

The exercise class graph. The exercise class graph (See Appendix Six), which was provided for each experimental exercise class, was placed adjacent to the class wall chart each week. It consisted of:

(a) A title, indicating that it was an attendance and buddy support graph for the exercise class (name and location).

(b) A [redacted]ith the number of weeks recorded on the abscissa and [redacted] number of attendance at class and buddy support prior to class recorded on the ordinate.

The class graph was drawn on pale yellow, 24 inch by 12 inch, medium weight Bristol board.

The experimental instructors instruction sheet. The experimental instructors instruction sheet, (see Appendix Seven) was designed to introduce the structured social support program to the instructors. The instruction sheet also provided the instructors with a plan on how to implement the structured social support program in their exercise class. It consisted of:

(a) An introduction, emphasizing the simplicity of the structured social support program and the need for their positive cooperation.

(b) A statement of general approach to the exercise class.

(c) Contact phone numbers of the researchers, in case of any problems.

(d) A brief plan for implementing structured social support in the exercise class.

(e) A statement regarding the need for leader support including the names, locations and phone numbers of the other instructors using the structures social support program.

Experimental subject evaluation questionnarie. The experimental subject evaluation questionnaire (see Appendix Eight), was designed to provide feedback from the experimental subjects to the researchers, on the social support program. It consisted of:

(a) A title.

(b) A brief reason for the questionnaire.

(c) A practice, Likert type, 7 point scale.

(d) Four general questions (2 open ended, and 2, 7 point Likert type).

(e) 8 double questions (7 point Likert type) relating to a specific aspect of the program and concerned with:

(i) A rating of the amount of effort the subject put into that aspect of the program.

(ii) A rating of the benefit received from that aspect of the program.

The questionnaire was printed on both sides of a single sheet of 8½ inch by 11 inch paper.

Experimental instructor evaluation questionnaire. The experimental instructor evaluation questionnaire, (see Appendix Nine) was designed to provide feedback, from the experimental instructors to the researchers, on the social support program. It consisted of a series of open ended, prompt questions which could be tape recorded by the researchers.

The Design

The structured social support field experiment may be described as a 2 x 3 factorial experiment, the factors being program treatment (Experimental or Control) (factor A) and the level of Self-Motivation

(high, medium, low) (factor B). The dependant variable being assessed was attendance of the exercise program. Diagramatically the design of this study may be represented as follows in Figure 2.

		SMI Level (B)		
		Low B1	Medium B2	High B3
Treatment (A)	Control A1	CL (N=35)	CM (N=35)	CH (N=35)
	Experimental A2	EL (N=27)	EM (N=27)	EH (N=27)

Figure 2.
The 2 x 3 Factorial Design

Due to the provision of the experimental treatment within the exercise class context, subjects were not assigned to treatments in a "true" random fashion. Rather, exercise classes were randomly assigned to the E or C condition, and then subjects, from the appropriate SMI groups, within each class, were selected for inclusion in the study. To control the possible extraneous exercise class effects on attendance, within the SMI variable, the same number of high, medium and low SMI subjects were utilized from any given class.

PROCEDURES

Preparation Phase

This section describes the procedures prior to the fitness program starting, i.e. before January 18th, 1982.

Initial contact. The two researchers[5] met with the supervisor of the YMCA-"Fitness Fantasia" aerobic dance program, to solicit information about the fitness program, and to gain her support, for the structured social-support intervention. On securing the necessary information, and support, the meeting was concluded with a decision to introduce the structured social support experiment, to the exercise class instructors, at the forthcoming instructor's weekend workshop.

Assignation of groups to conditions. A completely random assignment of groups to the experimental and control conditions was not possible due to several confounding factors. Four of the exercise classes were run during the daytime, so, after randomly drawing two exercise classes, the remaining two were assigned to the control group. However, one instructor taught two daytime exercise classes. Upon randomly drawing one of her classes first, the researchers were forced to assign her other class to the same condition, to prevent experimental condition contamination into the control condition.

The remaining 16 exercise classes were distributed amongst Monday, Tuesday, Wednesday and Thursday evenings. In addition, they were identified geographically as being from four quadrants of the city, north, south-east, south-west and west. This quadrant distinction is due to the meandering nature of the North Saskatchewan river, and is the notation used by the Edmonton YMCA and City of Edmonton Parks and Recreation Department (the latter also includes a small central region). To

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[5]In order to distinguish between the two researchers, the notation R_1 will be used to indicate Mr. J. Yardley and R_2 will be used to indicate Dr. L. Wankel, the principal researcher of the Government of Canada, Fitness and Amateur Sport Research Grant Number 265-0003-1.

balance the experiment temporally and geographically, the 16 exercise classes were randomly drawn and alternately assigned to the experimental or control condition. If either of the conditions received half of the exercise classes, that had been identified as being the same temporally or geographically, the rest of those temporal or geographic exercise groups were automatically assigned to the other condition. This procedure not only enabled control for the above factors but also some naturally occurring variations, eg. adverse weather, (this was a winter program), would equally affect attendance in the experimental and control conditions. A further problem affected the final assignment of classes. Twin sisters, who lived together, were teaching different exercise classes, which necessitated them being placed in the same intervention condition. Therefore upon randomly drawing one sister's exercise class, the other was automatically assigned to the same condition.

Initial exercise class instructor contact. One of the researchers (R_1) met with all the exercise class instructors, on their first day of the weekend workshop. The fitness program supervisor introduced the researcher (R_1), to the exercise class instructors, in a manner which indicated that she and the YMCA supported the study. The researcher (R_1) then outlined his requests to all the exercise class instructors. The following is a brief summary of the points covered in this interaction:

(a) Identification of the study as being, supported by Fitness Canada, implemented through the University of Alberta, carried out by the two researchers, and that the exercise class instructors cooperation was sought so that the study might take place.

(b) A brief introduction to the exercise class instructors of the mediating factors involved in attending, and staying in an exercise class, in particular the factor of motivation.

(c) Introduction of the SMI and what it was purported to measure. At this stage the exercise class instructors picked up the packaged SMI's and pencils for their class and read the questionnaire. A short discussion was then instigated in regard to, the type of instrument that the SMI was, and how it was to be filled out.

(d) The procedure that the instructors were to follow, for administering the SMI. It was pointed out that the procedure was outlined on the front of each package. (See Appendix Ten for the procedure for the distribution of SMI's.)

(e) All exercise class instructors were asked to attempt to keep their attendance records as accurately as possible.

(f) Time was given for the exercise class instructors to ask questions of the researcher, which were duly answered.

(g) The initial meeting was concluded by the researcher (R_1) thanking the exercise class instructors for their co-operation. It was also mentioned that the researcher (R_1) would be in telephone contact with them, following their first exercise class, to arrange to pick up the completed questionnaires.

Experimental exercise class instructor meeting. The fitness program supervisor was given the list of experimental exercise class instructors,[6] on the first day of the workshop, and was asked to approach these E instructors to solicit their cooperation in a further part of the study to be explained at the end of the second day of the workshop. Both researchers (R_1 and R_2) met with the E instructors to explain, in detail, what the experimental intervention entailed. Due to a variety of reasons, only three of the E instructors were able to remain after the workshop. Alternative arrangements were made to meet

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[6]For simplicity, throughout the rest of this document, the experimental exercise class instructors will be referred to as the E instructors and the control exercise class instructors will be referred to as the C instructors.

with the remaining E instructors, individually, and at their convenience. The procedure used to explain the social support intervention was very similar to that used at the initial exercise class, with the exercise class participants (see following section). The only differences were, that the researchers (R_1 and R_2) presented the material together, had more time at their disposal and therefore were able to go into more detail, and, that the role of the E instructor was discussed, using the E instructor instruction sheet (see Appendix Seven for the E instructor instruction sheet).

Data Collection Phase

This section describes the procedures carried out during the fitness program i.e. January 18th, 1982 to March 25th, 1982.

The experimental intervention introduction. Each E instructor made available the last fifteen minutes of his/her exercise class so that the exercise class participants could be given the social support intervention and also so they could complete the SMI's which were then collected. The E instructors introduced the researchers (R_1 and R_2) to the exercise class by name, explaining that the researcher (R_1 or R_2) was present to introduce a program, that the YMCA endorsed, which had been designed to help the exercise class participants maintain a regular pattern of attendance in class. In all but one exercise class, the same researcher (R_1) introduced the social support intervention. The exception arose due to two exercise classes being held at the same time. At one location, the second researcher (R_2) introduced the social support intervention using the written procedure that the other researcher (R_1) used in his presentations (see Appendix Eleven for the transcript of the social support intervention introduction procedure).

The following is a brief summary of the points covered in this interaction.

(a) Identification of the study as being, supported by Fitness Canada, endorsed by the YMCA, implemented through the University of Alberta, carried out by two researchers and that the participants' cooperation was sought, so that the study might take place.

(b) The booklet, A Winning Combination Physical Activity and You was distributed to the exercise class and briefly explained page by page, covering:

(i) some of the psychological and physiological benefits of regular physical activity
(ii) the "drop out" problem
(iii) social support generally
(iv) family/friend support
(v) buddy support
(vi) group support
(vii) leader support
(viii) setting up family/friend support
(ix) establishing the class social support program including buddies and the wall charts

(c) The subjects were asked to form buddy pairs or threes, any groups of four were asked to form pairs for the study. Any individuals were matched with pairs or other individuals at their discretion.

(d) The attendance and social support chart was explained to the class, and instruction was given on how to check it and where to post it at home.

(e) Several opportunities were given throughout the introduction so that the subjects could ask questions.

(f) The SMI's were distributed using the same procedures as those given to all fitness class instructors (see Appendix Ten).

(g) As the SMI's were returned participants were reminded to fill in the wall chart, recording their name, and their buddy's name, as well as their attendance. In addition, they were reminded to contact their buddy(s) before the next class.

(h) Those not wishing to participate in the study, were told to simply hand in their SMI's, without marking them.

(i) Any subjects who did not attend the first class and did attend the second class, were given the same introduction as outlined in (a) - (h) above but in each case the introduction was given by the E instructor.

Collection of SMI's. The great majority of the experimental intervention SMI's were collected at the first class, by the researchers (R_1 and R_2). During the day or evening following the first exercise class the C instructors were telephoned to ascertain whether the SMI's had been distributed and collected at that exercise class. Each C instructor was asked to distribute and collect the SMI's on the second night, to any new participants. In the case of two C instructors, the SMI's were not distributed at the first exercise class, so they were asked to give the SMI's to all second night exercise class participants. All the exercise class instructors (E and C) were telephoned, after the second exercise class, to make arrangements for the researcher (R_1) to collect incomplete and complete SMI's.

Monitoring the experimental intervention. Following the contact after the second exercise class, the researcher (R_1) made three more telephone calls to all the E instructors, i.e. every second or third week. During the telephone conversation the researcher (R_1) asked if there had been any problems, how the class structured social support program was proceeding, what the attendance rate was at that time and what feedback there was from the exercise class participants regarding the social support intervention. Every E instructor was telephoned, just prior to their last class, to remind them to hand out the experimental subject evaluation questionnaire, and to arrange for the collection of these and other instruments eg. wall charts, spare booklets, class attendance sheets.

Post Fitness Program Procedures

C instructor contact. The C instructors were telephoned immediately after their last exercise class to arrange the collection of

their class attendance sheets. The C instructors were at this stage given a short debriefing on the whole study. The opportunity was also taken to informally collect information about their fitness program, particularly whether the weather had had an effect on attendance, and if they had been able to instruct on each of their exercise class nights. They were also asked to indicate whether they had been able to mark their attendance sheets accurately.

E instructor contact. When the researcher (R_1) collected the attendance sheets, etc., an arrangement was made for the researcher to carry out a semi-structured interview. In all cases this was accomplished within eight days of the last exercise class. The interview was carried out face to face, using a tape recorder in all but one instance, where the E instructor preferred to be interviewed with the researcher (R_1) taking notes. The following is a brief summary of the main areas explored during the interview:

(a) The experience of the fitness instructor, in years, of fitness instructing.

(b) Their general impressions of this class compared to previous YMCA fitness classes they had taught.

(c) Their general impression of the social support program.

(d) Questions about the first night's introduction of the social support intervention.

(e) Their introduction of the social support intervention on the second night.

(f) Evaluations and feedback on:
  (i) the booklet, A Winning Combination: Physical Activity and You
  (ii) the exercise class wall charts
  (iii) in class social support program discussion
  (iv) group support in their exercise class

(g) Accuracy of attendance records.

(h) The most positive and negative aspects of the social support intervention.

(i) Changes, deletions, additions to the structured social support program if it were to be run again.

(j) How best to motivate instructors to utilize a structured social support program.

(See Appendix Nine for the transcript of the experimental instructor evaluation questionnaire.)

Evaluations by dropouts of the structured social support program. The attendance sheets were reviewed and the names of participants who did not attend the last exercise class were recorded. A random sample of these participants, was drawn so that each class was represented by 25 participants (class evaluation and telephone evaluation combined) and a telephone interview was conducted using the same format as the experimental subject evaluation questionnaire. Appropriate directions were given regarding the construction of a 7 point Likert-type scale on a piece of paper so that the respondents had a visual cue to relate to when answering the evaluation questions (see Appendix Twelve for the transcript used for the evaluations by dropouts of the structured social support program).

Debriefing exercise class instructors. All exercise class instructors (E and C) were mailed a form letter outlining the experimental and control conditions, the purpose of the study and generalized results obtained from the study. A contact phone number, of the researcher (R_1) was given so that all exercise class instructors could elicit further information if they so desired.

Analysis of the Data

Encoding of the data. All the relevant quantitative data were encoded into numerical form, key punched and placed in a computer data file. Qualitative data were tabulated by the question asked, for easy reference.

Assumptions of the data. It is assumed that the SMI data, collected by Likert-type scales, are interval data and therefore capable of being interpreted by analysis of variance. Similarly, the same assumptions, are made for the data collected by the experimental subjects' evaluation questionnaire. The attendance data are interval data. It is assumed that, the random assignment of groups to treatment conditions, the matching on geographic and temporal factors, the selection of sample subjects equally from high, medium and low groups and the similarity of the programs run at each class location allow the nested class location factor to be deleted, thereby facilitating analysis since some of the 102 cells were devoid of subjects.

