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dissertation entitled

EFFECTS OF A PSYCHOEDUCATIONAL INTERVENTION ON STRESS, HEALTH BEHAVIOR, AND ACADEMIC ACHIEVMENT IN ACADEMICALLY UNDERACHIEVING COLLEGE STUDENTS

presented by

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has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Counseling Psychology

Major professor

Date July 27, 1987

EFFECTS OF A PSYCHOEDUCATIONAL INTERVENTION ON PSYCHOLOGICAL STRESS, HEALTH BEHAVIOR, AND ACADEMIC ACHIEVMENT IN ACADEMICALLY UNDERACHIEVING COLLEGE STUDENTS

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

School of Health Education, Counseling Psychology
and Human Performance

1987

ABSTRACT

EFFECTS OF A PSYCHOEDUCATIONAL INTERVENTION ON PSYCHOLOGICAL STRESS, HEALTH BEHAVIOR, AND ACADEMIC ACHIEVMENT IN ACADEMICALLY UNDERACHIEVING COLLEGE STUDENTS

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This study investigated the impact of a psycho-educational intervention for health care decision making and personal problem solving, the Personal Paradigm Shift (Hinds, 1983), on stress, health care behavior, and academic achievment in academically underachieving college students. The research is based in the educational model of human service delivery and the concept of psychoeducation (Larson, 1984). The Personal Paradigm Shift was used to determine its effectiveness in (a) reducing psychological stress, (b) increasing health care behavior and (c) increasing academic achievment as measured by grade point averages.

A total of 106 students on academic probation at a Michigan university were randomly assigned to one of two treatments: training in the Personal Paradigm Shift intervention, or no treatment. Treatment was administered during the Fall Quarter of 1985. Both groups were able to participate in the customary university resources for students on academic probation. There was a level of

severity of academic underachievment nested in both groups. The study used a pretest-posttest control group design with follow-up measures.

Subjects completed the Taylor Manifest Anxiety Scale (MMPI), the General Tension Chart (Hinds, 1983), and the Lifestyle Coping Inventory (Hinds, 1983) at pretest and posttest. Quarterly and cumulative grade point averages were obtained at pretest, posttest, and 3-month follow-up. A 99% return rate was obtained at posttest in each of the treatment groups.

The individual was the unit of analysis, and analyses were performed on gain scores obtained from pretest - posttest and pretest - follow-up comparisons. A multivariate analysis of variance was performed on the psychological stress perceptions and found to be non-significant for the pretest - posttest comparison ($p > .05$). A two-way analysis of variance was performed on the health care behavior performance data and was found to be non-significant ($p > .05$). Two, two-way analyses of variances were performed on the cumulative grade point average comparisons and were found to be non-significant for the pretest - posttest comparison and the pretest - follow-up comparsion ($p > .05$). Two two-way analysis of variance were performed on the pretest - posttest comparison and the pretest - follow-up comparison of quarterly grade point averages and were found to be significant ($p < .05$).

The results of this study indicate that the cycle-educational intervention, PPS, has a positive effect on academic achievement in academically underachieving college students. The results also have implications for university retention programs for academically underachieving college students.

To my loving wife, Barbara

ACKNOWLEDGMENTS

To William Hinds, Ph.D., who supervised this research and provided me with the necessary understanding of behavior change dynamics and never ending encouragement to complete this project, I warmly thank you.

To Richard Johnson, Ph.D., Herb Burks, Ph.D., Bertram Stoffelmayr, Ph.D., and Steve Raudenbush, Ph.D., who provided critical assistance and direction to the study and contributed valuable perspectives to the project, I thank you for your time, patience and support.

To the Michigan Technological University Counseling Service, Dean of Students Office, and Computer Services who believed in the worthiness of the project and provided me with much assistance, I am grateful.

To the academic probation students of Michigan Technological University who participated in the research and helped increase my understanding of your stress and its effect on your college performance, I thank you.

To Ken Hetzler, M.D., who provided me with empathic understanding and support for finishing this project and balancing clinic responsibilities, I am very grateful.

To Jay Athy, Ph.D., Jim Azar, Ph.D., Charles Grayson, Ph.D., Wendy Fielder, Ph.D., Greg Holmes, Ph.D., Russ Hogan, Ph.D., Jack Loynes, Ph.D., and Bob Maierhofer, Ph.D., I thank you for your lasting friendships and encouragement.

To John and Linda who provided me with a home away from home during the completion of this project, I am sincerely grateful.

To my parents William and Margaret, who never lost faith in my ability to complete this project; and my in-laws Lois Huschke, and John and Kathy Huschke who provided continued encouragement and respite throughout this long project, I will fondly remember your support.

To my daughter Emily, whose love was given so spontaneously throughout the time I was so occupied with this project and at times unavailable, I will treasure you always; and to my unborn child whose birth is joyfully anticipated, I am glad this project will not interfere with your diaper changes.

And to Barbara, there aren't adequate words to express my love for your steadfast devotion and faith to me and our relationship during the time this project strained our family life. I will remember your contribution to me and this project eternally. You are a real gem.

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CHAPTER 1

INTRODUCTION

The Problem

The past thirty years in the clinical psychology field has witnessed a development of a shift from a "healing" orientation to a "teaching" orientation in the delivery of psychological services. Sanford (1955), Hobbs (1964), and Miller (1969) contributed to a philosophy of giving psychology away to the public in the form of developing a skills-training paradigm in the delivery of human services (Larson, 1984).

In the recent decade, a number of practitioners have provided additional contributions to the psychologist-as-educator model (Authier, Gustafson, Guerney, & Kasdorf, 1975; Guerney, Guerney, & Stollak, 1971/1972; Guerney, Stollak, & Guerney, 1970, 1971; Larson, 1984; Mosher & Sprinthall, 1971). In contrast to the traditional medical or illness model, this new model provides for an educational orientation in the delivery of human services. Psychoeducation involves the teaching of personal and interpersonal attitudes and skills which the person can apply to solve present and future psychological problems and enhance his/her own and others' satisfaction with life (Guerney, et al., 1970). The educational model calls for

psychologists to teach personal and interpersonal skills and competencies to people previously lacking in these skills. The psychologist assumes the role of educator, teacher, or consultant, and the person utilizing the services is considered a pupil rather than a patient.

The movement to teach personal and interpersonal skills has gained momentum in the educational system (Brown, 1971; Colley, 1975; Ivey & Alschuler, 1973; Mosher, 1977). Many stress management and self-help manuals provide coping information to recipients, but are thought to be useful only when coping failure is due to simple lack of knowledge (Lazarus & Folkman, 1984). The educational model, in addition to providing information about the consequences of stress, includes teaching life skills and encouraging competency in personal problem solving and health care decision making.

During the last few years, the treatment of stress in college students has become a major concern for college adminstrators. Dysfunctional lifestyles in college students are perhaps the most common reason for academic underachievment, resulting in academic dismissal from the university. Stress management and educational programs have been employed with differing degrees of success directed at student retention. University health care professionals recognize that student stress is a complex problem with physical, behavioral and psychological components. Colleges are concerned with helping their students develop the

necessary skills and competencies to become academically successful.

Many stress management programs developed in the recent past on college campuses have primarily developed a focal treatment strategy on study skills deficiencies, relaxation techniques, personal growth or test anxiety (Decker & Russell, 1984). However, these treatments have not provided students with a model for learning how to observe, experience, and determine their own behavioral choice process that influences personal lifestyle and health care. An intervention that teaches the dysfunctional student skills for health care decision making and personal behavior change can be a useful adjunct to college retention programs. With the educational intervention model presented in this research, students can learn a process for making sound decisions about their lifestyles and for instituting positive behavior changes. This process can enhance the overall lifestyle of the student, increase academic achievment, and improve college student retention.