Missing values in the data. Missing values for SMI totals, due to unanswered questions, were accounted for by deriving the mean for the total number of questions answered, and normalising by multiplying by 40 (the total number of possible questions). The maximum number of unanswered questions, for any one subject's questionnaire in the sample, was 3. Missing values for attendance totals, due to cancellation of classes or loss of attendance sheets, were accounted for by deriving the mean attendance for those subjects, using the number of days that, that particular class was held, or data were collected from. The maximum number of missing days for any one class was 2 days. Missing data for the evaluation questionnaires, due to unanswered questions, were accounted for by the SPSS ONEWAY program, where for that question only, the subjects lack of response is deleted.

Statistical manipulation of the data. The quantitative data were analyzed at the Computer Sciences Centre, University of Alberta, utilizing various programs from the Statistical Packages for the Social

Sciences (SPSS) and the Biomedical Computer Programs, P-Series (BMDP) package.

The data were analysed initially by the SPSS subprogram FREQUENCIES. The cut off points for the SMI totals were determined by visually scanning the class locations to ascertain the best values to meet three criteria. The first was, that each class location contribute to the SMI totals to be used. The second was, that each class location should provide equal numbers of high, medium and low SMI totals. The third, that the final SMI totals used correspond as closely as possible to the lowest, middle and highest 20% of SMI totals over the total useable data set. These criteria ensured that the data, being used, would be representative of the total useable data set.

The data were then submitted to the BMDP 2 way ANOVA. The descriptive statistics were derived from the BMDP descriptive statistics subprogram. The attendance data were evaluated over the total 10 weeks of the fitness program. They were also evaluated over the first and second five weeks in order to test for differential effects over the two time periods.

The evaluation data collected by class questionnaire and telephone questionnaire were submitted to the SPSS ONEWAY subprogram. Post-hoc analyses were carried out utilizing the Student-Newman-Keuls procedure set at the .05 significance level, to test for differences between class locations.

The open-ended questions from the participant evaluation questionnaires (telephone and class) and the E instructor responses to the E instructor questionnaire were edited, and appear in a precis form, in Appendix Thirteen and Appendix Fourteen respectively.

CHAPTER IV

RESULTS

Introduction

The results are presented in the order of the hypotheses stated in Chapter I, followed by the evaluations of the structured social support program by the exercise class participants and instructors.

Hypotheses One, Two and Three

The mean attendance and standard deviations, for the treatment groups, for the total ten weeks, and the first and second five weeks, are presented in Table 2. In each case the mean attendance of the experimental group is higher than the mean attendance for the control group.

Table 2
Descriptive Statistics for Attendance of Treatment and Control Groups

Treatment Group	Control Group		Experimental Group	
Attendance Period	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Total 10 weeks	6.02	2.64	6.77	2.56
1st 5 weeks	3.78	1.18	4.04	1.14
2nd 5 weeks	2.17	1.94	2.66	1.76
	N = 105		N = 81	

These attendance figures can be broken into their component groups on the basis of the participants' self-motivation levels. Table 3 presents the descriptive statistics for the attendance of the two treatment groups broken down by the three levels of self-motivation.

Table 3
Descriptive Statistics for Attendance of Treatment and Control Groups by SMI Level

Treatment Group	Control Group			Experimental Group		
SMI Group	Low	Medium	High	Low	Medium	High
Attendance Period	$\bar{X}$/S.D.	$\bar{X}$/S.D.	$\bar{X}$/S.D.	$\bar{X}$/S.D.	$\bar{X}$/S.D.	$\bar{X}$/S.D.
Total 10 weeks	5.95/ 2.76	6.26/ 2.47	5.87/ 2.70	6.92/ 2.54	7.21/ 2.28	6.17/ 2.85
1st 5 weeks	3.86/ 1.26	3.71/ 1.07	3.77/ 1.19	4.15/ 1.06	4.11/ 0.97	3.85/ 1.38
2nd 5 weeks	1.99/ 2.02	2.49/ 1.94	2.01/ 1.87	2.69/ 1.88	3.05/ 1.65	2.25/ 1.74
N =	35	35	35	27	27	27 = 186

There are no apparent trends, when the means of each group are observed for the whole ten weeks or for the first and second, five week periods. Compared to the control conditions the mean attendances are higher for all but one experimental case, the high SMI group for all attendance periods. To test for these differences 3, 2-Way Analysis of Variance tests were carried out, on the mean total attendance for 10 weeks, and the first and second five weeks. These results are presented in Tables 3, 4 and 5. The results show that there was a difference with a probability level of 0.06, between the treatment groups over the whole 10 weeks (Table 4). Over the first five weeks there is a difference,

between treatment groups with a probability level of 0.14 (Table 5). The difference between treatment groups over the second five weeks (Table 6), had a probability level of 0.07.

Table 4
2-Way Analysis of Variance for Total Attendance Over the 10 Weeks of the Fitness Program

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Total Probability
Main Effect (Treatment Group)	25.09	1	25.09	3.68	0.06
Main Effect (SMI Group)	15.57	2	7.79	1.14	0.32
Interaction (TxSMI)	4.38	2	2.19	0.32	0.73
Error	1228.42	180	6.82		

Table 5
2-Way Analysis of Variance for Attendance Over the First 5 Weeks of the Fitness Program

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Total Probability
Main Effect (Treatment Group)	3.00	1	3.00	2.20	0.14
Main Effect (SMI Group)	1.11	2	0.56	0.41	0.67
Interaction (TxSMI)	0.79	2	0.40	.029	0.75
Error	245.09	180	1.36		

Table 6
2-Way Analysis of Variance for Attendance Over the Second 5 Weeks of the Fitness Program

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Total Probability
Main Effect (Treatment Group)	11.33	1	11.33	3.25	0.07
Main Effect (SMI Group)	12.74	2	6.37	1.83	0.16
Interaction (TxSMI)	1.72	2	0.86	0.25	0.78
Error	627.56	180	3.49		

There were no significant differences for SMI group, and there was no interaction effect (Treatment by SMI group), for any of the three attendance periods analysed.

The difference ($p < 0.06$) in the main effect (Treatment group) gives marginal support to the first hypothesis. Therefore it is accepted that, the structured social support intervention increased adherence in the fitness program.

The non-significant main effect (SMI group) does not support the second hypothesis. Therefore it is rejected, and the alternative hypothesis that level of self-motivation would have no affect on attendance is accepted.

The non-significant interaction (Treatment group by SMI group) does not support the third hypothesis of differential effectiveness of the social support program for individuals who have different levels of self-motivation.

Evaluations by Structured Social Support Participants

Evaluations of the structured social support program, were given by exercise class participants who attended the last class (N=71) and by a randomly drawn sample of subjects who were not at the last class (N=57). Therefore, there is not a direct correspondence between the subjects who completed evaluations and those whose attendance data was utilized in the experimental study.

Those participants who attended the last class evaluated the structured social support program using the Experimental Subject Evaluation Quesionnaire (see Appendix Eight). The randomly drawn participants, who did not attend the last class, evaluated the structured social support program using the Telephone Interview Questionnaire (see Apppendix Thirteen). In total, 128 of the 186 experimental subjects (69%) gave evaluations. The following table (Table 7) gives a breakdown of evaluations by class location and by method of evaluation.

Table 7
Numbers and Proportions of Evaluations by Class Location

Class Location	Telephone Evaluation		Class Evaluation		Total Evaluation	Class Enrollment	% of Class Giving Evaluation
	N	% of Eval.	N	% of Eval.	N	N	%
A	6	26.1%	17	73.9%	23	26	88.5%
B	11	52.4%	10	47.6%	21	46	45.7%
C	7	35.0%	13	65.0%	20	27	74.1%
D	14	56.0%	11	44.0%	25	38	65.8%
E	8	40.0%	12	60.0%	20	33	60.6%
F	11	57.9%	8	42.1%	19	24	79.2%
Total	57	44.5%	71	55.5%	128	194	66%

Class location A has the largest bias in method of evaluation, with a 47.8% difference between class questionnaire (highest) and telephone questionnaire. The largest bias the other way (telephone questionnaire highest), is class location C with a difference of 30.0%. Class location B has the smallest proportion, of total class enrollment, involved in either method of evaluation with 45.7%.

The evaluation scores, given by structured social support subjects, were descriptively analysed by the SPSS FREQUENCIES subprogram. To test for class location effects, a SPSS ONEWAY subprogram (analysis of variance) was performed on the evaluation data. The significant results ($p < 0.05$) of the two SPSS analyses appear in Table 8.

All the analyses of variance were submitted to a Student-Newman-Keuls post hoc analysis. Of the significant F values listed in Table 8, class location A was found to evaluate, the structured social support program, significantly less on 7 different question items.

The only other group difference was class location F, which was significantly less than class location B, on amount of group support. The most pursued types of support were marking the wall chart in class (6.07), reading the booklet (4.69), and buddy support in class (4.48). The least pursued types of support were marking the home chart (2.80), family support (4.00), and buddy support out of class (4.05). The most highly rated benefits were leader support (5.91), class chart (4.36) and buddy support in class (4.23). The least highly rated benefits were derived from the homechart (2.28) and buddy support out of class (3.59). Importance of social support was rated 3.94 (7 point scale) yet feelings about the structured social support program (most negative through to most positive) rated 3.94 (5 point scale).

Table 7
Descriptive Statistics of Structured Social Support Participant Evaluations and Tests for Class Location Effects

Question Asked	Mean Evaluation	Standard Deviation	ANOVA Test for Class Location Differences	Post-hoc analysis (Student-Newman-Keuls)
Importance of Social Support	3.94	2.03	F=2.58, p=0.03	A sig. less B (p 0.05)
Clearness of Class Presentation	6.10	1.10	F=0.32, p=0.90	no sig. differences
Detail of Reading Booklet	4.69	1.76	F=0.71, p=0.62	no sig. differences
Benefit of Booklet	4.06	1.59	F=1.03, p=0.40	no sig. differences
Amount Marked Home Chart	2.80	2.11	F=1.79, p=0.12	no sig. differences
Benefit of Home Chart	2.28	1.84	F=1.78, p=0.12	no sig. differences
Amount Pursued Family Support	4.00	2.18	F=2.50, p=0.03	no sig. differences
Benefit of Family Support	4.00	2.18	F=1.97, p=0.09	no sig. differences
Amount of Buddy Support out of Class	4.05	2.21	F=4.94, p=0.001	A sig. less B, C, D, E, F (p 0.000)
Benefit of Buddy Support out of Class	3.59	2.18	F=4.07, p=0.002	A sig. less D, E (p 0.01)
Amount of Buddy Support in Class	4.48	2.13	F=4.77, p=0.001	A sig. less B, D, E, F (p 0.001)
Benefit of Buddy Support in Class	4.23	2.23	F=4.98, p=0.001	A sig. less B, D, E, F (p 0.001)
Amount of Group Support	4.14	1.80	F=3.08, p=0.01	F sig. less B (p 0.05)
Benefit of Group Support	4.08	1.85	F=2.39, p=0.04	no sig. differences
Amount Marked Class Chart	6.02	1.63	F=1.43, p=0.22	no sig. differences
Benefit of Class Chart	4.36	2.04	F=2.27, p=0.05	no sig. differences
Amount of Leader Support Given	6.07	1.22	F=2.37, p=0.04	A sig. less D (p 0.05)
Benefit of Leader Support	5.91	1.31	F=2.59, p=0.03	A sig. less D (p 0.05)
Feelings About Structured Social Support Program	3.94	0.78	F=0.47, p=0.80	no sig. differences *

* This question asked only by telephone and also a 5 point scale.

The evaluations by participants were compared, using the SPSS "ONEWAY" subprogram, to ascertain whether the method of data collection (telephone versus class) had effected the responses on each of the questions asked. Only the significant ($p < 0.05$) results are presented in the following table (Table 9). In all of the cases, (including those not reported in Table 9), the telephone method of evaluating the social support program, produced a higher mean evaluation on the seven point Likert scale. The significant differences, between methods of evaulation, tended to occur in pairs i.e. for the amount of support and the benefit that support gave.

Table 9
Oneway Analysis of Variance on the Method of Evaluation

Question Asked	Telephone $\bar{X}T$	S.D.	Class $\bar{X}C$	S.D.	F Ratio	F Probability
Detail of Reading Booklet	5.12	1.55	4.34	1.85	6.46	0.01
Benefit of Reading Booklet	4.40	1.45	3.77	1.65	5.13	0.03
Marked Home Chart	3.26	2.30	2.42	1.88	5.17	0.02
Amount of Buddy Support Out of Class	4.56	2.18	3.63	2.17	5.77	0.02
Benefit of Buddy Support Out of Class	4.04	2.16	3.23	2.15	4.47	0.04
Amount of Buddy Support in Class	5.16	1.93	3.94	2.15	11.05	0.001
Benefit of Buddy Support in Class	4.77	2.13	3.80	2.22	6.24	0.01
Benefit of Group Support	4.46	1.92	3.77	1.74	4.42	0.04

In addition to these Likert-type scale evaluations, class participants were asked an open-ended question regarding their percep-

tions of how the structured social support program could be improved. The edited results of this question and appear in précis form in Appendix Thirteen.

Evaluations by Experimental Exercise Class Instructors

Due to uncontrollable circumstances, two evaluations by experimental instructors were erased from the tapes they were recorded on. They were the transcripts for the instructor from class location E, and the instructor from the class location where problems with instructor-participant incompatability arose. Therefore 5 evaluations by E instructors were recorded, 4 by tape recorder, and 1 by hand due to the instructor's preference. The results of these evaluations have been edited and appear in precis form in Appendix Fourteen.

CHAPTER V

DISCUSSION

Discussion of Attendance Results

The first hypothesis stated that the structured social support intervention would increase adherence, in the fitness program. This hypothesis was supported ($p < 0.06$) when the analysis of variance was carried out over the whole 10 weeks (see Table 4). To examine whether there was a differential effectiveness, of the program at different time periods, the data were submitted to two further analyses of variance, for the first five weeks and the second five weeks. The experimental intervention's effects were not as great during the first five weeks as they were during the second five weeks. This might be attributed to the effects of initially joining the fitness program. At that time people's enthusiasm and resolve might be greater which means that the experimental effect would be lessened. In addition, the novelty, of the early classes, is high and this might also affect the intervention differentially between the two five week periods. It is important to note, however, that the treatment groups attendance was greater than the control groups for every week of the fitness program as well as overall, and for the two, five week periods. The more significant result found in the second five weeks, corresponds with the study reported by Wankel and Thompson (1977) where the experimental decision balance sheet intervention had more effect over the latter stages of the program. This greater effect toward the end of the program may be attributable to a cumulative process where the social support effects became more influential as people interacted more with each other. This cumulative process may be likened to the cohesiveness process outlined in the group

support review (p.69). It is important to note that this marginally significant result occurred despite many extraneous factors which may have weakened the treatment effect. The factors arose mainly as a result of the fact that the study was a field experiment where rigorous control is difficult to attain. These factors will be elaborated upon in the following discussion subsections.

The second hypothesis was that subjects who scored high on the SMI would attend the fitness program more regularly than those subjects who scored intermediate on the SMI, who in turn would more regularly attend than those subjects who scored lowest on the SMI. This hypothesis was rejected by the results obtained in all three analyses of variance (see Tables 3, 4, and 5). What appeared to be a linear trend over the whole ten weeks (see Table 3), in fact was highly insignificant ($p > 0.85$) when treated as a main effect by analysis of variance. This occurred in spite of the extreme SMI's being utilized and the "mysterious moderates", identified by Sorrentino and Short (1977), being isolated. One is led to the conclusion that, either the SMI does not measure what it is purported to measure i.e. self-motivation, or that some uncontrolled factor was influencing the results. The SMI totals used as cut off points may have had an influence, but the high SMI mean scores and low SMI mean scores were over 40 points different, so that explanation seems unlikely. The SMI was administered in the same way (see Appendix Ten) at the same time (end of 1st class), to a fairly homogenous group of people (female, adult, in the main they were housewives), so demographic factors seem unlikely to have influenced the result. Different persons (R_1 and R_2 for experimental and C instructors for control) administered the SMI, but all were given a standard

procedure to follow. The researchers (R_1 and R_2), several E and C instructors, and some participants directly (verbally and written on the SMI questionnaire) indicated that quite a number of participants did not like the SMI. They were upset with the negative connotations of some questions, the use of some words they didn't understand, the use of double negatives, the complexity of a negative to positive scale with negative and positive questions, and the length of the instrument. Comments such as "This is dumb!", "I don't understand!", "What a waste of time!" were overheard (and noted) by R_1 when at the first classes. Due to the above problems, it is suggested that the particular measure of self-motivation used in the study, the SMI, may account for the second hypothesis being rejected.

The third hypothesis was that the social support intervention would have a greater facilitative effect on the fitness program adherence of low SMI scoring subjects, than intermediate SMI scoring subjects, who in turn would be facilitated more than high SMI scoring subjects. This hypothesis too, was rejected since no significant interaction (Treatment and SMI group) occurred (see Tables 4, 5, and 6). The above mentioned problems with the measuring instrument (SMI) may also account for this result.

Because of the apparent difficulties with the SMI, and in view of the support for the interactionist approach to studying behaviour in other areas, (eg. Magnusson and Endler, 1977 and Bowers, 1977), and in other physical activity research (e.g. Tu and Rothstein, 1979) it would be premature to abandon an interactionist approach. Clearly, before such a conclusion is drawn, more attention should be devoted to developing a more suitable measure of self-motivation, to use in an

interactionist approach when studying motivation for physical acitivty. On the basis of this study it would seem appropriate to refine the SMI by reducing the number of questions and clarifying other questions which are problematic. The number of questions could be reduced by carrying out an item analysis and selecting fewer, (perhaps 12-20), of the highest loading questions. The double negatives need to be reworded and offending items (emotionally laden), such as "I am basically lazy" need to be removed.

A more fruitful method of studying self-motivation and adherence to physical activity might be to utilize the explanation of self-motivation outlined by Bandura and Schunk (1981) (see page 19). This explanation offers a more individualized and dynamic method of assessing self-motivation since it relies on the attainment, and internal comparison of goals, to participants' personal standards. In particular the specificity of those goals, their level and proximity (immediacy of feedback) are important. This notion ties in neatly with the literature pertaining to attribution theory (see pp.24-25), self-control (see p.38) and goal setting and attainment, in physical activity (see p.41-42). A trait measure such as the dependency/independency motive, reported by Tu and Rothstein (1979), could also be used to isolate those participants who would benefit most from an external goal setting source.

Many participants gave, as reasons for attending the fitness program, goals such as improved physical fitness, weight reduction, and wanting to feel better. In a once a week, for 10 weeks, setting, these goals are unrealistic unless participants are sufficiently motivated to continue some physical activity on some of the other 6 days. These goals also suffer from the problems outlined by Orlick, and Wanzel and

Danielson (see pp.41-42). It would be appropriate, therefore, to make sure that instructors help participants set realistic, short term, attainable goals especially in a fitness program such as the YMCA Fitness Fantasia program. This inability to attain stated goals may be an important reason for the large attrition rate in the study, and may also be another factor which reduces the significance of the experimental intervention.

In the fitness program, there was an educational component which involved a variety of topics. One central problem, iterated by all the E instructors and the program co-ordinator, was that participants did not easily become involved in class discussion. This would have limited the probability that effects such as those documented by Heinzelmann and Bagley (1970), Hoyt and Janis (1975), and Wankel and Thompson (1977), could have occurred through active decision making and discussion. This problem might be alleviated through parts of the social support system being administered through the educational component, especially utilizing the exercise class booklet and some decision making procedure in conjunction with it.

The factors reviewed in the satisfaction sub-section (see pp.44-48) may not have been easily achieved in the fitness program and this may have detrimentally affected participation. The problems associated with achievement of goals have been reviewed earlier. In addition, there was some informal, unsolicited feedback (particularly from the telephone evaluations, i.e. exercise class dropouts) that some people had found the dance steps difficult. In terms of mastery of skills, feelings of competence, and achievement of goals, this difficulty of the dance steps would decrease satisfaction and therefore

affect adherence. This problem was exacerbated whenever classes were missed since that meant the participant would have more time (14 days) to forget the skills and also it disadvantage them further with regard to any routines learned by others while they were away. These possibilities also tie in with the theoretical perspective offered by Czikszentmihalyi (1975), (see pp.45-46), since it would mean that these participants' skills would not match the challenges and therefore they would not achieve a state of "flow", which in turn would reduce the satisfaction derived from the fitness program. The use of a leisure satisfaction scale, such as that reported by Ragheb and Beard (1980), might provide a means of monitoring this factor in a physical activity class and therefore provide feedback regarding the satisfactions of class participants.

The drop out rate in the study may have been affected by the intensity of the exercise program. A wide range of fitness levels occurred at each class location which made it very difficult, for the exercise class instructors, to ensure that people exercised at the appropriate pace. In spite of the use of heart monitoring and warning from instructors not to over-exercise many participants were observed (by R_1) to be quite exhausted at the first exercise classes. This raises the possibility of attrition through injury as documented by Morgan (1977), Pollock et al. (1977), Wanzel and Danielson (1977), and Boothby et al. (1981). This question of injury was not asked in the telephone evaluation but two persons commented, unprompted, that injuries caused them to drop out. The program co-ordinator mentioned in the post program interview that different levels of the aerobic dance program are to be considered in the future, which would alleviate this

problem, since participants would be better matched to the level of complexity and intensity of the exercises.

An unfortunate consequence of the class cancellations and disruptions was that some participants travelled quite a distance to their venue, and that at times the opportunity to go to another class, when their own was cancelled, was not available. These disruptions occurred most prevalently in the E classes though they occurred in the C classes as well. These factors have been reviewed (see p.50) as being detrimental to adherence and could partially account for the limited effectiveness of the social support intervention. Another consequence of the initial class cancellations (2), the SMI being improperly handled at one location, and the instructor-participants incompatibility at another location, was a more unbalanced design in terms of instructor experience than had previously been randomly drawn. The experimental classes were led by a greater proportion of inexperienced instructors. This may have affected the results, especially in the light of instructor comments that more experienced instructors would be best suited to a social support intervention.

The next sub-section deals with the evaluations of the social support intervention, by the participants and instructors, and in terms of the problems encountered with the methods and procedures. This sub-section will also discuss the literature concerning social support.

Evaluations of the Structured Social Support Intervention

Evaluations by Participants. A part of the problem stated earlier (see p.5) was to determine which parts of the social support program were deemed most beneficial to the participants, in the fitness program.

The results obtained (see Table 8) indicate that the participants definitely preferred some facets of social support over others in the whole social support program. The amount of leader support was indicated to be the most important (by mean score), in terms of the benefit that a participant received from it. The finding that the E instructor at location A gave significantly less leader support than the leader at location D, and that the participants perceived that it was of less benefit than did those at location D, points to the consistency of this factor. The chart was marked very consistently and was quite beneficial also. The booklet, buddy support, both in and out of class, and family support all rated (means) fairly consistently, though the benefit of out of class buddy support was rated lower. This might be expected since it occurs away from the class location (unlike buddy support in class) and lacks the close relationship that mediates family support i.e. it is less pertinent. The home chart was pursued comparatively poorly and the perceived benefits received were similarly rated relatively low. This is surprising when compared to the class chart's high mean values, so the location and surroundings of the chart appear to be important. This can be supported by one statement made by an E instructor about the home chart, who reported that younger participants (late teens early twenties) indicated they didn't want to be seen, "doing that sort of thing" and that the "older" ladies (over 30 years) tended to dismiss it as being unimportant. This is in spite of two E instructors relating that the handing out of the Canada Food Guide, was well received in class, and that participants reported that they had posted it at home or shown it to their families. It would appear that they did not perceive that the attendance chart might have the same

merit as the Canada Food Guide. This might be attributed to the chart only having relevance to the participant and that it might become a negative stimulus if classes were missed. This finding also might be explained by the exercise class wall chart being placed in a socially supportive atmosphere i.e. the exercise class. The shared involvement and social comparison would help facilitate its use, whereas the home environment was likely to have been less conducive.

Two seemingly contradictory findings were obtained when participants were asked to rate the importance of the intervention to themselves and at the end of the telephone interviews they were asked to relate their feelings about the intervention. They viewed the intervention as being less important, relative to their feelings toward it (3.94 on 7 point scale for the former versus 3.94 on a 5 point scale for the latter). This may be explained by the responses that some participants gave to the latter question (feelings). They sometimes explained that they thought it, "was a good idea" but that it, "wasn't for me." Another explanation is due to the method of evaluation since the feelings question was added after the class evaluations took place and therefore was asked only of the telephone interviewees. Table 9 indicates the generally more positive responses reported in the telephone evaluation than in the class questionnaire evaluation.

The method of evaluation obviously had an effect on the results as 8 of the 18 common questions (asked by class and telephone questionnaire) showed significant ($p < 0.04$) differences in mean evaluation when submitted to a One-way analysis of variance, using the method of evaluation as the independent variable. This may be attributed to a greater tendency for participants to try to please the researcher in an inter-

view approach than in an anonymous questionnaire. For this reason, the evaluations must be viewed with some caution. Another caution is necessary, regarding the possibility that participants evaluated the intervention with a response set. The question rating scales did not vary down the page (see Appendix Eight) and the close relationship between the amount pursued/the benefit gained, mean scores (see Table 8) indicate that this may have occurred. Both these cautions may be discounted, however, by the observation that the scales measured from 1, a zero point (no benefit, no effort), to 7, a high point (a lot of benefit, a lot of effort). In this regard, any value greater than 1, is construed as beneficial to the participant and therefore the majority of participants, who evaluated the intervention, reported receiving benefits from the various forms of social support. These statements are borne out by the generally positive statements made by the E instructors (see following sub-section).

To give a complete picture concerning the effectiveness of the social support program, it should be noted that one class was deleted from the study (see The Sample, Chapter III) due to incompatibility with their instructor, and their refusal to be involved with the intervention (an overt "refusal" at the 4th class). The information received by the writer from: an interview with the instructor at the end of the 10th class; informal telephone conversations with the instructor during the 10 weeks (during which notes were taken); an interview with the YMCA program coordinator at the end of the 10th class; personal, informal conversation with the two main "antagonists" at the first class, their comments written on the SMI at the first class, and their comments on the evaluation at the last class (they identified themselves by placing

their names on the questionnaire, which they were not required to do), lead the writer to the conclusion that the two people identified, felt strongly negative about the intervention program and the E instructor. This negative finding is completely at odds with the positive impressions conveyed by all the E instructors, and almost all of the participants who evaluated the intervention, and therefore it is concluded that the overall value, of the structured social support intervention, is positive and beneficial in terms of increasing the quality of the exercise classes and increasing adherence to the exercise classes.

Evaluations by E Instructors. For specific details regarding instructor evaluations, the reader is referred to Appendix Fourteen. In general, the instructors were positive about the structured social support program, and indicated that it had, had beneficial effects for the participants and had led to an increase in attendance. They felt that the quality of the aerobic dance program was enhanced by having the system operating in their classes.

All instructors felt that extraneous factors had affected their classes detrimentally. The program coordinator indicated that it was a general problem. However occurrences, unique to one class only, did occur (e.g. bad traffic accident, a death in an instructor's close family). The weather was almost unanimously looked upon as having a depressing effect on attendance. In particular the city went through several very cold weather periods, during the course of the fitness program. Although the weather affected all locations, an example given by one E instructor indicates how it could also have more pronounced effects at certain locations. A key bridge, to her class location, was blocked by a 20 car pileup which occurred just prior to the commencement

of her last class. The result was a drop in attendance from 57.9% at week 9 to 36.8% at that last class.