Need

The need for a psychoeducational intervention for academically underachieving college students can be demonstrated from several observations. First, students who are underachieving academically present a conflict to themselves personally. Stress in college students contributes to impaired social relations, poor physical and nutritional health, difficulty with career decisions, test

anxiety, low academic achievment and feelings of helplessness and hopelessness (Lerning, 1982). Additional authors have reported similar symptoms of stress in college students (Grayson & Cooper, 1978; Greenblatt & Schroeder, 1974; Russell & Gribble, 1982; Spielberger, 1966). Symptoms of stress in college students often result in maladaptive behaviors and lifestyle choices and may contribute to the increased use of anti-anxiety agents, anti-depressants, non pharmaceutical drugs, and alcohol abuse (Greenblatt & Schroeder, 1974).

College students who are academically underachieving present a problem to university student retention policies and are a second factor suggesting a need for this study. There are many political, social, and economic reasons for the declining college student enrollments in the 1980's. Increased tuition costs, curtailment of government-financed support, technological advancements of industry that impact curriculum changes, and the rise of inflation all contribute to making college more stressful and add to the reasons for declining student enrollments (Lerning, 1984).

A third factor suggesting the need for this study is that a number of stress management programs for college students reported in the literature have had limited results in increasing academic performance. A number of single-focus behavioral treatment programs effective in alleviating self-report indices of stress, study skills deficiency, and test anxiety for college students have been noted in the

literature (Bednar & Weinberg, 1970; Decker & Russell, 1981; Goldfried, Linehan, & Smith, 1978; Greiner & Karoly, 1976), but rarely have these changes been associated with concomitant increases in academic effectiveness as measured by grade point average (Finger & Glassi, 1977). Although change immediately following treatment may be good for the target symptom, overall personal change as reflected by increased grade point averages has not been demonstrated by these single-focus programs.

Multi-component treatment programs reported in the literature combining study skills counseling, cognitive restructuring, systematic desensitization, and relaxation have been more effective in treating test anxiety than single-component strategies (Decker & Russel, 1981; Decker, Williams, & Hall, 1982; Holroyd, 1976; Lent & Russell, 1978; Meichenbaum, 1972). These success-stress management treatment programs combined with study skills programs are found to be effective with students in reducing stress, but inconsistent in increasing academic performance (Williams, Decker, & Libassi, 1983).

A fourth observation that highlights the need for this study is that chronic academic underachievment in college students suggests poor problem-solving skills (Decker, Williams, & Hall, 1982). McGuire and Sifneos (1970) called for teaching problem-solving skills to psychotherapy patients, stating that the deficit in learning with regard to solving internal conflicts blocks efforts to initiate

personal change. Many psychiatric groups display developmental deficits in means-end thinking (Spivac, Platt, & Shure, 1976), a skill necessary to solve personal and interpersonal problems. A direct psychoeducational approach is suggested to strengthen these cognitive processes (Larson, 1984). Academically underacheiving college students exhibit a variety of personal difficulties (Lerning, 1982) that can benefit from a problem-solving perspective. Their academic underachievment constitutes a problem to be solved and with the PPS it can be assumed students can learn the psychological skills necessary to manage these problems.

Purpose

The purpose of the present study was to determine the impact of a specific psychoeducational intervention, the Personal Paradigm Shift (Hinds, 1983) on the health and lifestyle behavior of academically underachieving college students. In this study health is defined as a state of equilibrium, including physical and psychological well-being, that people want to maintain or restore when it is disrupted (Herzlich, 1973). Specifically, this research explored the effectiveness of the Personal Paradigm Shift in encouraging health care behaviors, psychological and physical stress reduction, and increasing academic achievment in underachieving college students.

Research Hypotheses

A number of research questions were formulated. It was hypothesized that:

1. A psychoeducational intervention designed to teach academically underachieving college students concepts of personal problem solving and health care decision making will increase academic performance.

2. A psychoeducational intervention designed to teach academically underachieving college students concepts of personal problem solving and health care decision making will promote the performance of health care behaviors.

3. A psychoeducational intervention designed to teach academically underachieving college students concepts of personal problem solving and health care decision making will reduce manifest psychological anxiety.

4. A psychoeducational intervention designed to teach academically underachieving college students concepts of personal problem solving and health care decision making will maintain positive academic gains following the termination of treatment and return to the natural environment.

Theory

The theoretical basis of psychoeducation and skills training lies in the interface between the fields of education and psychology. The historical basis outlining the theoretical underpinnings of psychoeducation has not yet been clearly developed because a shift from the psychologist

as therapist to the psychologist as teacher has not occurred (Authier, et al., 1975).

Historically the dominant model in psychology has been the medical or illness model. This model rests on the assumption that the patient seeks treatment for an abnormality or "illness" and the practitioner engages in the process of diagnosis, prescription, and therapy. If the practitioner is accurate in his/her assessment and treatment, the client/recipient is then "cured."

Within the educational model, the client seeks the services of a psychological practitioner because of some perceived "dissatisfaction" or "ambition" (Authier, et al., 1975). The practitioner's role is to assist the client in a goal-setting process and teaches the client a specific set of skills, ideally resulting in client satisfaction and goal achievment.

The role of the participant in treatment is also defined differently in each model. In the educational framework, the participant is a pupil, or trainee, and the practitioner is an instructor or teacher (Authier, et al., 1975); Guerney, et al., 1970, 1971, 1972; Larson, 1984). The domain of the psychoeducator is the affective, behavioral, and interpersonal. In the traditional medical model, the role of the participant is that of a patient and the role of the therapist is to provide a treatment climate in which the etiological dynamic of the illness is

uncovered. The domain of the practitioner is the therapeutic relationship.

There are several principles underlying the psychoeducational model and they are distinctly different to the tenets of the medical or "illness" model. The first principle, the foundation for viewing the psychological practitioner as teacher, is that the most important aspects of human behavior result from experience and not from the unfolding of genetic predisposition or instinct (Authier, et al., 1975). This principle has been pervasive in the field of learning and social psychology. Freud's theory of human development was based on the fundamental idea that life experiences were critical in shaping human behavior. The learning theory approach as it emerged in psychology was in part founded on Watson's (1916) beliefs that human attitudes, values, and behaviors are changeable, when provided with appropriate environmental manipulations. Several other major figures in psychology have also advanced the view of the psychologist as teacher (Dollard & Miller, 1950; Mowrer, 1950; Rotter, 1954). Additionally, Wolpe (1958) proposed that learning was what receiving psychological services was all about. This evolving view of therapy as a learning process has contributed to the present idea that teaching plays a major role in providing psychological help.

Another important principle in the development of psychoeducation was the public's acceptance of the need for

psychological services and the profession's awareness that the need would be unmet if the model for delivery of these services remained unchanged. Rogers (1951) was a pioneer in encouraging psychologists to break away from the medical model. Rogers (1953) introduced two cornerstone theoretical concepts of psychoeducation, "proper interpersonal climate" and "appropriate skill training."

The concept of proper interpersonal climate refers to the psychologist's willingness to respect client autonomy and encourage clients to choose their own goals. This is based on a fundamental belief that clients are in fact capable of attaining their own goals if provided the appropriate environmental circumstances. Rogers believed that clients have the best aptitude for solving their own problems and their right should be respected to do so. Larson (1984) has affirmed these ideas, presenting the key assumption of psychoeducation that clients are viewed as capable of directing their own learning rather than being passive recipients of treatment.

The concept of appropriate skills training means that psychologists assist in designing a program of personal or interpersonal content that best fits the client's needs. Skinner (1953) asserted that if treatment did not advance client behavior change, the psychologist must concentrate on changing the strategies for treatment, and not the client. Skinnerian behavior modification strengthened the skills training concept by advancing the focus on special

behavioral objectives and the need to develop effective teaching strategies for accomplishing these objectives.

An additional concept advancing the theoretical basis of psychoeducation is intentionality, or responsiveness. Ivey and Alschuler (1973) defined intentionality as the capacity to anticipate alternative experiences, choose among them, and attain desired goals. People who behave intentionally are seldom faced with only one solution to a problem. It is believed to be a benefit from learning "responsiveness" to life situations as opposed to merely learning a discrete response to a specific situation (Drum & Knott, 1977). These practitioners postulate that the goal of psychoeducation is to teach people personal and interpersonal skills that will generalize to a wide range of future situations. The goal is to build competence through skills acquisition.