The instructors were quite impressed with the methods of presentation to their classes, indicated that it was good to have someone present the program to their class, and felt that the ideas incorporated into the overall strategy were worthwhile. They all, however admitted to not having "pushed" the program as much as they might have. This is surprising in view of the significant result but lends even more credibility to the use of a social support system. Two E leaders indicated that they were sufficiently impressed by the intervention to try to incorporate elements of it into their next class. In spite of the comments of these 2 E instructors about the value of the support system, it is readily apparent that exercise class instructors need to be fully convinced, of the system's value, before they are willing to commit themselves to it. More direction, ideas for incorporation into classes and further instruction have all been indicated as being important in making the system work.

Accurate attendance records are a definite problem in the study, in spite of several appeals, by the researchers, and the program coordinator to keep accurate records. It appears that an instructor's suggestion of using only one chart and impressing its importance more, to everyone, might help alleviate the problem.

A particularly disruptive feature of the fitness program was the lack of continuity with instructors. The participants indicated that leader support is the most beneficial part of a social support system. This support is seriously disrupted when the same instructor cannot be present throughout the fitness program. One E instructor reported that

she noticed a drop in attendance when she came back from being away two weeks. When it was pointed out that there was a drop off over time, she remarked that she felt her absence had enhanced the drop off rate. The instructors were aware of the problem of not being available for all classes but were not able to suggest solutions. This problem may very well be a function of the fact, that all the instructors in the fitness program were volunteers and that greater continuity could be gained from using paid instructors.

A persistent problem, identified by instructors and participants alike, is that one stroke of the brush does not cover all the group. Some participants like one part and not other parts, some like all of it, others like none of it, the combinations and permutations are endless. Obviously, the exercise class instructor plays a large role in convincing his/her participants to take part and use those parts which apply best. The most important facet appears to be that buddies be given every opportunity to select their partners, that friends who come together be given the opportunity to help each other. By the same token some need to be directed to a partner. The social support program should also be integrated into the fitness program (e.g. by doing buddy exercises, group exercises, incorporation into the education component of the class), and in this way it appears as an extension of the fitness program rather than an adjunct.

The results provide some support for the efficacy of a social support intervention program. This occurred in spite of the intervention not being carried out fully at any of the class locations, and in spite of uncontrollable circumstances that disrupted many classes. The E instructors all related that they felt they could have done more in

their classes to promote the intervention. A brief review of Appendix fourteen reveals that the E instructors (5) reported a large number of disruptive factors (19 in all). They also reported that although the booklet was good (5), it wasn't used in any classes, even though 3 instructors felt that it could have been. Only 2 E instructors were able to have their wall chart posted for every class. Discussion in class was limited in time and scope concerning social support and only 2 mentioned social support in every class. Only 1 E instructor discussed family support in class. The attendance records were not kept strictly (only 1 E instructor felt that here own attendance record was "very accurate"). Generally the E instructors were very positive about the intervention and that the negative aspects were of a minor nature.

In the light of these E instructor remarks it would seem reasonable to assume that the marginal statistical support for the intervention would be greatly improved upon if the fitness program was more controlled and the E instructors were more committed to the intervention. It was suggested by the E instructors that experienced instructors were more capable of carrying out the intervention, and that the educational component of the fitness program could utilize the social support ideas, especially the booklet. The material presented to the exercise class instructors, appears to have been very well received. The instructors acknowledged that they could have done more with the material and that it was capable of being put to a variety of uses. The fact remains, however, that they didn't. Nor did they support the structured social support program as well as they indicated they might have. The suggestions of an instructor workshop and a more effective explanation convincing the instructors of the merits of this type of

approach are two possibilities that should be utilized in future implementations of a structured social support intervention. The participants indicated that leader support was the most beneficial of all the support types. In the same vein it could be assumed that a leader supportive of the intervention, is crucial to its efficacy. The implementation of these ideas would strengthen the intervention and therefore lead to more significant results.

The approach utilized in this study was that of a field experiment. The attempts to have a standardized, controlled approach over all the program meant that flexible, individualized, tailor-made programs for each class were not able to be used. The significant social support effect in this study suggests that a more concentrated effort, tailor made to 1 or 2 classes might produce an even greater effect.

The ultimate responsibility for utilizing a social support system, however, lies with the individual concerned. The participants, in this study, have indicated that they were generally positive toward the program and its benefits, and that they put quite an amount of effort into carrying out the various parts. Instructors have to facilitate this process. If this were done fully, it would lead to a fitness program, virtually being run by the group involved i.e. participants and the leader, using group support, sharing ideas and responsibilities, and helping each other toward their specific fitness goals. This is an ideal situation, but never-the-less a worthwhile one, and the social support system has the necessary ingredients and components to approach this ideal state.

Discussion of Evaluations. The evaluations indicate quite clearly that some participants and instructors benefited more than

others from the social support intervention. This emphasizes the need to implement social support in a variety of ways (see pp.60-62). It is important to reach the most significant members of the natural social support system (Tukat, 1980 and Gottlieb, 1981b). In this study family support was not evaluated as highly as other forms of support and therefore it needs to be improved upon. Most importantly the spouses and family need to be more directly involved, perhaps by having a spouse night early in the program to enlist their support. In addition, the area of family support and cooperation could be stressed through the educational component. Utilizing the approach used by Kau and Fischer (1974), it would seem that the spouse could also be involved by monitoring home exercising and also whether social support was being given. The warning that every family is different (e.g. Kelly, 1978 and Goodale and Witt, 1981) means that each family might react differently to this intervention. Clearly this form of intervention (family support) requires the consent and cooperation of all family members so that the family change process, as outlined by Montgomery (1981), is facilitated.

This study supports the literature reviewed regarding the use of buddy support (see pp.66-68). The selection of buddy pairs appears to be very important, but the finding that "natural" pairs are best highlights the importance of having compatible buddies supporting the ideas presented by O'Donnell and Fo (1976), and Wanzel and Danielson (1977). The use of telephones as a means of contact appeared to be successful, though once again the need for buddies knowing each other appeared to control whether this method was successful. Therefore, this study supports the idea promoted by Hamilton and Bornstein (1979) and Turkat

(1980), in the use of telephones, so long as the users know each other well enough to not be intimidated by using this method.

The notion of group support (see pp.68-70) arises mainly through social interaction at the exercise location. The use of a social support intervention increases the amount of social interaction, particularly if buddy exercises and group discussion can be stimulated. The behavioural and cognitive processes advocated by Levy (1977) need to be especially stressed, in order for this form of support to have an effect (see pp.69-70). This would require further training on behalf of the instructors, and is also dependent on the personality and experience of the instructor. The informal interaction that occurs before and after the exercise program should also be stimulated e.g. by the use of a wall chart for attendance, drinks provided afterwards.

The study supports the idea of leader support (see pp.70-72) as being the most important factor reported by participants. This is in accordance with the writings of Franklin (1978) and Brawley (1979). The use of personalized leader support (i.e. focusing on individuals in the class) was reported by participants as being a means of improving leader support, which concurs with the findings of Heinzelmann and Bagley (1970) and Faulkner and Stewart (1978). This personalized approach more closely resembles the "facilitating" notion that Abbey-Livingstone (1980) promoted.

In conclusion, the results of [illegible]udy are generally consistent with those in the social support [illegible] The information conveyed through the evaluations by par[illegible]pants and E instructors, as well as the evaluation of the methods and [illegible]ocedures (see following sub-section), lends theoretical and practical credence to use of social support in physical activity programs.

Discussion of the Methods and Procedures

The sample drawn (250), from the total population (498), is quite large but due to the large number of classes (20 in all, 16 in the study), and the three SMI levels used (high, medium and low), there were some cells empty when the treatment group factor was added. Consequently, the analysis by the original nested design was not possible. This problem could be alleviated, in future research by reducing the number of classes (thereby reducing the number of cells), by selecting only large classes (thereby increasing the likelihood of filling the cells), and by extending the ranges of the SMI scores so that more subjects were included.

The setting was quite appropriate, though the large number of classes made coordination difficult and subsequently weakened the control that the researchers had over what was happening in class with regard to the intervention. Although the instructors were trained, and most were experienced, the feedback from the program coordinator and E instructors, indicates that only the more experienced instructors felt capable of implementing the intervention properly, especially since the YMCA instructors were all volunteers. Considerable difficulty arose due to instructors being unavailable for some of their classes, and also there were problems due to the occasional unavailability of some of the venues. Therefore a more controlled environment, would be desirable for further experimental study of social support interventions.

The SMI has been referred to under an earlier sub-section (Discussion of Attendance Results), but it would seem that further research attention should be devoted to the problems outlined in this study. In particular the fact that the original construction and

validation studies were carried out in a University setting, as well as one follow-up study (Dishman, 1981) means that the SMI needs to be tested in other settings. This study appears to be the first large test of the instrument with members drawn from the public at large (Wankel and Graham (1980) only had 52 subjects). The negative findings of this study, and the weak findings of the Wankel and Graham (1980) study suggest that further analysis of this study's data (e.g. further item analysis, different cut off points), and further external validation in other settings, is warranted.

The booklet has been discussed in both preceding sections, but it would appear that in its present form, it is a useful educational tool, though some more specific suggestions within the body of the ideas presented might improve its value to readers. The booklet's value could be enhanced by suggesting that exercise class instructors use it in their educational section each week. It would serve as a reminder about social support, a stimulus for discussion and as a motivational tool to encourage people to keep their support systems going. The attendance and social support chart, (home chart), was evaluated as being the least useful of the various support procedures. It would appear that people need to be convinced of its efficacy in order to get more benefit from it, therefore this should be stressed in its introduction and also should be attended to more, by the instructors in class. The exercise class wall charts appear to be benefical and are reported as being easily utilized. The graph, however, appears to be somewhat redundant and it would appear to be unnecessary if a chart were being used. A class roll call is also made redundant by the wall chart, and therefore exercise class instructors could improve the chart's utility and accuracy by attending to it alone.

The instruction sheets appear to be easily read and followed, their problem lies in the fact that exercise class instructors need to have their value stressed. Instructor interviews indicated that the instructions tend to be glanced over quickly and then ignored. This problem could be reduced by a more involved and rigorous training program, prior to class, to ensure the instructors fully understand their role, in spite of the high clarity they reported in their evaluations (see Appendix Fourteen).

The experimental subject evaluation questionnaire requires changes to its format. In particular, the problem with response sets could be reduced by rearranging the scales so they did not repeat each other, though this would reduce the instrument's simplicity. The open ended question is too general, and should be broken into open ended questions about the specific components, identified in the rest of the questionnaire. The question asked over the telephone, that did not appear on the class evaluation, should be added, and its scale changed to conform with the other scaled questions. The value of the evaluation could be significantly enhanced, by a coding system, which would ensure the evaluator's anonymity but at the same time would allow the researchers to identify it with the appropriate attendance scores. This would provide a measure of the value of the program in terms of attendance. Another possibility would be to evaluate the social support given and received utilizing an instrument such as that being constructed by Barrera et al. (1981). In particular, further evaluation is required of the complex nature of support given as outlined by Wellman (1981) and Pilisuk and Froland (1978) (see pp.56-57).

The experimental instructor evaluation questionnaire appears to be comprehensive since 4 of the 6 E instructors made this remark, unprompted. However, it would be appropriate to take along the instruments used, and recorded attendance sheets, so that the E instructors could evaluate them more specifically since it was twice indicated by E instructors as being a problem.

The preparation phase is adequate but can be improved by more attention (it was stressed in the study) to the importance of accurate attendance sheets, and longer, and more detailed instruction regarding how to implement and carry out the structured social support intervention. It is most important to solicit the program coordinator's support, since he/she is the key figure in the program. This is especially crucial with regard to the problems that arise during the program (see Appendix Fourteen) and how they are dealt with, so as to have the least effect on the experiment. In this regard the program coordinator, in this study, was extremely helpful and supportive.

There are several problems that arose during the data collection phase that should be highlighted. The time period set aside for the introduction of the class to the social support program needs to be increased. In this regard, it might be more appropriate to introduce specific parts (e.g. buddy support, family support, class support, leader support) at separate classes, so that it appears as an ongoing procedure. The introduction was effected by the amount of YMCA "paperwork" necessarily associated with the first class, therefore a more appropriate time might be to explain the intervention on the second night, with the booklet handed out the first night and brought back to class. Ideally, the exercise class instructors should introduce the

intervention, but this would only be possible with more time spent in a workshop-type atmosphere so that instructors were fully cognizant with the procedures. In addition, the more experienced instructors appear to be the most suited to this type of intervention. Where the above is not possible, it would be best to have only one researcher involved in the presentations, to help standardize its introduction (both R_1 and R_2 were involved in this study). Although one E instructor (class location D) thought the presentation was a little unclear, the mean evaluation of clarity for all locations was very high (6.10, 7 point scale) and was second highest at that location (6.24, 7 point scale). In the light of this participant evaluation support, the introduction procedures are presented as a very effective method of introducing the social support intervention.

The procedure of presenting the SMI's on the first night added to the already considerable paperwork, on that night. If they were to be used again, it would seem more appropriate to shift their introduction to another night. Considering lack of significance of the SMI in this study and its weak significance elsewhere (Wankel and Graham, 1980), the instrument's utility is under question. Therefore it would be appropriate not to use SMI's in a social support intervention until its value is clearly established by further research and analysis.

One of the most significant problems, encountered during the study, was the ongoing monitoring of the experimental intervention. This problem was mainly due to the large number of classes that needed to be monitored and that they were spread over a large area. The telephone conversations carried out over the 10 week program, with the E instructors, were reported unprompted by two E instructors (location B

and D) as being supportive and as showing that the researchers were interested in the instructors and their classes. Ongoing monitoring in this manner is therefore a valuable research procedure since it helps bridge the gap that is necessary, to prevent experimenter effects occur in the classes.

Post fitness program procedures were effective and the instructor interviews produced considerable valuable material (see Appendix Fourteen). The telephone evaluations were significantly different on several measures compared to class evaluations, which might be interpreted as being a function of the method used. It is interesting to note that telephone interviews were done exclusively with people who had ceased attending classes, yet they consistently recorded more positive response on all questions (8 of them at a significant level, $p < 0.05$). This emphasizes the need for further research on the methods of evaulation and the effects of social support on adherents versus dropouts. As mentioned earlier, an identifying method that would allow anonymous evaluations to be correlated with that person's attendance data, would provide a solution to this problem. In addition it would seem more appropriate, in terms of numbers of evaulations, to carry out the participant evaluation at week 7 or week 8.

The analysis of the data has been enlarged upon previously (see discussion of attendance and design).

In conclusion, to this section, it is important to note that a significant treatment effect was recorded, in spite of the numerous problems, and areas that could be improved. This can be interpreted as being additional support for the value of a structured social support program in promoting adherence to physical activity classes.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The primary purpose of this study was to investigate whether an experimental intervention, of structured social support, would effectively increase the adherence of participants in the fitness program. A secondary purpose was to investigate whether the structured social support intervention would be differentially effective for participants, with different levels of self-motivation. A further purpose was to investigate which particular facets of the structured social support program were felt, by the participants, to be particularly useful.

The sample, of 186 subjects, was drawn from a population of 498 participants, in the 10 week YMCA Fitness Fantasia aerobic dance program held in Edmonton, Alberta, winter, 1982. The sample was drawn from the female participants who attended the first class, and who completed the SMI, and who scored within the three categories, high (160 or over), medium (137 to 154), and low (below 132). This left 288 eligible subjects who were randomly drawn so that each location furnished equal numbers of high, medium and low SMI subjects resulting in 35 subjects in each control condition and 27 subjects in each experimental condition.

All subjects (experimental and control) were given the SMI questionnaire and a consent form to complete, on the first night. In addition, the subjects in the experimental condition received the structured social support intervention. It consisted of, an educational booklet, exercise class wall charts, home attendance and buddy support charts, buddy, family, group and leader support procedures which were introduced at their first class. The exercise class instructors

continued the structured social support program at each of the remaining classes. Tri-weekly contact by the researchers, with the instructors, was maintained by telephone calls. The SMI questionnaires were collected from all exercise locations after the second week. Evaluations by participants were carried out at the last exercise class, at all experimental locations. These evaluations, and all (experimental and control) attendance sheets, were collected after the completion of the 10 week fitness program. Experimental exercise class instructors carried out face-to-face evaluation interviews, with the researchers, in the first week after the completion of the fitness program. Evaluations of the structured social support program, by dropouts, were carried out using a telephone interview procedure parallel to that handed out to participants at the last classes.

The attendance data were submitted to a BMDP 2-way ANOVA. The evaluation data were analysed using the SPSS ONEWAY subproblem with a post-hoc analysis using the Student-Newman-Keuls procedure. Descriptive statistics were obtained from the BMDP descriptive statistics subprogram and the SPSS subprogram FREQUENCIES.

The results showed a higher mean attendance for the experimental group, over the 10 week period, relative to the mean attendance of the control group, with a probability level less than 0.06. The experimental effect was differentially effective over the first and second five weeks of the program. There was no significant main effect due to SMI level and there was no interaction between SMI level and the treatment condition.

The participant evaluations indicated that leader support, use of class charts, and buddy support in class were the most beneficial

types of support received. The least beneficial were the home chart and buddy support out of class. Participants indicated that they most diligently pursued marking the wall charts, reading the booklet and buddy support in class. The least pursued types of support were marking the home chart, family support and buddy support out of class. In general the participants were very positive about the use of the structured social support program in physical activity classes (3.94 on a 5 point scale).

The instructors' general evaluations of the structured social support program were all positive. They felt that the wall charts were helpful and that the buddy system promoted interaction and worked as an ice breaker. The instructors felt that the booklets were good and that the system was beneficial in helping those people who needed help and encouragement. Generally, the instructors felt that they could have promoted the system more, especially family support and group support.

Conclusions

It can be concluded that:

1. The structured social support intervention increased attendance.
2. There was no difference in attendance between high, medium and low self-motivated participants.
3. There was no statistical support for an interaction between SMI level and the experimental intervention.
4. All forms of support were rated beneficial, to some degree, but leader support, use of wall charts and buddy support in class were rated the most beneficial. Home charts and buddy support out of class were rated least beneficial.

Recommendations

The following recommendations are made on the basis of the results of this study.

1. Further research is necessary to validate the value of structured social support as an intervention that will increase adherence to physical activity. In particular it is recommended that different age groups (e.g. the aged or the young), different settings (e.g. universities, private clubs), different exercise groups (e.g. joggers, calisthenic type exercises) and males be used in other research on this topic.

2. It is recommended that any study on motivation for physical activity incorporate the changes thought desirable and outlined in the Discussion section (pp.100-123). This includes a more intensive intervention that is fully supported by the exercise class instructors. Another approach (e.g. Bandura and Schunk, 1981), to self-motivation should be used until the SMI has been further tested. A smaller number of classes, in a more easily monitored situation, would be preferable to the setting used in this study. It is stressed that any further research, using attendance as the dependent variable, needs to ensure that accurate attendance is recorded. The changes in evaluation procedures are important in order to give maximum feedback on the intervention, and to ensure that it is not biased by utilizing a phone procedure as was the case in this study.

3. One direction that needs to be pursued, in the light of this study being experimental, is to utilize a case study type of approach. This would allow a more in-depth study of social

support processes and how they might mediate physical activity behaviour.

4. The area of family support needs to be researched more deeply, since this area offers an already existent social network and it was not pursued very vigorously in this study.

5. The Self-Motivation Inventory needs to be researched in terms of its validity since it was not found to be predictive of adherence in this study. In particular, the questionnaire needs to be shortened, made easier to follow, have emotion laden items removed and have an item analysis carried out on it, in order to ascertain those questions that load highest in terms of predicting adherence to physical activity.

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APPENDIX ONE

THE SELF MOTIVATION INVENTORY (SMI)

SMI

NAME _____

Instructions

Read each of the following statements and circle the letter of the alternative which best describes how characteristic the statement is, when applied to you. The alternatives are:

A. extremely uncharacteristic of me

B. somewhat uncharacteristic of me

C. neither characteristic nor uncharacteristic of me

D. somewhat characteristic of me

E. extremely characteristic of me

Please be sure to answer every item and try to be as honest and accurate as possible in your responses. Your answers will be kept in the strictest confidence. All responses will be anonymously coded and computer analyzed. All results will be reported only as group scores; hence, individual anonymity is assured.

		extremely uncharacteristic of me				extremely characteristic of me
1.	I'm not very good at committing myself to do things.	A	B	C	D	E
2.	Whenever I get bored with projects I start, I drop them to do something else.	A	B	C	D	E
3.	I can persevere at stressful tasks even when they are physically tiring or painful.	A	B	C	D	E
4.	If something gets to be too much of an effort to do, I'm likely to just forget it.	A	B	C	D	E
5.	I'm really concerned about developing and maintaining self-discipline.	A	B	C	D	E
6.	I'm good at keeping promises, especially the ones I make to myself.	A	B	C	D	E
7.	I don't work any harder than I have to.	A	B	C	D	E
8.	I seldom work to my full capacity.	A	B	C	D	E
9.	I'm just not the goal-setting type.	A	B	C	D	E
10.	When I take on a difficult job, I make a point of sticking with it until it's completed.	A	B	C	D	E
11.	I'm willing to work for things I want as long as it's not a big hassle for me.	A	B	C	D	E
12.	I have a lot of self-motivation.	A	B	C	D	E
13.	I'm good at making decisions and standing by them.	A	B	C	D	E
14.	I generally take the path of least resistance.	A	B	C	D	E
15.	I get discouraged easily.	A	B	C	D	E
16.	If I tell somebody I'll do something, you can depend on it being done.	A	B	C	D	E

	extremely uncharacteristic of me				extremely characteristic of me
17. I don't like to overextend myself.	A	B	C	D	E
18. I'm basically lazy.	A	B	C	D	E
19. I have a very hard-driving aggressive personality.	A	B	C	D	E
20. I work harder than most of my friends.	A	B	C	D	E
21. I can persist in spite of pain or discomfort.	A	B	C	D	E
22. I like to set goals and work toward them.	A	B	C	D	E
23. Sometimes I push myself harder than I should.	A	B	C	D	E
24. I tend to be overly apathetic.	A	B	C	D	E
25. I seldom if ever let myself down.	A	B	C	D	E
26. I'm not very reliable.	A	B	C	D	E
27. I like to take on jobs that challenge me.	A	B	C	D	E
28. I change my mind about things quite easily.	A	B	C	D	E
29. I have a lot of will power.	A	B	C	D	E
30. I'm not likely to put myself out if I don't have to.	A	B	C	D	E
31. Things just don't matter much to me.	A	B	C	D	E
32. I avoid stressful situations.	A	B	C	D	E
33. I often work to the point of exhaustion.	A	B	C	D	E
34. I don't impose much structure on my activities.	A	B	C	D	E

	extremely uncharacteristic of me				extremely characteristic of me
35. I never force myself to do things I don't feel like doing.	A	B	C	D	E
36. It takes a lot to get me going.	A	B	C	D	E
37. Whenever I reach a goal, I set a higher one.	A	B	C	D	E
38. I can persist in spite of failure.	A	B	C	D	E
39. I have a strong desire to achieve.	A	B	C	D	E
40. I don't have much self-discipline.	A	B	C	D	E

[This questionnaire was typed on three pages, in its original form.]

APPENDIX TWO

THE PERMISSION FORM

PERMISSION FORM

Two researchers, Dr. L. Wankel and Mr. J. Yardley, from the University of Alberta, are carrying out a study funded by Fitness Canada. The study requires information which is normally recorded by the Y.M.C.A. e.g. attendance figures, occupation.

We require your permission to utilize this information.

ALL DATA COLLECTED WILL REMAIN STRICTLY CONFIDENTIAL, NO NAMES WILL BE RECORDED AND ONLY GENERALIZED STATISTICS WILL BE PUBLISHED.

I, _____ (name), give permission to the above researchers, to utilize the information recorded by the Y.M.C.A. for a study funded by Fitness Canada.

Dated _____

Class Location: _____

APPENDIX THREE

THE EXPERIMENTAL INTERVENTION BOOKLET
A WINNING COMBINATION: PHYSICAL FITNESS AND YOU

The contents of this booklet were developed by Leonard M. Wankel and John K. Yardley, Department of Recreation Administration, University of Alberta, Edmonton, Alberta, T6G 2E1.

The booklet was produced solely for a research project, "Motivation of Physical Activity" funded by Fitness Canada Grant #265-003-1. The booklet is not for sale and is not available for other purposes.

The authors acknowledge the following as the original producers and suppliers of some of the artwork appearing in the booklet:

The Ontario Ministry of Culture and Recreation for the frontpiece and artwork on pages 2 and 7.

"Life. Be In It", State of Victoria, Australia for the artwork on page 4.

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Field Enterprises, Inc., 1980 for the cartoon on page 6.

FINE PRINT

A WINNING COMBINATION:

PHYSICAL ACTIVITY AND YOU

FINE PRINT

CONGRATULATIONS!

You have taken the first step towards a healthier, happier, active lifestyle. By regularly attending the program sessions, you will learn:

- how to exercise
- how much to exercise
- how often to exercise

If you use this information to establish your own activity schedule you will begin to tap the many benefits of regular physical activity.

BENEFITS OF REGULAR PHYSICAL ACTIVITY

Scientific studies have clearly shown that regular physical activity can lead to many positive benefits.

Caution! These benefits are not gained immediately but only after a period of regular involvement.

The benefits are so important, however, that they are well worth waiting (and exercising) for.

Benefits Commonly Reported Include:

IMPROVED PHYSICAL FITNESS

Improved fitness makes the body more capable to meet the demands of normal living. Also being fit provides a greater reserve to effectively meet the physical demands of special conditions (e.g. climbing 20 flights of stairs when the elevator breaks down; playing a vigorous game of racquetball).

PROTECTION AGAINST CARDIO-VASCULAR DISEASE

An inactive lifestyle is one of the risk factors increasing the likelihood of suffering Coronary Heart Disease (CHD). Although regular physical activity does not prevent CHD it does reduce the likelihood. In addition, a physically fit individual is more likely to successfully recover from CHD.

IMPROVED WORK AND PLAY PERFORMANCE

Improved fitness results in less time lost from work as well as in more productive use of time while at work. Equally important, increased fitness results in greater energy for participating in enjoyable recreational activities with family and friends.

WEIGHT LOSS OR WEIGHT REDISTRIBUTION

Burning up calories through activity together with good dietary practices is an effective way to lose unwanted pounds (kilograms). Physical activity is just as important for those who just want to firm up some muscles or flatten out some bulges.

IMPROVED FEELING OF WELL-BEING

Participants in physical activity programs frequently report feeling better mentally or psychologically (more content and satisfied state of mind) as a result of participation.

DECREASED TENSION OR ANXIETY LEVELS

Vigorous physical activity can be one way of coping with acute stress imposed by occupational and/or family pressures. Regular physical activity can help to reduce chronic anxiety and depression levels.

MORE POSITIVE SELF-CONCEPT

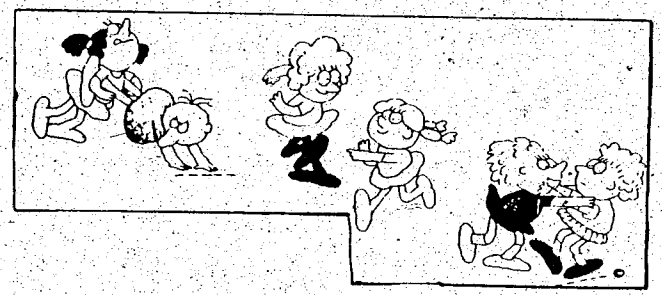
The physical changes resulting from regular activity can lead to more positive feelings about one's body. This improved body-concept in turn results in more positive overall self feelings. The self-discipline of persisting in a desirable activity program also leads to improved self-concept.