Although numerous psychoeducational interventions are reported in the literature, none have provided college students with a systematic model for personal behavior change and health care decision making. Furthermore, no research has explored the potential of psychoeducational intervention as an adjunct to traditional retention programs for underachieving college students. In this research, the Personal Paradigm Shift (Hinds, 1983) is employed with underachieving college students to determine its effect on health care behavior and academic achievment.

Overview

In Chapter Two, the relevant literature is reviewed in the following areas: concepts of psychoeducation and psychoeducational interventions; concepts of coping, self-control, and self-management; the concept and psychology of stress in underachieving college students and the intervention programs developed to treat underachievment in college students. Chapter Three presents a description of the Personal Paradigm Shift (PPS), the research design, instrumentation, and the procedures used in the research. In Chapter Four, the analyses of the results are presented. Conclusions and implications for further research are presented in Chapter Five.

CHAPTER 2

REVIEW OF LITERATURE

In the following review, four areas of research important to this study are examined. First, a review of psychoeducational concepts is presented with a focus on theory, the role of the psychologist, behavioral change training concepts, and problem-solving training. Second, there is a review of the related concepts of self-control and self-management approaches. Next is a presentation of the relevant research related to college student retention. The final portion of this review presents the consideration of psychological stress in college students and consideration of the treatments currently utilized as university resources available to academically underachieving college students.

Psychoeducational Concepts

Educators in the past few years have advanced the philosophy of education that emphasizes enhancing the personal development of the individual.

Cole and Lacefield (1982) report that psychoeducation emerged from the psychological and educational research in this century that attempted to explain and predict learning. Principles derived from the work of Gagne (1970), Piaget and,

others were combined with theories of learning, development, motivation, personality, and counseling theory and practice to provide the nucleus of the psychoeducational model. General dissatisfaction with the medical model approach to psychological problems has also aided the psychoeducational movement (Authier, 1977; Authier, et al. 1975; Guerney, Guerney & Stollak, 1971/72). Counseling theory recognizes that many psychological problems are not best conceptualized as "pathological illness," but as unlearned specific skills such as decision making, problem solving, interpersonal sensitivity, or goal attainment (Guerney, et al. 1972).

In addition to the recent growing skepticism of the medical "illness" model of health service delivery, more emphasis was developed in the last decade to "give psychology away" (Larson, 1984) by the behavioral scientists. This was augmented by a growing emphasis on psychosocial competence, efficacy, and self-control (Thoresen, 1977). The recent wellness movement has also contributed momentum to the development of life management skills (Adkins, 1984). This in part led to the development of the paraprofessional movement and the realization that these same skills could also be taught to the public at large, increasing the emphasis of individual self-responsibility for desired goal attainment (Authier, 1977).

Concern with the personal development of the individual then emerged into a major focus of the various areas of humanistic education, personal education, affective

education, inter-personal education as well as psychoeducation. The commonality among these related areas has been the emphasis on the teaching of personal and interpersonal skills to people previously lacking in desired skills for better lifestyle management. Ivey (1977) has defined psychoeducation as "a deliberate and planned effort to teach individuals or groups understanding skills, or competencies in the area of human relations." The goal of psychoeducation is to provide people with abilities and competencies necessary to manage their own lives in their own way (Ivey, 1977).

The principles of psychoeducation have been utilized to develop a wide variety of learning programs to teach specific psychosocial skills, through the use of behavior change manuals, individual and group instruction, experiential learning, and the technologies of audio, video, and sensory feedback. These programs are designed to increase the participants' awareness of the components of problem-solving and develop necessary skill competencies to promote personal development. Specific learning programs have addressed enhancing relationships (Guerney, 1984), parent and teacher effectiveness (Gordon, 1984), cognitive control (Meichenbaum, 1977), assertiveness training (Lang & Jakubowski, 1976), progressive relaxation (Bernstein & Korkovec, 1973) and developing interpersonal communication skills (Kagan, 1972).

Interventions and learning programs that have emerged from the psychoeducational model are built on three basic assumptions (Larson, 1984). The first assumption is that the practitioner becomes a teacher to the client. Even though psychotherapy has been identified as a learning process, it has often not been recognized that the therapist is a teacher (Guerney, et al., 1970, 1972). The second assumption of the psychoeducational model is that the client's problems are viewed as a skill deficit or lack of competency, rather than an abnormality or illness. It is argued that clients have actually not "developed" or acquired "something" that can be obtained through new training. The third assumption of the psychoeducational model is that the client is seen as an active and self-responsible agent, capable of directing his/her own learning, rather that as a passive recipient of treatment. A client who is taught problem-solving skills can generalize this information and solve other problems in diverse situations.

Role of the Psychologist-As-Teacher

It is important to understand the role of the psychologist as a practitioner in the psychoeducational model for it represents a conceptual shift in human service delivery away from the traditional role of psychologist as "healer." Guerney and others (1970, 1971/72) emphasized the adoption of an educational orientation to psychological practice that would not indirectly cure neurosis or

eliminate symptoms but teach personal and interpersonal skills, concepts, and information which the client can apply to the present as well as the future that enhance satisfaction of life.

Ivey and Alschuler (1973) also contributed to the development of the psychologist-as-teacher concept in the psychoeducation model by defining the goal of this new role. They outlined three statements that help explain this conceptual shift. First, they indicated that the goal of psychoeducation is to increase the individual's intentionality, the capacity to anticipate alternate experiences and choose among them, and attain desired goals. Second, intentionality is to be taught in the most comprehensive and effective ways possible, which requires of the practitioner cognizance of all aspects of learning and behavior theory. Their third statement of intent of the psychologist-as-teacher is to "demystify" the helping process by teaching skills to the widest possible audience.

Additionally, authors (Authier, et al., 1975; Goldstein, 1981; Guerney, et al., 1970, 1971/72; Larson, 1984) have contrasted aspects of the role of the psychologist in an educational model with the role in a traditional medical model. The approach utilized by the therapist in the traditional sense basically asserts that most patients (clients) have within themselves effective or health behaviors which can be uncovered and promoted in therapy. It is the therapist's task to identify in therapy

the defenses of the individual that obstruct this realization. This therapist responsibility or "role" is contrasted to the role in the educational model where the therapist is active and deliberate in the teaching of skills to obtain effective and satisfying behavior.

Guerney and his colleagues (1970, 1971/72) also observed an additional shift in the role of the psychologist from the illness model to the education model, from passively undoing the negative in the illness model to actively promoting the positive in the educational model. This is accomplished through the didactic emphasis in the service delivery and the addition of more structure to the program procedures and process. Personal skills are thought to require instruction, practice, and feedback in order to be developed. The psychologist-as-teacher then becomes responsible for teaching the skills a client finds necessary for solving his/her own problems.

Additional conceptual shifts are also noted by these authors (Guerney, et al., 1970, 1971/72). These include a shift from covert to overt value judgments, a shift from case orientation to program planning, and the use of personality assessment from primary to secondary importance in treatment considerations. Specifically, the psychologist-as-educator begins treatment on the assumption of client skill deficits rather than determining what is wrong with the client.

This completes the outline of psychoeducational concepts and the role of the practitioner within this model. A representative review of several specific psychoeducation programs will now be presented.

Behavior Change Training Concepts

The theoretical basis of the psychoeducational model has spawned several distinct approaches towards helping people change in recent years. The first of these to be considered is known in the literature as general behavior change programs and these are also referred to as general instruction manuals (Glasgow & Rosen, 1978), life skills manuals (Egan, 1975), and psychosocial coping skills manuals (Larson, 1984). These general behavior change manuals are not to be confused with the wide variety of self-help manuals that target specific behavioral problems. These manuals have generally not been validated in any systematic way utilizing placebo and treatment controls (Glasgow & Rosen, 1978). Of concern to this review is to address the common principles involved in these change programs.

General behavior change manuals are constructed utilizing the principles of behavior theory. The manuals instruct the reader through a four-stage change process: (a) specify a behavior requiring change, (b) set goals and develop a self-change contract, (c) self-monitor the frequency of the targeted behavior, and (d) arrange relevant antecedents and consequences within an operant learning

framework (Glasgow & Rosen, 1978, 1979). The therapist involvement in these programs generally follows a few principles such as minimal contact with the client, therapist administration of the program, therapist directed with the emphasis of responsibility for change with the client. This approach toward behavior change has the distinct advantage of using general principles of change that the client can apply in other contexts.

Two well known and frequently used manuals of general behavior change are the program designed by Watson and Tharp (1977) and the program developed by Williams and Long (1979). These programs are similar to each other and provide a psychoeducational approach toward behavior change. Of particular emphasis in this approach is the belief that if there is sufficient information about the process of behavior change available to the client, then motivation for change is stronger (Williams & Long, 1979).

These programs outline the four-stage process of behavioral approaches discussed earlier and are presented now in more detail. Exercises in self-analysis and information concerning how to achieve personal goals are provided to the participant. The specific steps described are: (a) selecting a behavior goal; (b) specifying the behaviors needed to change in order to achieve that goal, (c) increasing self-knowledge about those targeted behaviors, (d) developing a change plan that utilizes psychological principles in changing behaviors, and (e)

continued self-monitoring and readjustment of the plan if necessary.

In targeting a goal, individuals are asked to begin the behavior change process by considering a behavior they would like to add or eliminate from their life. The selection of a goal involves generating self-awareness of either a behavior deficit or behavior excess. Self-awareness is continued to be generated in the second stage as the participant is required to become specific and concrete about the desired behavior change. This identification process engages the client in analyzing behaviors that impede goal achievement as well as identifying measurable aspects of behavior. The third stage instructs the participant to expand his/her self-awareness by examining antecedents and consequences of the behaviors. The fourth stage is primarily concerned with developing and implementing a plan for change based on operant principles. This may include establishing positive and negative consequences, manipulating the environment, and acquiring new skills through repetition. The final stage of a general behavior change program includes attention to self-monitoring and evaluation of the client's progress. This final step encourages clients to become their own monitoring agent and make necessary adjustments to their change program. This encourages the client to make the transition from other-support to self-support in maintaining behavior gains. To summarize, behavior change programs are

based on the operant learning paradigm that illustrates there are orderly relationships between a person's behavior and the environment in which it occurs. Behavior change itself occurs when the person is able to understand these relationships and reorder or alter the events that precede or follow the targeted behavior.

Problem-Solving Programs

A wealth of personal problem-solving programs are found in the literature (Carkhuff, 1976; D'Zurilla & Goldfried, 1971; Goldfried & Davison, 1976; Goldfried & Goldfried, 1975; Mahoney, 1974; McKay, Davis, & Fanning, 1981; Rudestam, 1980; Spivack, Platt, & Shure, 1976). These programs are based on concepts similar to those in the general behavior change programs, but they are labeled specifically as "problem-solving" methodologies in the literature.

Problem solving is defined by Goldfried and Goldfried (1975) as a behavioral process, overt or cognitive in nature, which (a) generates a variety of alternatives for effectively solving problem situations and (b) increases the probability of selecting the most effective response from among the alternatives generated. The goal of problem-solving training is to provide a general coping strategy for future problem situations rather than provide specific solutions to specific problems.

There are a variety of problem-solving models that are based on several common stages. Goldfried and Goldfried

(1975) outlined five sequential stages to a problem-solving program: (a) general orientation, (b) problem definition and formulation, (c) generation of alternatives, (d) decision making, and (e) verification and evaluation.

The first stage, general orientation, addresses the attitude with which one approaches problem-solving situations. Four aspects of this general orientation stage were addressed by the authors. The first aspect is a recognition that problems are a normal aspect of living. The second is the belief that one can actively cope with a problem situation. Third, one must be ready to recognize problem situations as they occur. Finally, one begins to inhibit the temptation to act in an impulsive way to solve the problem.

The second stage of a problem-solving program is concerned with the problem definition and formulation in concrete, operational terms. This involves careful exploration of the problem to understand the situational context, and the antecedents and consequences of the problem. Rudestam (1980) suggested that a person should determine whether a problem is primarily affective, cognitive, or behavioral in nature and should assess whether the problem is one of behavioral excess or deficit.

Generation of alternatives is the third step of a problem-solving process. This primarily involves the technique of brainstorming (Dixon, et al., 1979; Goldfried & Goldfried, 1975). Brainstorming asks the person to generate

as many possible alternatives to resolve a problem situation as possible, while resisting the temptation to pick one before an exhaustive list is generated. Carkhuff (1973) contributes an idea to the importance of brainstorming that a hierarchy of values will emerge which will assist in making a selection of the appropriate alternative. This process highlights the individuality incumbent in a person's problem-solving process.

The fourth step in solving personal problems is decision making; specifically, choosing the best alternative for the problem to be solved. This is accomplished in the process of evaluating the various effectiveness of possible solutions to problems to determine the most feasible course of action.

Verification and evaluation is cited as the final step in the personal problem-solving process (Goldfried & Goldfried, 1975). In the process of evaluating alternatives, particular attention is given toward identifying the consequences of an action and determining its congruence to a personal standard or value orientation.

Spivack, Platt, and Shure (1975) addressed specific cognitive processes involved in the problem-solving model that mediate social and psychological adjustment. They proposed that there are five problem-solving skills that are necessary for satisfactory problem-solving and subsequent personal adjustment. These skills correspond to the stages of the personal problem-solving process outlined by

Goldfried and Goldfried (1975). The client's experience of the problem-solving process becomes a set of cognitive skills that enhances the client's ability to recognize problems, define them, generate alternatives, and replace problem behaviors with satisfactory behaviors. The authors argue that problem-solving is not a personality trait, but a set of skills that are learned through experience.

Self-Control and Self-Management Models

Cognitive behavior therapy has been the background for the development of self-control and self-management approaches toward behavior change (Beck, 1976; D'Zurilla & Goldfried, 1971; Goldfried & Goldfried, 1975; Mahoney, 1974; Meichenbaum, 1977; Lazarus, 1980). Cognitive behavior therapists have been instrumental in viewing the intervention process as training the client in the use of general coping skills instead of resolving specific problems. Both orientations fit with the psychoeducational model in that the therapist acts as a teacher or consultant to clients to help them learn necessary skills that enable them to live more satisfactorily.

Coping skills are defined by Goldfried (1980) as behavior patterns that effectively mediate problem situations. The goal of coping skills training is to teach new skills to the client that will increase the number of behavior responses available to choose from in stressful situations. This approach enhances the client's competence

in familiar situations and the skills generalize to unfamiliar stress situations.

Coping skills training varies from the teaching of a single skill to a comprehensive set of skills. Several authors (Coyne & Holyrod, 1982; Mahoney, 1974; Meichenbaum, 1977) believe that coping skills should be taught in a comprehensive package for several reasons. First, life is thought to be complex and therefore require flexible coping skills to meet its demands. Secondly, comprehensive coping skills help clients develop ongoing cognitive strategies to facilitate their adaptation to ongoing life events.

The teaching of coping skills to the client follows a paradigm similar in components to the problem-solving models. The process similarly involves (a) orientation, (b) problem definition, (c) problem analysis, (d) solution generation, (e) personal experimentation, (f) evaluation, and (g) graduation (Mahoney, 1974). Mahoney views coping skills training as teaching clients to systematically analyze and improve their own behavior.

Additional contributions to coping skills training were made by Goldfried (1980). He outlined the necessity of clarifying the expectations of the program to the client and emphasizing the role of gradual change through the process of learning a new skill. Lazarus (1980) also advanced the important concept in coping skills training of emphasizing coping management rather than emphasizing the features of the stressful situation itself.