ENJOYMENT

The human body is built for movement and much pleasure can be gained from participating in a variety of activities. Also many participants find activity programs to be a good way to meet new friends and to enjoy socializing with others with a common interest. Being active can be fun as well as healthy!

IMPROVED QUALITY OF LIFE

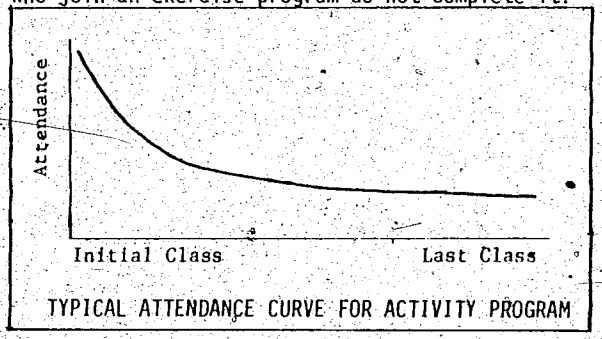
Activity can add life to years if not years to life! Although there is still some question as to whether active people live longer than those who are inactive; there is little doubt, that active healthy people live 'fuller lives'. If you are physically fit you have the freedom to choose from a much greater variety of activities in which you can participate.



THE DROP OUT PROBLEM

"Drop Out! Who? Me! Not Likely! I know when I'm on to something good."

If that is your reaction. Great! However the unfortunate fact is commonly over 50% of those who join an exercise program do not complete it.



TYPICAL ATTENDANCE CURVE FOR ACTIVITY PROGRAM

Some drop out for unavoidable reasons such as illness or moving away but by far the majority simply lack motivation to continue.

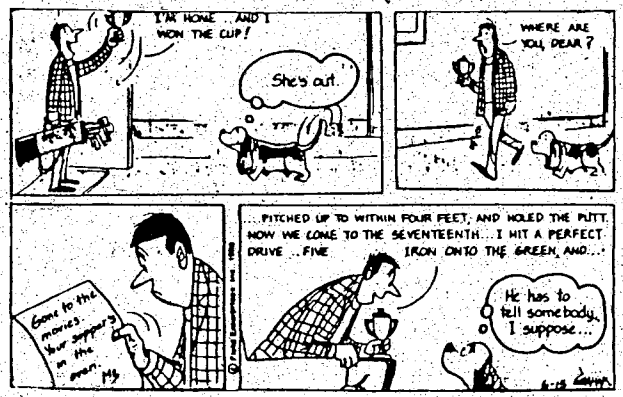
Note that these people joined the program voluntarily and had good intentions - They all wanted to get fit and enjoy the anticipated benefits. Unfortunately, these benefits were never gained as most dropped out in the first few weeks - before any significant improvement could be achieved.

Being aware of the potential problem facing you, you can increase your chances for success by doing some preliminary planning. Some positive steps can be taken to assist regular participation, especially in the first few weeks when the risk of dropping-out is the greatest.

Studies of successful participants and drop-outs indicate that the social support from family, friends, and other program participants can help to maintain regular attendance. Based on this information, a program for structuring social support for your involvement in the program is presented in this booklet. If you follow these suggested practices you will increase the likelihood of your being able to persist in the program. This in turn will help you to achieve the desired positive benefits of regular activity.

WHAT IS SOCIAL SUPPORT?

Social support simply means that other people encourage and assist you in doing what you want to do. By joining the exercise program you have indicated a desire to participate in the program and to derive the benefits from it. People important to you, and to whom you are important, can help you to participate regularly by supporting your involvement in various ways.



FAMILY/FRIENDS SUPPORT

It is important that family and/or close friends be fully informed about your decision to join the program. All household members should be involved in a discussion of the potential benefits which the participant as well as the family/friends can derive from a successful program. Also an open discussion should be held concerning which aspects of family life might interfere with regular attendance. Contingency plans should be agreed upon as to how these potential problems can be overcome without disrupting family routine but still ensuring regular attendance of the program.

Above all the family/friends must agree that regular attendance of the program is a priority and it can not be set aside whenever something else comes up!

The old saying that "you have to give up something, to get something better" applies here. The program may cause some inconvenience but in the long run the family/friends will benefit by having a more energetic, healthier, happier YOU."

BUDDY SUPPORT

Social support within an exercise program can be built through a partner or buddy system. Participants in the program select partners to work with, encourage and assist in reaching desired goals.

As with family/friend based social support the buddy system can provide support in two ways.

- Verbal support in the form of: encouragement, praise, discussion of problems encountered and possible solutions.
- Positive actions such as: telephone reminders, shared transportation, record keeping.

GROUP SUPPORT

You are a member of a group of people committed to the same goals. If you all cooperate to establish a positive group atmosphere, this camaraderie will help you to enjoy the program more.

YOU CAN:

- have fun and socialize.
- help each other with any problems that might occur.
- share and discuss the educational material you receive.
- develop a greater sense of group spirit.
- swap ideas on how to keep your activity program interesting and enjoyable.

LEADER SUPPORT

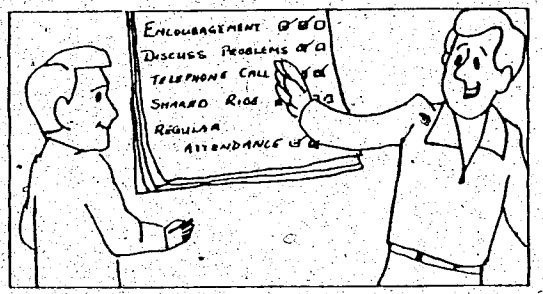
The instructors in your class are people, just like you. They are there to help you reach your objectives. You can help ensure the success of the program by considering some "simple DO'S and DON'TS".

DO:

- tell your leader what you want to get out of the program.
- help make the class fun by being actively involved in it.
- tell your leader what you don't like and what you would like to change.
- praise the leader and classmates when they deserve it.
- discuss any program problems you may be having with the leader.

DON'T:

- criticize your leader to others without first making your views known to the leader.
- quit the program without first discussing your reasons for doing so with the leader.



HOW TO ESTABLISH YOUR OWN SOCIAL SUPPORT PROGRAM

Read the brochure closely - it will only take a few minutes - a small price to pay for understanding.

AT CLASS

1. Team up with a buddy.
2. Introduce yourself and swap names - if you already know each other, fine.
3. Record your buddy's name, address, etc., and mark attendance on attached chart.
4. Discuss now or when time is available such topics as:
   - why you both joined the program.
   - the benefits you both hope to gain.
   - possible problems you might have staying in the program.
   - what kinds of support or assistance you can give each other.
   - the information in the brochure.
   - ideas for setting up family/friend social support.
5. Meet at each class (before or after), if only for 5 minutes and discuss progress, problems. Give encouragement. Just talk!
6. Talk to your group instructor. Share ideas on how regular attendance can be improved.
7. Keep an accurate Progress Chart for you and your Buddy.
8. HAVE FUN!

AT HOME WITH IMPORTANT OTHER(S)

1. Talk to your spouse, partner, family or friend(s) about what you are doing and how important it is to you.
2. Ask them to read the brochure - it will only take a few minutes - or read it together.
3. Discuss the potential benefits to you and to them (e.g. cooperation, achieving plans, closer together, health benefits).
4. Discuss the social support idea and how you can implement social support for your activity program.
5. Identify problem areas that might prevent you attending the classes and plan the means to deal with them.

   e.g. meals and mealtimes
   dishes or cleaning up
   other people needing the car
   conflicting timetables
   social engagements

PLAN TO SUCCEED. MAKE ATTENDING THE PROGRAM A PRIORITY!

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APPENDIX FOUR

THE ATTENDANCE AND SOCIAL SUPPORT CHART

ATTENDANCE AND SOCIAL SUPPORT CHART

This chart is designed for recording the social support that you receive from others, the social support that you give your Buddy, and for recording your attendance at the club. By conscientiously building your social support program (both giving and receiving support) and by keeping an accurate chart, you will greatly increase your chance of maintaining a successful activity program.

DIRECTIONS:
1. Record names and phone numbers in the spaces provided.
2. Place a ✓ to indicate each occurrence of the desired behaviours identified in the columns for each week.

NAME (Self) _____

NAME (Buddy) _____ Phone _____

	ATTENDANCE		BUDDY SOCIAL SUPPORT						FAMILY/FRIENDS SOCIAL SUPPORT				CLASS SOCIAL SUPPORT			
Week	Self	Buddy	Telephone call to Buddy	Telephone call from Buddy	Went to class together	Met at class	Encouragement	Discussion of Problems	Encouragement	Discussed Problems			Encouragement	Discuss Problems		
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

FINE PRINT

APPENDIX FIVE

THE EXERCISE CLASS WALL CHART

"CLASS LOCATION A" FITNESS FANTASIA

ATTENDANCE AND SOCIAL SUPPORT CHART

Buddy Names	Week 1 Attendance	Week 1 Buddy Support prior to class		Week 10 Attendance	Week 10 Buddy Support prior to class
			.....		
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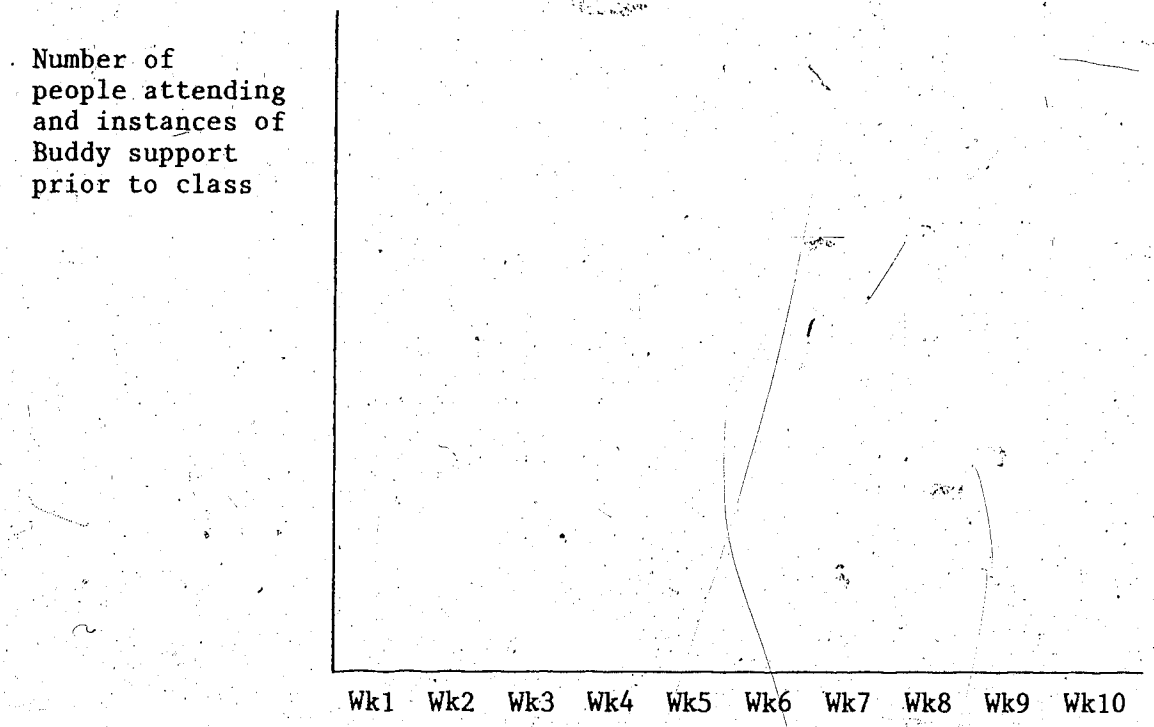
APPENDIX SIX

THE EXERCISE CLASS GRAPH

"CLASS LOCATION A" ATTENDANCE AND SOCIAL SUPPORT GRAPH



APPENDIX SEVEN

THE EXPERIMENTAL INSTRUCTORS INSTRUCTION SHEET

INSTRUCTORS SHEET FOR IMPLEMENTING

STRUCTURED SOCIAL SUPPORT

INTRODUCTION

It is important for you to realize that in order for structured social support to effectively promote regular attendance at your physical activity class, you must be positive and fully supportive of the strategy outlined below and in the participants' booklets.

The stragety fits very neatly into your physical activity program and will help increase the feeling of group togetherness in your class.

The strategy will take very little of your time, or class time, once you have set it up. In other words, if it is properly implemented, you will get the rewards with very little cost.

Although the social support program may seem simple, the participants need to have the importance of implementing it stressed to them, i.e., that such a program will help them to continue their program and to ultimately reap the benefits of regular physical activity.

Evidence clearly shows that SOCIAL SUPPORT FROM FRIENDS, FAMILY AND OTHER PROGRAM MEMBERS IS ONE OF THE MOST IMPORTANT FACTORS FOR MAINTAINING REGULAR INVOLVEMENT IN PHYSICAL ACTIVITY CLASSES.

GENERAL APPROACH TO CLASS

Your first contact with your participants is most important. Try to meet each person with a smile and a warm welcome to establish a friendly, supportive atmosphere right from the start. Encourage the development of a friendly group interaction and a feeling of comaraderie.

ANY PROBLEMS?

If you have any problems with the plan or implementation of it - please contact:

John Yardley	432-2763 (Day) 438-0094 (Night)
Len Wankel	432-2004 (Day) 436-6761 (Night)

PLAN FOR IMPLEMENTING STRUCTURED SOCIAL SUPPORT

A. First Class:

1. Leave 15 minutes at the end of the class so that the structured social support program can be given to the participants in your class.

2. Introduce the researcher to your class as someone working with the Y.M.C.A. to help with class attendance problems.

B. Second and subsequent classes:

1. Any new class members need to be introduced to the structured social support program and assigned to buddy pairs, either new ones or to already existing pairings.

2. New class members also need to fill out SMI and permission forms. Retain these for collection at a later date.

3. Where appropriate, during your class, ask class members about the structured social support program. Reinforce those who are implementing their programs. Try to get the class to discuss what they have found helpful and share problems and ideas. Otherwise, take a few minutes at the end of the class (e.g., during the educational component of the class) to discuss the structured social support program.