Self-control approaches (Mahoney & Thoresen, 1977; Rimm & Masters, 1979) are designed to help clients develop active coping strategies for dealing with problems. The client becomes the active agent in regulating his/her own behavior toward desired positive outcomes. Self-control programs are thought to be effective when a person is behaving in a self-defeating manner and no positive environmental reinforcers are present to motivate alternate behavior.

Within this model, self-control involves behavioral shifts in which external influences are supplemented by self-generated cues and reinforcers (Kanfer, 1977). This model, similar to problem-solving models, involves self-monitoring, self-evaluation, and self-reinforcement. Within the model, skills are taught to improve observations of the targeted behavior, the environment in which it is carried out, and recognition of the antecedents and consequences of the behavior. The skill of self-evaluation is addressed in a manner that helps clients compare their behavior responses against a subjective standard from previous experience or vicarious understanding of experience. Following this evaluation stage the client is taught how to self-reinforce the desired behavior.

Following this brief review of the related areas of self-control and self-management, a discussion of the research in college student attrition, general concepts of stress in college students, and interventions for stress management is presented.

College Student Retention

In an extensive study of student attrition, Pascarella (1982) reports that colleges and universities across the country have been experiencing declining student enrollments in the 1980's. He cites many political, social, and economic reasons for the attrition in universities, as well as individual student characteristics. He suggests that increased tuition costs, curtailment of government-financed support, technological advancements in industry that impact curriculum changes, and the rise of inflation in recent years that makes college less affordable for the average American family. These factors all contribute to making the college experience more stressful for the student.

in addition to the broad external variables that make college more stressful, individual student personality variables are also cited (Learning, 1982) as contributing to college student attrition. These broad personality variables found in the average 18 - 22 year old student are maturity, responsibility, independence, creativity, self-concept, anxiety, assertiveness, and value orientation and are assumed to result in certain behaviors and lifestyle choices.

College students are in a stressful environment for the better part of four years. In addition to the pressure of learning academic subjects and skills to prepare for employment in society, the majority of students are under additional pressure of making a transition from childhood to

adulthood. The result is a four-year environment where the student is under pressure/stress to develop intellectually, emotionally, and socially.

The issues of development are multiple. Academic competition for grades among college students seems to increase as the competition for jobs in a tight economy increases. The changing technology of our society also adds to the pressure of the college student. Men and women in the 18 - 22 year old age bracket also experience pressure as they begin to take on more self-responsibility for their own well-being and independence. Developing and choosing personal morals and values, continuing to learn to relate to their peers, developing intimate social relationships, developing and refining their own interests and aptitudes, all result in occupational selection. This personal process requires the engagement in activities of seeking information, assessing values, and making choices that result in actions that lead to the fulfillment of adult responsibilities. All of these issues and questions of development can be internally stressful for the college student and may even result in costly time delays and irreversible life styles of chronic stress.

One group of students that college personnel and administrators are concerned with are those students who are on academic probation. It is believed that students who are underachieving and on academic probation are experiencing stress. The immediate threat to this group of students is

that if their grades don't improve, they will be dismissed from the university and not allowed to continue with their degree plan. This creates additional stress on the individual student. Future career plans are at stake, as well as psychological variables such as self-esteem and self-confidence. This state of anxiety arousal is thought to also have adverse effects on other aspects of the student's life, physical health, and general well-being.

Since these students are assumed to be capable of success, it remains unclear as to the reasons the students are not experiencing academic success. Since the admissions policy confirms their potential for success at the university, it can be assumed that life pressures are creating enough stress in the student's life that result in the engagement of self-defeating behaviors and academic underachievement.

In a study of motivational factors in college students, Ramist (1981) makes the observation that understanding motivational factors is crucial for developing programs and strategies for improving student retention. He notes that for academically underachieving students with the requisite intellectual ability, even involuntary withdrawal due to low grades is really voluntary. He sees this as a result of the student's choice not to do the work that is necessary to obtain sufficiently high grades.

Similarly, Bentler and Speckart (1979) argue that student intent rather that university environmental factors

such as grades becomes the immediate precursor of dropout decisions. This variable of intent to leave the university as the best predictor of attrition has also been supported in the literature by Bean (1980, 1981), who sees intent as the combination of the results of past behaviors (school performance), attitudes, and norms. Fishbein and Ajzen (1975) propose a model of understanding that behavior is preceded by an intention to perform the behavior. The immediate antecedents of intent to perform the behavior are attitudes toward the behavior and a subjective norm concerning the behavior. Beliefs about the consequences of a behavior precede the attitude toward the behavior, and normative beliefs about a behavior influence the subjective norm concerning the behavior. A feedback loop from the behavior itself to these beliefs completes the model. Thus the attitude and the subjective norm about a behavior lead to intention to perform or not perform the behavior, which in turn leads to the behavior itself.

In summary, retention studies of college students have contributed an important understanding of behavioral components involved in college students with sufficient capacity who fail to academically achieve. This behavioral model suggests that students underachieve due to motivation, or intent, and that this is directly related to the behavioral experiences, attitudes, and cognitions that have developed in the individual. This research supports the application of a psychoeducational intervention to help

students problem-solve difficulties experienced with attaining academic achievement.

Psychological Stress in College Students

Consistent with the purpose of this study, a presentation of the general concepts of stress will now be presented. This will be followed by a representative review of recent studies of stress in college students and the interventions that have been applied to alleviate symptoms of stress. Contributions by Hans Selye, a pioneer in physiological stress research, will be included here, as will Friedman and Rosenman's research on Type A behavioral patterns. Coping and defending will also be examined as these behaviors play an important role in the exhibition and maintenance of stress. Information by Pearlin and Schooler, Norma Haan, and Richard Lazarus will also be included here.

Hans Selye is considered the pioneer of stress research and the first to emphasize how our response to stress may influence the quality of our life and health (Selye, 1956, 1980, 1982). Selye's discussion of the stress response made the concept of physiological mobilization of the body a central idea, although he did not explicitly include a discussion of psychological and psychosocial components of stress. According to Selye (1956), stress is the nonspecific response of the body to any demand. His was a unidimensional position toward stress since he believed that the same pattern of physiological stress responses, a common

biological theme, occurs for all stressors. It is irrelevant whether the stressor is pleasant or unpleasant, because all stressors increase the demand for readjustment and for the performance of functions that reestablish normalcy. In this way, the stress response is nonspecific.

Selye (1956) coined the term "General Adaptation Syndrome" (GAS) to explain three phases which are constantly reproduced when demands are made on the body. The first phase is an initial alarm reaction which results from dealing with a new or ambiguous situation. The physiology of this reaction involves increasing sympathetic-adrenomedullary activity by sending epinephrine through the vascular system. The second phase of this syndrome is the resistance stage, in which the body attempts to make a physiological adjustment. Affectively, such adaptation takes place if one learns to cope with the stimulus. Exhaustion is the final stage of the adaptation syndrome, occurring after prolonged exposure to a stressor, when energy resources become depleted. Death is the body's most dramatic response to the system.

The subcortical areas of the brain regulate normal body functions and include the basic control center for the autonomic nervous system, which is the system principally responsible for maintaining a stressed state. This area includes the cerebellum, the center for regulating body movements; the medulla oblongata, which regulates heartbeat,

respiration, and blood vessel diameters; and the pons, which regulates the sleep cycle.

The midbrain and the cerebral hemisphere include the basal ganglia, thalamus and hypothalamus, of which the latter is a primary activator of the autonomic nervous system, acting to transform neurological stimuli into endocrine-producing stress reactions. The hypothalamus is also connected with the limbic system, also known as the seat of emotion. Chauchard (1962) and Gelhorn and Loufbourrow (1963) consider the hypothalamus a critical organ in the regulation of emotion.

Stress activates the autonomic nervous system and the endocrine system through the limbic system, which determines when the hypothalamus is activated. This organ also responds to perceived stress from the cortex, which is responsible for the higher-order abstract functions of language, memory, and reasoning.