4. Remind class members to fill in the wall chart and their personal record - point out that monitoring makes us more aware of desired behaviours and will increase the likelihood of their staying in the program.

5. Remind buddies to contact each other before the next class.

6. Remind participants to continue and/or further develop their family/friend support.

C. Last Class

Hand out evaluation forms and pencils and have class members complete it. These will be collected from the instructors at their convenience.

D. Each Instructor

Will be contacted regarding their evaluation of the structured social support program.

Thank you for your assistance.

LEADER SUPPORT

An integral part of the structured social support plan, being operated in the Fitness Fantasia program, is instructor (leader) support. All participants have been asked to show overt support of their instructors. In addition, instructors can support each other by discussing progress, problems and ideas about the structured socal support plan with each other. For this reason, the names and phone numbers of each of the instructors involved in the structured social support plan, are listed below. You are encouraged to talk to and encourage each other - remember no man (or woman for that matter!) is an island.

Instructor	Venue	Phone Number

[In this space were the list of names of exercise class leaders, exercise class venues, and phone numbers of the exercise class leaders.]

APPENDIX EIGHT

THE EXPERIMENTAL SUBJECT EVALUATION QUESTIONNAIRE

PARTICIPANT EVALUATION OF SOCIAL SUPPORT PROGRAM

The questionnaire is designed to give feedback on the social support program rather than the Fitness Fantasia class you have been attending.

Where a scale is used for your response, each position is an equal interval. Place a circle around the number you feel best represents your opinion e.g.

not at all beneficial 1 2 3 4 5 6 7 very beneficial

1. Class location (Name of school or community centre).

_____

2. Rate the overall importance of the structured social support program to your attendance at Fitness Fantasia Classes.

not at all beneficial 1 2 3 4 5 6 7 very beneficial

3. What recommendations would you make to improve the structured social support you received?

_____

_____

_____

4. Indicate how clearly you understood the structured social support material introduced at your first class.

not at all beneficial 1 2 3 4 5 6 7 very beneficial

The following questions apply to specific parts of the structured social support programme. In <u>each case</u> the questions ask for your assessment of (i) <u>how much effort</u> you made to carry out that part of the program (ii) <u>how beneficial it was</u> for you.

5. The material in the booklet, A Winnimg Combination: Physical Activity and You.

(i) didn't read booklet 1 2 3 4 5 6 7 read booklet in detail

(ii) not at all beneficial 1 2 3 4 5 6 7 very beneficial

6. The Attendance and Social Support Chart posted at home.

(i) didn't mark at all — marked very conscientiously

1 2 3 4 5 6 7

(ii) not at all beneficial — very beneficial

1 2 3 4 5 6 7

7. The Family/Friend support at home.

(i) didn't pursue at all — very actively pursued

1 2 3 4 5 6 7

(ii) not at all beneficial — very beneficial

1 2 3 4 5 6 7

8. The Buddy Support out of class.

(i) didn't pursue at all — very actively pursued

1 2 3 4 5 6 7

(ii) not at all beneficial — very beneficial

1 2 3 4 5 6 7

9. The Buddy Support during class.

(i) didn't pursue at all — very actively pursued

1 2 3 4 5 6 7

(ii) not at all beneficial — very beneficial

1 2 3 4 5 6 7

10. The Group Support at class.

(i) not very actively involved at all — very actively pursued

1 2 3 4 5 6 7

(ii) not at all beneficial — very beneficial

1 2 3 4 5 6 7

11. The Wall Chart in class.

(i) didn't mark at all — marked very conscientiously

1 2 3 4 5 6 7

(ii) not at all beneficial — very beneficial

1 2 3 4 5 6 7

12. The Leader Support in class.

(i) didn't receive any support at all — received a lot of support

1 2 3 4 5 6 7

(ii) not at all beneficial — very beneficial

1 2 3 4 5 6 7

[This questionnaire was typed on two pages, in its original format.]

APPENDIX NINE

A TRANSCRIPT OF THE EXPERIMENTAL INSTRUCTOR EVALUATION INTERVIEW

First of all, I would like to outline the reasons for why I am carrying out this evaluation interview. I require feedback from you, as an exercise class instructor, so that I may understand what has happened. I would like you to give constructive criticism about the structured social support intervention, as well as providing information on the positive aspects. The information you give me will be used in helping write up the study, but neither your name nor the exercise class location will be indicated. This means that no-one will be able to trace a comment to any particular instructor.

There are two mediums, that I can use, to record your comments, a tape recorder, or writing by hand. Some people don't like talking into a tape recorder, so if you feel like that, please feel free to ask me to write what you say. However, the interview is easier to conduct with a tape recorder, and it also provides me with an accurate record of what you said. What would you like me to use?

This is a relatively unstructured interview, however I do have prompt questions to keep you in on a particular facet of the structured social support intervention. Therefore, feel free to say anything you feel is important. Also, if you remember something, after we have talked about that area, feel free to mention it then. Above all, I want you to be honest about the weaknesses, and the strengths, of the structured social support intervention. Interrupt me, or ask me to clarify any question which you don't understand. O.K? Are you ready to start?

This first set of questions is directed toward your fitness instructor experience, and some general impressions of this last set of classes that you instructed.

How many years have you been involved in instructing physical activity classes? How many years have you been working for the YMCA? How many Fitness Fantasia classes have you instructed?

What is your general impression regarding how your exercise class ran this session compared to previous occasions? Are there any important factors that cause you to have this impression?

What is your general impression of the attendance at your class, this session, compared to previous occasions? Are there any important factors that cause you to have this impression?

What outside (extraneous) factors may have caused a drop off in any one week? Can you remember which week that was? (Prompts: weather, bus strike, janitor not opening school, school not available, change in instructor.)

Did any problems occur in your class, other than those that might be associated with the social support intervention?

This next set of questions is more specifically directed to the structured social support intervention itself.

What is your general impression of the structured social support intervention that was carried out in your exercise class? I would like you to try to explain to me whether you felt it was meaningful to the exercise class participants or not?

Regarding the first night's/day's introduction of the structured social support intervention; was it clear to you, what was expected of yourself as the instructor in the exercise class? Do you think the presentation was clearly presented to the exercise class? Do you think the introduction, to the exercise class, can be improved, either in

(i) content?
(ii) method of presentation?

Could you explain to me what you did, to introduce the structured social support program, to the exercise class participants on the second day/night? Could your introduction to these people have been improved? How?

What was your general impression of the booklet? Did you use it, at all, in class? Do you think it could be used in a physical activity class, such as the Fitness Fantasia classes? Do you think the booklet could be improved in any way?

What did you think of the wall charts in regard to; Their ease of understanding by exercise class participants? Their suitability to the exercise class? Their use as a motivational tool? Were you able to put the charts up at every class? Were you able to use the charts as a prompt, to the class, to attend each week? How accurately do you think participants marked it? Could the charts be improved, in any way that you can think of?

Were you able to discuss, or talk about, the structured social support program in the exercise class?

(i) How often?
(ii) How long was spent doing so?
(iii) When in the exercise class, before, during or after?
(iv) What sort of things did you discuss?

Do you think a feeling of group support occurred in your class? Can you describe how this was indicated to you? What sort of things, do you think, could be used by exercise class leaders, to increase feelings of group support in a class?

Could you relate to me any feedback, both positive and negative, that you received from your class participants, regarding the structured social support program?

In regard to your own attendance record, were you able to keep it accurately, or were you sometimes prevented from doing so? (If yes) What days were affected?

Regarding the list of experimental exercise class instructors and their telephone numbers. Did you make contact with any of them regarding the structured social support program? If yes, what did you discuss?

I have asked you about your general impression of the structured social support intervention--could you now relate, to me, those aspects of the intervention that you feel,

(i) most positively about?
(ii) most negatively about?

If the social support intervention was to be used again, in your exercise class, what would you want to see,

(i) changed?
(ii) dropped out?
(iii) added?

What do you think is the method that should be used, to motivate fitness class instructors, to implement the structured social support program in their class? What did you think of the method with which Len and I first approached you?

Are there any concluding remarks that you would like to make, about anything to do with the experimental study?

[At this point the researcher (R_1) thanked the exercise class instructors and in the majority of cases informal discussion took place.]

APPENDIX TEN

THE PROCEDURE FOR THE DISTRIBUTION OF THE SMI AND PERMISSION FORM

INSTRUCTIONS FOR SMI AND PERMISSION FORM

The SMI is an inventory being used to investigate individual characteristics that might effect physical activity behaviour. Therefore each individual has to record their name on the form, however strict confidentiality of the information will be observed with only generalised statistics being used.

The permission form is required since we are using personal information for this Fitness Canada project.

1. The SMI and Permission Form is to be given to <u>each</u> class participant.

2. They should be given at the <u>first</u> class or alternatively the second class.

3. Please place all forms, completed and spare, back in the yellow envelope. These will be collected from you at your convenience.

Thank you for your assistance.

APPENDIX ELEVEN

A TRANSCRIPT OF THE SOCIAL SUPPORT INTERVENTION INTRODUCTION AT THE FIRST EXERCISE CLASS

As _____ has mentioned, I am here tonight/today to outline to you a method for helping people stay in physical exercise programs.

I am from the University of Alberta, and what I am going to outline to you has been financially supported by Fitness Canada. In addition, the YMCA has endorsed this project, by giving me permission to use the Fitness Fantasia program as a group of people to work with. With your permission, I would like to use this class as a group to work with. May I stress that your cooperation is not compulsory.

You have indicated, by your presence here tonight/today, that you would like to be involved in a physical activity program. I would like to explain to you a system which has been devised to help combat a problem that occurs with all physical activity classes--the YMCA being no exception. Perhaps the best method would be to go through this booklet that _____ is handing out to you. We will cover it, briefly now, but I strongly suggest, to you, that you read it more closely when you have time, eg. when you get home. Please interrupt if I brush over something too quickly, confuse you, or if you have a question. Are there any questions? (pause)

The first page is an introduction. May I point out the importance of the words "regular physical activity" and that "benefits are gained only after a period of regular involvement"--the word regular is important.

Pages 2, 3 and 4 list some commonly reported benefits. As you flick through them you may well see some benefits you are hoping to achieve. Maybe you didn't realize you could attain some of the other benefits. (pause)

O.K., on to page 5. This is the problem that this program, I am introducing, has been devised for--the drop out problem. The opening two paragraphs say it all. Most people claim that they want to get fit, etc., but over ½ of them usually drop out, and, usually long before any positive effects can be felt.

The first two sentences on page 6 explain what this program is all about. (pause) ... Studies show that social support is important in helping people maintain regular attendance in physical activity programs. What is social support? Simply, it is having other people encourage and assist you in what you want to do.

I'd like to now quickly explain 4 areas of social support, which can help you stay in the program.

The first, at the top of page 7, Family/Friend support. This, simply stated, involves having your family or close friends fully informed and supportive of this fitness program that you have enrolled in, and what you hope to achieve in it. We are not trying to interfere with your family relationships, but rather we are trying to indicate to you, how important open discussion is, of possible problems, how to get around those problems, the importance of the fitness classes to you. It

is necessary to have a proper family/friend support environment. Note the middle paragraph, "above all the family/friends must agree that regular attendance of the program is a priority." If your attendance isn't a priority, it will soon stop.

The second type of support is at the top of page 8 ... Buddy support. A buddy or partner system compliments the family/friend support. It provides for two or more individuals, in an exercise class, to give each other encouragement and assistance.

The third type, i.e. Group Support is really a feeling of group togetherness or comaraderie. A positive, friendly, open atmosphere, in your class, will mean a supportive group feeling for everyone.

Finally leader supprt--on page 9--this works two ways:
(1) you support your leader--they need your encouragement too.
and (2) the leader supporting you, by being positive.

Are there any questions? I know I have run through this quickly so please feel free to ask me anything.

O.K., the last two pages, 10 and 11, outline how to establish the social support program.

First, going over setting up the family/friend support at home, turn to page 11. Would you now read through the list of ideas written there. (pause) ... I am not suggesting that you have to carry out all these steps, or in that order. They are there to help you understand the sorts of things that can be done to promote friend/famiy support and I sincerely believe that this can be helpful in maintaining regular involvement at this class--for this reason it is worth your while attempting to set up the family/friend support.

Are there any questions you would like to ask me, before I proceed? (pause) ...

O.K., the buddy support program. I want you to form pairs or threes. If you have come with friends, or already know someone that's fine. Three's are O.K. too. If there are any fours, for the purposes of this program, would you split into two pairs. Anybody who does not want to take part in this can stay where they are. Would you now pair up please. (pause) ...

Anybody over, if there is, would someone take these people in as a three, maybe you could get together to make your own group.

Right, now looking at page 10 you can see that we have done number 1. Would you now do 2 and 3 (pause) ...

Has everybody done that? Good. From now on, each pair, or three, needs to carry out the buddy support program outlined in numbers 3 through 8. You could start by phoning your buddy tomorrow, to compare your aches and pains, after the work out you had tonight.

Just two more things. The first are these wall charts which _____ will bring to each class. Each buddy pair or three should enter their names as they leave tonight, you can mark your attendance too. There is a space for receiving buddy support prior to the class, so if you received that mark it off too. These charts serve as a reminder, each week, to the buddies that they have a responsibility to help each other and also to monitor your attendance progress.

Remember, to make this program work, the important things to do are:

(1) set up your family/friend support discussion
(2) post your home chart so everyone can see it, eg. on the telephone board, fridge or whatever, and to fill it in each week
(3) support your buddy, give him/her a phone call, encourage each other, share a ride if you can
(4) mark your class attendance chart each week
(5) have fun at class and help each other, including the instructor

The last thing. I have here, a permission form, and a very short questionnaire. _____ is distributing them to you. I would very much appreciate you taking the short amount of time necessary to fill them out now. Once again, this is not compulsory. The questionnaire is designed to investigate individual characteristics that might effect regular involvement in physical activity. I would like to stress that although names are asked for, the data will be computer analyzed and reported as generalized statistics. As you finish bring your completed questionnaire to me and, please, do not forget to put your name on the wall chart.