A portion of the autonomic nervous system, the reticular activating system, serves as a general arousal system, activating the cortex for visceral arousal and muscular tension (French, 1957). The reticular arousal system not only transmits a physical stressor to the cortex, but also acts to change a psychological stressor into a neurophysiological response, thereby suggesting that we have some control over our body functions in this mind-body interaction.

Rosenman, Friedman, and their colleagues followed 3,500 males for eight and a half years in a longitudinal study know as the Western Collaborative Group Study. The results of this study confirmed a behavior pattern as a precursor of chronic stress (Rosenman, et al., 1975; Rosenman et al., 1964). This behavior pattern is know as "Type A" and is characterized by such personality attributes as hard driving, aggressive striving for achievement, competitiveness, impatience, restlessness, a continual state of alertness, and consistently hurried activity (Jenkins, 1971). Researchers have independently reported empirical studies using coronary heart disease patients and matched control groups, which indicate that patients with coronary disease strive more diligently for achievement, tend to be perfectionists, are chronically tense and unable to relax, expend more effort and commitment on job or profession, and are more active and energetic than corresponding comparison groups (Jenkins, 1971).

In approaching stress from a psychosocial point of view, Spielberger (1976) distinguishes between dangerous and threatening environmental events (stressors) and the emotional, physiological, and behavioral changes (stress reactions) that are evoked by stressful situations. He proposes that the terms "stress" and "threat" be used to denote different aspects of a temporal sequence of events that result in the evocation of anxiety as an emotional reaction to stress. From this perspective, stress refers to

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the stimulus properties of situations that are characterized by some degree of objective physical or psychological danger, and threat refers to an individual's perception of a particular situation as more or less dangerous or personally threatening.

According to Lazarus (1966), psychological stress is the result of cognitive appraisal of threat to the system. The threat must be anticipated or future-oriented as a result of the processes of perception, learning, memory, judgment, or inference in which the data are assimilated to assume the status of ideas and expectations. Ambiguous stimuli require the processing of belief systems about the organism and its environment. Personality variables such as trait anxiety and self-esteem come into play here.

Once a stimulus has been perceived as threatening, coping mechanisms act to deal with the stress. Coping is based on cognitive activity involving appraisal of the conditions of threat and the consequences possible to the coping response. Lazarus (1966) defines defense as a part of the coping process in which the individual psychologically deceives himself about the actual conditions of threat. Defenses act to distort the threatening experience so that it appears less dangerous to the organism. Lazarus thus views coping and defending as one process, wherein coping is not a threat because of a defensive appraisal. The individual uses defenses in ways

that are no longer threatening; thus, unless one is really threatened, coping looks like the defensive process.

Haan (1963) separates coping from defending. She views coping mechanisms as the "normative" mode with healthy ego functioning, whereas defenses are perceived as a threat to the ego. Haan also differs from Lazarus in believing that coping and defending are on a continuum and use similar mental processes. She lists a variety of ego mechanisms with a defensive and coping mode, as well as fragmented mode.

Haan groups psychological reactions to stress by whether they are assimilated or accommodated by the ego. The Piagetian technique of assimilation is used whenever an organism utilizes something from its environment and incorporates it. Accommodation responses result when the ego structure is changed by the input. Assimilation responses are the result of:

1. not anticipating the stressful event.
2. having different expectations.
3. an ambiguous situation.
4. individuals believing they will be stressed.
5. a situation thought to be similar to one previously not handled.
6. an individual being in a depleted state when stressed.
7. a lack of information necessary to process the situation.

Accommodation is the result of:

1. inability to control the stress.

2. prolonged stress.
3. intense stress.
4. different stresses being continual.
5. little previous experience in dealing with stress.

These responses make sense because people have different coping responses as a result of varied childhood ego development, different interpretations of situations (cognitive processing may trigger different associations or emotions), and because some people have more support systems that others. For Haan, then, intervention should focus on coping mechanisms and concomitant affect (Haan, 1977).

A number of behavioral treatment programs have been developed to alleviate self-reported indices of study skills deficiency and test anxiety for low achieving college students (Bednar & Weinberg, 1970; Decker & Russell, 1981; Goldfried, Linehan & Smith, 1978; Greiner & Karoly, 1976), but rarely have these changes been associated with parallel increases in academic effectiveness as measured by grade point average (Finger & Glassi, 1977). Multicomponent treatment programs involving study skills counseling and desensitization have been more effective in enhancing academic performance than single component strategies such as systematic desensitization (Allen, 1971; Lent & Russell, 1978). Additionally, multicomponent strategies employing cognitive restructuring and relaxation or imagery have been effective in treating the worry and emotionality associated

with test anxiety (Decker & Russell, 1981; Holroyd, 1976; Leibert & Morris, 1967; Meichenbaum, 1972).

A number of studies have shown that low achievers experience significantly higher levels of anxiety than high achievers and that they lack persistence and conscientiousness in study skills and habits (Mitchell & Piatrowska, 1974). Hart and Keller (1980) and McHolland (1980) suggested that improvement in academic and test-taking skills is needed for the low achieving and beginning college student. McHolland's (1980) "success" group is an academic skill training program in which behavioral contracting, time management, and cognitive restructuring are used to improve study skills and decrease test anxiety and stress.

Behavioral treatment strategies have focused on the alleviation of academic skill deficits and test anxiety, but relatively little attention has been directed toward evaluation of techniques for reducing general tension or anxiety. Borkovec, Grayson, and Cooper (1978) found that 1/5 of a group of college students reported feeling tense during at least 50% of each day. Speilberger's (1966) estimate that 15% of college students are test anxious supports the contention that some of this daily tension may result from test anxiety. Greenblatt and Shader (1974) suggested that general feelings of tension and physiological symptoms of stress may contribute to use of anti-anxiety agents, drugs, and alcohol among college students. Given

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potential difficulties in the use of such medication to counteract general tension, the development of non-pharmacological treatment strategies for prevention of stress seems especially important (Russell & Gribble, 1982).

Decker, Williams, and Hall (1982) used a multimodal, preventive approach to stress management training for graduate students. This program emphasized individual assessment of stress symptoms and individual selection of methodology for stress reduction. Cognitive information on the nature, origin, symptomatology, and practical assessment of stress was explored. Persons with varying responses to stress were trained as a single group in the use of relaxation training, diet, health care, and cognitive and behavioral techniques. It was found at posttest and follow-up that stress management training was effective in reducing physiological and cognitive symptoms of stress in students with moderate levels of irrational beliefs and stress symptomatology. These results support continued use of psychoeducational programs of prevention and management for nonclinical populations such as low and underachieving college students.

Stress is a familiar concept to us since it is an inescapable part of life. We feel we know what stress is because we experience it in its various forms in everyday life. We recognize it when we are faced with the prospect of having to pay an overdue bill, have an argument with another, become frustrated with a dissertation, or

anticipate surgery. We speak of stress in general terms because it incorporates so many areas of our lives. Moreover, the concept is understood by professionals and laymen alike. A wealth of materials have been printed on stress in different fields such as medicine, biology, biochemistry, sociology, psychology, psychiatry, physiology, and engineering.

In spite of the abundance of available written material, it would be difficult to present an adequate definition of stress, one which would be acceptable to all. Very little empirical research has been directed specifically toward the stress experienced by academic underachievers, and in particular, those students on academic probation. The concept remains somewhat vague and ambiguous and any definition must reflect the interests, methodologies, and subject matter of the disciplines which attempt to study it.

CHAPTER 3

METHODOLOGY

In this chapter the methodology of the study is described. Included in the chapter are a description of the Personal Paradigm Shift (PPS), the sample used, the instrumentation, the procedure, a statement of research hypotheses, and an explanation of the statistical procedures used for data analysis.

Description of Personal Paradigm Shift

The PPS is a psychoeducational approach to personal behavior change and health care management. It adheres to the psychoeducational model defined as an organized and planned method of teaching individuals to change (Ivey, 1977). Hinds (1983) developed this program out of his teaching experience with graduate students and his psychotherapy practice. The instrument used in the program evolved from his observations of the dynamics involved with people as they learn the process of personal change and make decisions about managing stress. The reading level of the PPS was estimated to be at the sixth-grade level using Fry's (1968) readability technique.

The procedures used in this program are based on three assumptions associated with psychoeducational intervention

models (Larson, 1984):

1. The psychologist becomes a teacher to the client.

2. Health care behaviors are viewed as functional relationships which can be unlearned or changed.

3. Clients are viewed as active participants in the treatment process and are given responsibility for various choice points in the treatment process, rather than becoming passive recipients of treatment.

The PPS is a systematic approach to self-care designed to assist clients in achieving their health care goals. In contrast to many health care interventions that require client compliance, this program promotes internalization as the means of altering behaviors and maintaining behavioral change. Internalization is described as the change in attitudes and associated behaviors that result from the realization that a change to a new pattern will be beneficial, rational, and worthy of acceptance (Suedfeld, 1982). Internalization often involves a change in personal values that reflect the behavioral changes. When internalization occurs in the context of health attitudes and behaviors, it is called maintenance. In the PPS, treatment is seen as an educational process that assists clients in helping themselves achieve and maintain their health care goals through internalization.

The PPS meets four of the six conditions that are thought to be crucial to lifestyle intervention (Benefari, Eaken, & Stole, 1981):

1. The client knows what change is desirable and acquires the knowledge required for the change.

2. The client has the skill or is learning the skill to implement the knowledge for change.

3. The change is in the client's self-interest.

4. The change is in the self-interest of related primary groups (families, peers, etc.).

5. Both internal and external environmental systems require change.

6. Internal and external change agents give their support to the change and provide feedback through the process.

The PPS does not directly address the fourth condition, and addresses the sixth condition, only in part. The focus of the PPS is on the development and awareness of personal control rather that on environmental controls. The PPS provides a highly organized and systematic method of assisting a client to recognize significant psychological, environmental and psychosocial life style variables that affect health care. The primary focus of the program is to engage the individual in observing, experiencing, and determining his/her own behavioral-choice process. Treatment consists of the educational process that assists the client in learning to make personal change.

Although many intervention programs in health care management involve the client as a passive change agent, the PPS involves the person as an active agent in the change

process. The PPS teaches the client about learning as it is related to personal behavior change and choice. Clients learn about the decisions they make in managing their health care which affect the quality of their lives.

Like other personal problem-solving intervention programs, the PPS assumes that behavior change proceeds through a sequence of stages. The change process involves the experience of (a) personal health care awareness, (b) decision making, (c) oppositional alternatives, and (d) treatment planning and action. Each stage is composed of detailed steps designed to educate the client about the relationships between internal phenomena (feelings, thoughts, and physiological reactions) which maintain personal problems and distress. The detail within each stage of the behavior change process is an important component of the PPS that makes it different from other problem-solving interventions.

Stage 1: Awareness

The stage of awareness comprises seven steps which guide the person through a series of exercises designed to assess current health care behaviors and to confront personal dynamics with the aim of creating self-understanding. This stage is often slow and difficult because clients are usually unfamiliar with observing such a process. Critical to this stage is that clients confront and examine the critical relationships between internal and

external variables that contribute to the maintenance of personal problems.

In Step 1 of the awareness stage, clients are instructed to describe a personal problem which they want to work on. The problem is usually described as a general theme, such as "work-a-holic," "over-eater," or "poor study habits." Identifying a workable problem is important to the remainder of the program.

Following the identification of the problem, Step 2 asks the client to set some initial goals related to the theme chosen. These goals are behavioral objectives that assist the client in looking to the future with optimism. The under-achieving college student may select an initial goal such as "get better grades," "improve study habits," or "get off academic probation."

Step 3 asks the client to identify the antecedent events to a problem. The client is asked to record specific descriptions of the places, people, events, and times that the identified problem is at its worst.

The goal of Step 4 is to foster an understanding of how the antecedent events identified in Step 3 affect internal reactions in the client. The client is instructed, here, to identify the internal reactions, i.e., the beliefs, feelings, mental images, and physiological reactions that occur within the individual, and begin to understand this relationship.

Step 5 assists the client in understanding that any behavior can be seen as an expression of the chain of sequential steps which precede it. The client is asked to identify which specific behavioral actions are taken when the identified stressful condition occurs.

The consequences that follow a person's action(s) in the identified problem situation are addressed in Step 6. Consequences are identified as either internal or external. A link is also established between consequences and self-evaluations, i.e., people make internal judgments about themselves based on the consequences of their own behavior. Additionally in this step, the client acquires an awareness of the "needs" that are met by behaving in certain self-defeating ways and is helped to identify the level of importance these needs have for the individual.

Step 7 is the final step in the stage of awareness and is termed "taking a loss." The client is asked to identify either the beliefs or the level at which a need is maintained that must be "given up" before a foundation can be made for behavior change. Personal change involves not only gaining something but also giving up something which is generally a new concept for most people. This is a unique feature of the PPS and not found in other behavior change manuals. The second part of this step is to foster awareness of the assumptions the person makes about what is needed in life in order to survive and how the person

accepts these assumptions as true and uses them as a guide to behavior.

Stage 2: Decision Making

The stage of decision making asks clients to utilize the information they have gained from the awareness stage and determine how this information influences their decision making about personal change. This decision making consists of three steps: constructing a balance sheet, making a commitment to change, and confronting the fear barrier (Steps 8, 9, and 10). The process in this stage is similar to that found in other behavior-change programs.

Step 8 asks that the client construct a balance sheet, using thoughts and feelings as the critical information. This step provides the opportunity to understand in a concrete way the specific conflicts that inhibit the ability to make desired change and the factors that motivate the desire for change. Until the client confronts these factors, it remains easier to avoid and deny information that provides the motivation to make a commitment to personal change. Through the use of a balance sheet, clients generate the perceived rewards and punishments they will acquire for changing or not changing.

Step 9 asks the client to reflect on the information from the previous step and make a cognitive and emotional commitment to change. Essentially, the client pledges to continue efforts toward personal change. A client may not

make a commitment to change and decide that the current situation is satisfactory.

One of the central concepts in the PPS is the inhibiting influence of fear on behavioral change and is addressed in Step 10. At this point in the program, the client attempts to confront his/her resistance to change by identifying the fears associated with change. Discussion of the experience of unpleasant emotions is addressed, and defenses the client uses to avoid these unpleasant feelings are identified.

Stage 3: Oppositional Alternatives

This stage is a creative process that assists in generating new internal reactions, i.e., beliefs, feelings, physiological reactions, mental images, that are counter to the internal reactions identified in the Awareness Stage. There are four steps (11 through 14) in this stage designed to help clients develop a new set of internal reactions which will foster a sense of self-control.

Step 11 asks the client to once again record the information from Step 3, the stressful conditions of the problem. This step is repeated to emphasize that a client really has little control over these factors. Hinds (1983) emphasizes that a person has control over the connection between variables (stress conditions, internal reactions, behavior, consequences, and self-evaluations), but not over the events, people, or places that trigger stress.

The task in Step 12 is to begin to think about new, healthy internal reactions that oppose the old, unhealthy internal reactions. The development of new internal reactions (new feelings, new beliefs, new images, new physiological reactions), is one of the most difficult and critical steps in the PPS. This step encourages the development of a "paradigm shift" (Hinds, 1983), or a change in the way a client views his/her experience. The underachieving student who is able to develop new internal reactions to stress has a better foundation for new, more satisfying behaviors. Once new internal reactions are determined, the development of new self-evaluations also occurs in this step.

Step 13 asks the clients to think about new actions and is similar to other behavior-change programs that focus on "developing alternatives." The client is directed to brainstorm alternative behaviors without regard to the appropriateness of those behaviors. The new behaviors are encouraged to be counter to the old behaviors.