Thank you for the time and attention you have give me, I do appreciate it. If there are any querries, please, do not hesitate to approach me.

[_____ indicates that the researcher would use the exercise class instructor's name.]

APPENDIX TWELVE

A TRANSCRIPT OF THE TELEPHONE INTERVIEW FOR THE EVALUATION OF THE STRUCTURED SOCIAL SUPPORT PROGRAM BY EXERCISE CLASS DROPOUTS

Hello _____. My name is John Yardley and I am associated with the Fitness Canada study that was carried out in the YMCA Fitness Fantasia class that you attended at _____. I am carrying out an evaluation of the structured social support program that was run during those classes and I was wondering if you would be willing to give me 7 minutes of your time, so that I could do a telephone evaluation of the structured social support program?

If now is inconvenient, I would be willing to call you at a time that is more convenient to you.

Firstly, all your answers will be treated with the strictest confidence. Your name is not being recorded and the answers you give will be reported in a generalized form neither indicating the person nor the exercise class that they came from.

Secondly, do you remember what the structured social support program consisted of? (If no) The structured social support program consisted of:

(i) The booklet A Winning Combination: Physical Activity and You.
(ii) The home attendance and social support chart.
(iii) The buddy system.
(iv) The wall charts.
(v) The family/friend support program.
(vi) Group support in class.
(vii) Leader support.

Do you remember the structured social support program now? (If no: terminate conversation.) (If yes: continue.)

To evaluate the structured social support program I would like you to draw a scale--have you a piece of paper and a pen or pencil handy?

To construct the scale draw a straight, horizontal line, about 5 inches long on the piece of paper. Now place the numbers 1, 2, 3, 4, 5, 6 and 7 evenly along that line. We will use this scale on almost all the questions. Some open ended questions are also asked. Have you got the scale drawn and numbered?

Each number on the scale represents an equal interval. What I want you to do is to tell me which number best represents your opinion on each question that I ask. Please feel free to use any of the numbers, since people can feel positively, or negatively, about different aspects of the system.

This first question is a practice question, so that you are familiar with how the scale works. If you are unsure about what this question, or any other question, asks please ask me to clarify it.

Are you ready?

O.K. The practice question is: Rate how important it is, to your health, that you have a balanced diet. Please use the scale 1 through to 7 where 1 means it is not at all beneficial through to 7 - very beneficial.

Do you understand how the scale works?

Have you any queries regarding the questions that I will ask, or structured social support system, before we start?

O.K. We will now go through the interview questions.

Firstly, how would you rate the overall importance of the structured social support program to your attendance at Fitness Fantasia classes? Please use the scale of 1 being not at all important, through to 7 being very important.

The next question is open ended so we don't use the scale for it. What recommendations would you make to improve the structured social support you received?

Now using the scale again. Please indicate how clearly you understood the structured social support material at your first class? This time 1 is not at all clear through to 7 being very clear.

The following questions, that I will ask, apply to specific parts of the structured social support program. In each case I will ask you for your assessment of two things, (1), how much effort you made to carry out that part of the program, and (2), how beneficial that part of the program was to you.

Firstly, the material in the booklet, A Winning Combination: Physical Activity and You, where 1 means you didn't read the booklet at all through to 7 you read the booklet in detail. And now, in terms of the benefit the reading of that booklet was to you, where 1 is not at all beneficial through to 7, very beneficial.

Next, the Attendance and Social Support Chart that we asked you to post at home. 1, you didn't mark it at all through to 7 you marked it very conscientiously. And, in terms of the benefit that you felt this chart was to you, 1, it was not at all beneficial, through to 7, it was very beneficial.

The Family/Friend Support at home. Here 1 means you didn't pursue it at all through to 7, you very actively pursued it. And in terms of the benefit that this family/friend support was to you, 1 was not at all beneficial through to 7, it was very beneficial.

The Buddy Support out of class. As before 1 means you didn't pursue it at all through to 7, you very actively pursued it. And in terms of the benefit that this buddy support out of class was to you, 1 was not at all beneficial through to 7, it was very beneficial.

The Buddy Support in class. As before 1 means you didn't pursue it at all through to 7, you very actively pursued it. And in terms of the benefit that this buddy support in class was to you, 1 was not at all beneficial through to 7, it was very beneficial.

Next, the Group Support at class. Here 1 means you were not very actively involved at all through to 7, you were very actively involved. And in terms of the benefit that the group support was to you, 1 is not at all beneficial through to 7 it was very beneficial to you.

The Wall Chart in class. This time 1 means you didn't mark it at all through to 7, you marked it very conscientiously. And in terms of the benefit that marking the wall chart was to you, 1 it was not at all beneficial through to 7, it was very beneficial.

The second to last question is concerned with Leader Support in class. Here 1 means you didn't receive any support from your class leader at all through to 7, you received a lot of support.

Now I want you to give me a rating using a 5 point scale, not the 7 point scale we have used up till now. O.K?

The question is, how would you rate your feelings about the structured social support program used at your class? Please use the scale of 1 to 5 where 1 means you are most negative about it, 2 means you are negative, 3, you are neither negative nor positive, 4 means you are positive, and 5 means you are most positive. (R1 at this point would repeat the score and its meaning back to the respondent, to ensure that was the rating the respondent meant.)

Are there any comments you would like to make about the structured social support program?

Are there any questions you would like to ask me?

Thank you very much for your assistance, you have helped me understand the structured social support system better through this evaluation, Goodbye. (pause--hang up)

APPENDIX THIRTEEN

SUGGESTIONS FOR IMPROVEMENTS AND VERBAL REACTIONS TO THE STRUCTURED SOCIAL SUPPORT PROGRAM GIVEN BY PARTICIPANTS

Buddy Support Suggestions

- Have buddies take turn about telephoning each other.
- Use buddy system to introduce people to each other.
- Switch buddies to get to know more people.
- Buddy should be a friend or someone you know, cannot have one chosen for you.
- Telephone each other at set times.
- Need to be encouraged more to get to know buddy, especially at first class.
- Reticent to telephone someone, that I don't know.
- Reticent to approach buddy in class.
- Try and match buddies by sex, interests, fitness level etc.
- If buddy quits need encouragement to meet others.
- Buddies need to make a commitment to each other.

Instructor Support Suggestions

- Instructor should phone dropouts as well.
- Instructor needs to be more encouraging.
- Instructor needs to know what the support system is about.
- Instructor plays a key and central role, therefore should direct participants.
- Instructor direction would reduce feelings of reticence.
- Instructor needs to give personalized support as well as class support.

Class Support Suggestions

- Establish car pools.
- Use name tags.
- Use "ice breaking" techniques at start.
- More class interaction needed.
- Class needs to be structured and organized for support.
- Class commitment needed at start.
- Should promote a personal atmosphere, use first names more.
- Exercises and ideas to get people to know each other.

Family Support Suggestions

- Family contract.
- Get spouse to help.

Buddy Support Introduction

- Prove to the class that it will work.
- Allow people to choose own buddy.
- Direct people to approach others.

Positive Statements

- I'm pleased!
- Good system.
- More people would quit without the system.
- Should be used in other classes.
- Promote it!
- Very comprehensive.
- Gives incentive to come.
- Great stuff! Worked very well especially buddy support.

- Some need it.
- Good idea but also needs personal commitment.
- Enjoyed it and thought it helped.
- Great for those who need pushing and structuring.
- Initiation action--Fantastic!
- Good for others but not me.
- Aimed in right direction because most people want social interaction.
- Good for poorly motivated.
- O.K. all round.

Negative Statements

- You need self-motivation and self-discipline, not buddy systems.
- Unnecessary because motivated enough already.
- I have got nothing positive to say.
- I don't need support to attend.
- Not interested in that sort of thing.
- Make friends yourself--who needs a system?
- Not a good idea--make your own decision and stick with it.
- Time waster, especially for warmups--you get to know people anyway.

[In many cases there were statements given by participants that were similar. These have been subjectively edited so that categories are not repetitive. The proportions of responses are still indicative of, the areas needed for improvement and the reactions to the structured social support system.]

APPENDIX FOURTEEN

EVALUATIONS AND REMARKS MADE BY E INSTRUCTORS DURING EVALUATION INTERVIEWS

Where applicable, the numbers in brackets, indicate the number of E instructors responding in that vein.

Experience

All E instructors had had past experience as physical activity instructors ranging from 10 years to 2 years. Two were teaching their 4th Fitness Fantasia class, one her 3rd, one her 2nd and three their 1st.

General Impression of how class ran

- classes were better (3)
- classes were worse (2)
- better attendance (3)
- worse attendance (1)
- staying behind after class (1)
- being better organized (2)
- participants showed their pleasure (1)
- instructor felt ill at ease with format of Fitness Fantasia class (2)

Comparison with past attendance

- attendance better (3)
- about the same (1)
- worse (1)

Extraneous factors causing disruption to class

- sick children during winter months reported by participants (1)
- discontinuity of instructors (4)
- prior booking of facility caused a last minute cancellation (1)
- bad weather (3)
- janitor not an agreeable person--kept participants outside in cold (1)
- major accident on linking bridge to class location (1)
- gymnasium too hot, too dirty (2)
- janitor forgot to unlock school (2)
- moved to another location because unable to use first location (2)
- class cancelled (2)

Other problems in class

- none reported (except for deleted study referred to in Discussion, Chapter 5)

General impression of structured social support program

- good thing (5)
- motivator (2)
- overwhelming at start with paper work as well (5)
- people needed to be pushed more (2)
- those who missed introduction never got the full treatment (2)

- a few were against it from the start (5)
- most were in favour of it, positive attitude (5)
- good, lent itself to buddy exercises (2)
- encouraged interaction (2)
- "it was almost as if they were children still, they enjoyed it" (1)
- initial presentation fast, but comprehensive (3)

Introduction of structured social support program

- too fast, somewhat unclear (1)
- instructor's role clear (5)
- participants understood what the system was (4)
- "SMI was insulting" (1)
- method and content good (4)
- people wanted to get away in a hurry (3)

Second night's introduction

- same as R_1 (1)
- briefly the same as R_1 (3)
- mentioned that study was Fitness Canada funded (2)
- found it difficult to do when others interrupted to ask questions (1)

Booklet

- good (5)
- easily read, comprehensive, to the point (3)
- easy to take home to others (1)
- didn't use in class (5)
- could be used in class each week (3)

Wall Charts

- easily understood (5)
- suitable to class (3)
- used as a motivational tool (3)
- up in every class (2)
- don't need the graph as well (3)
- attendance fairly accurate (3)
- attendance marginally accurate (2)
- no improvements needed, good as is (4)
- more colour, smaller, larger (1)
- some weren't interested in the chart (1)
- constant reminder to class (3)
- important to put in a prominent place (doorway) (3)
- "I forgot the chart one night and everyone was most disappointed" (1)
- was self reinforcing (1)
- people chatted around it, and looked at it (3)

Discussion in Class

- every class (2)
- most classes (2)
- sometimes (1)
- not often, not much, brief (4)
- basically left it to them (1)
- talked about helping each other (1)
- reminded them to mark the chart (4)
- reminded them to phone their buddy (3)
- reminded them to get family support (1)
- could have done more (3)

Group Support in Class

- very little response, in class, to questions (3)
- yes, there was a group feeling (1)
- need juice at end, for a social chit chat (2)
- this aspect in classes needs to be stressed more (1)
- did class exercises, lost their reserve, yahooed and laughed out loud (2)
- yes, very much so (1)
- need instruction (1)

Family Support

- didn't push that at all (2)
- talked a bit, not much (1)
- no feedback (2)

Feedback - positive and negative

- reaction generally favourable (4)
- 1 didn't want to take part (1)
- 2 didn't want to take part (2)
- maybe half a dozen negative (1)
- they were all for it, none said anything negative (2)
- was the extra shove that some needed (2)
- buddies would come up and report so and so couldn't come and give a reason (3)
- some didn't like phoning people they didn't know (2)

Own attendance record

- very accurate (1)
- accurate (1)
- pretty accurate (mainly) (2)
- a couple of times it wasn't too good (1)
- stragglers (latecomers) were often missed (1)
- people who went to other classes to make up for missing own were not recorded (1)

Contacted other E instructors by phone

- no (5)

Most positive aspects of social support system

- attendance chart, drew attention to the dropout problem (2)
- attendance chart, feedback of how they are going (1)
- buddy system good icebreaker, increased interaction (3)
- takes some responsibility from instructor and places it on participants (2)
- booklets great (2)
- some people need help and encouragement, the buddy system gives them that (2)

Most negative aspects of social support system

- they didn't get behind it enough, needed more effort (2)
- some need to be convinced of its value (2)
- uncomfortable about letting buddy down (1)
- didn't like contacting people they didn't know well (3)
- home support, that's not our responsibility (1)
- extra work for the instructors (1)

Changes, Dropped Out, Added

- make the instructors push it more (2)
- wouldn't drop anything out (2)
- educational component should incorporate the social support system (2)
- one attendance sheet (wall chart or YMCA sheet) (1)
- family, couples, friends night (1)
- get rid of the SMI or at least change it (2)
- use name tags
- have a social time at end, especially juice (3)
- need more instruction on the support system (2)

How to motivate E instructors to use social support

- give them some facts (2)
- must have someone support instructor--phoning was good for that purpose (2)
- don't be too pushy but be firm (1)
- use the more experienced instructors (2)
- get instructors to support each other more (1)
- conduct a workshop (2)
- initial approach just fine (2)
- good to see an organized introduction (2)

Concluding remarks

- going to try the idea on my own (1)
- drop off is the "big city syndrome" (1)
- made a difference in class quality (1)
- the whole class needs to rally around (1)

Problems at class locations from interview with Program Coordinator

Of the 16 locations, only 5 did not have a switch in instructor or venue (1 E location, 4 C locations). On a few occasions an E instructor helped out at a C location. Only one C instructor at an E location.

The experienced instructors were fairly well balanced in the two treatment conditions. Instructor evaluations were generally positive. Some negative comments abour 2 E locations but of a minor nature. Instructor discontinuity sometimes as many as 3 times, a few 2 times, quite a lot once.