New consequences follow new actions, and this is the goal of Step 14. While new consequences may partly reflect projected or expected losses, new gains will outweigh those losses, and keeping the gains in front of oneself is the task in this step. New gains are frequently felt as internal experiences, i.e., more self-control, improved self-esteem, greater self-confidence, but they may also be realized in the external realm, i.e., improved study habits,

higher grades. Identifying the needs now satisfied as a result of these new consequences is the second part of this step.

Stage 4: Treatment Planning and Action

The final stage of the PPS consists of ten steps (15 through 24) in which the client begins to establish a strong foundation for personal change. These steps are designed to help reduce fear and increase motivation for change and at the same time help fight off feelings of helplessness, hopelessness, and loss of control.

Step 15 asks clients to identify the initial goal they need to achieve in order to maintain motivation. The initial goal is required to be realistic, specific, and countable. Clients are taught to formulate goals in behavioral terms, addressing the concept that goals that are attainable help provide continued motivation for the change process. The statement of goals in specific behavioral terms is a common feature of behavioral change programs.

The objective of Step 16 is to recognize and create support systems for clients going through a process of change. Teaching clients that dependency on others is a fact of life and that the assets of others can be a source of strength for the client in a personal change process is the rationale for this step.

The concepts of observational learning and modeling serve as the basis for Step 17. This task assists clients

to seek information and identify others who have accomplished what they are personally attempting to do.

In Step 18, the objective is to identify and provide oneself with an appropriate reward following the accomplishment of an initial goal change. The self-reward must be meaningful and serve as a continued source of motivation. Positive reinforcement immediately following appropriate behavior is a central principle of operant learning and provides a basis for the development of self-control.

Step 19 is a unique feature of the PPS. The task here is to teach clients to organize a "plan of attack" for working on a personal problem. Clients are asked to clearly determine the appropriate order of behaviors they will perform to achieve their desired behavior change goal. Organization provides the client with a predictable blueprint for working toward personal change and helps the client remain motivated.

Giving oneself feedback is a method to provide self-information on progress toward a personal goal and is the focus of Step 20. The task here is to teach clients the meaning of feedback and how to formulate a specific feedback system. The PPS recognizes that clients tend to ignore feedback because it may show little progress toward a goal resulting in discouragement and lack of motivation. This step promotes feedback as a source of information to help

correct the path towards behavior change if needed and promote optimism and motivation.

Step 21 is also designed to additionally counteract failure at changing by teaching the client to develop a time frame for accomplishing goals. This also encourages the client to stick to a schedule when working toward a goal. There can be a sense of security in the limits that are set for change, and these limits can help the client avoid procrastination in working toward a goal.

Back-up plans are the objective of Step 22 in the PPS. This step teaches that failure is a natural and expected part of any self-change program. Clients are assisted here to develop an alternate plan if they fail to reach their goal. Knowing what to do next if failure occurs helps to maintain motivation and promote a feeling of self-control.

Step 23 addresses the phenomenon that fear of success is a last unconscious attempt by the person to undermine personal change and lapse into the original self-defeating cycle. Change is thought of as a fearful experience because it requires a person to take a risk with a new behavior and let go of familiar and rewarding patterns of thinking, feeling, and behaving. The task in this step is to help the individual think about ways to counteract this fear of success.

The final step in "Treatment Planning and Action" is to instruct the client in keeping a daily or weekly diary that records the specific gains made in achieving behavior

change. An action diary provides a specific and concrete record of the gains made toward change. This written record of success (and failure) provides the final support system the client requires to maintain motivation toward personal change.

Summary of the Personal Paradigm Shift

The Personal Paradigm Shift (Hinds, 1983) is a systematic and structured model for personal behavior change and lifestyle management that involves clients in observing, experiencing, and determining their own behavioral choice processes. The PPS is designed to educate clients in the process of making optimal lifestyle choices and instructs them in the process of learning how to learn about themselves. The program follows the assumption of psychoeducational approaches as described by Larson (1984) and it meets most of the conditions considered important to lifestyle intervention (Benfari, et al., 1981). The PPS assumes the client to be an active agent in the change process while proceeding through the four stages of health care awareness, decision making, generating oppositional alternatives, and treatment planning and action. Unlike other personal change programs found in the literature, the PPS is more detailed, addresses a larger number of mediating variables in personal change, and does not rely exclusively on the development of operant relationships.

Sample

The subjects for the study were recruited from students on academic probation at Michigan Technological University, Houghton, Michigan, Fall Quarter, 1985. Michigan Tech is a state-supported public institution of higher education. Students who attend Tech are from all counties in the State of Michigan, thirty-two other states, and forty-three foreign countries. The University is primarily concerned with providing students with an education in engineering and technology. The College of Engineering is composed of sixty-eight per cent of the student body, with the remainder of the students enrolled in the College of Sciences and Arts (16%), School of Business (6.6%), School of Forestry (4.4%), and the School of Technology (5.0%). The University's enrollment is approximately 7,000 students with a faculty of 400.

Michigan Tech has a selective admissions policy for entering students. The University maintains that the secondary school record is the most valid predictor of success at Tech. Nearly half of the students admitted to degree programs ranked in the upper ten per cent of their high school class. The average ACT scores of Tech students rank well above the national average; English 23, Math 27, Social Studies 23, and Natural Science 28.

Of the nearly 7,000 students at Michigan Tech, during any given term, approximately ten per cent are on academic probation. A student on academic probation is considered to

be academically underachieving. Probation status means that a student failed to achieve in the previous quarter a grade point average that was without deficiency points. Deficiency points are computed both on a quarterly basis and cumulative basis and reflect the degree that the student is achieving below a 2.0 (C) grade average. A 2.0 is required in both the department major and overall course work to be considered as satisfactory progress.

There are 12 categories of academic probation that are established by the University. Briefly, the 12 categories are as follows:

Category 1. First time on academic probation, having accumulated ten or more, but less than 25, cumulative grade point deficiencies.

Category 2. First time on academic probation, having accumulated ten or more quarterly grade point deficiencies.

Category 3. Student was on academic probation the previous quarter and is being allowed to continue on probation.

Category 4. Student was on academic probation the previous quarter and has made some progress toward eliminating deficiencies by earning a 2.0 or better but does not meet all the requirements to be removed from probation.

Category 5. Academically dismissed.

Category 6. Previously dismissed for poor academic performance, then reinstated on probation.

Category 7. Previously dismissed and reinstated and some progress made toward eliminating deficiencies by earning a 2.0 or better for the past quarter, but all requirements were not met for removal from probation.

Category 8. Second time on probation for being 10 or more grade points deficient in one quarter or in the cumulative grade point average. This is considered the final warning leading to dismissal if this happens in any future quarter.

Category 9. Eligible for dismissal, under strict interpretation of the policies, but an exception is made allowing the student to continue for one more quarter on probation due to extenuating circumstances (illness, etc.).

Category 10. Used only in Summer Quarter when student should have been dismissed for poor academic performance at the end of the Spring Quarter, but is already far into the Summer Quarter's work before grades were reviewed. Allowed to complete Summer Quarter, subject to dismissal at the end of the quarter unless considerable improvement is demonstrated.

Category 11. Admitted to the University on probation...

Category 12. Removed from probation.

In this experiment potential subjects were identified by the Dean of Students Office. These students were referred based upon their category of academic probation. The subjects in this study were referred from categories one, two, three, four, six, seven, and eight. The rationale for the recruitment of subjects from these categories is that those students academically underachieving have developed ineffective patterns of health and lifestyle behaviors.

There were two levels of the independent variable in this experiment. Students on academic probation from categories one, two, three, and four are first-time academic underachievers. Many of these students may eventually end up in other categories of academic probation, but their academic underachievment at this time is thought to be less chronic than students in other categories of probation. Students in categories six, seven, and eight have previously been dismissed form the University for academic underachievment and reinstated on continued academic probation. These students are thought to have established more severe and chronic patterns of poor health behavior choices.

A total of 108 students volunteered to participate in the study. Three students left the University before the treatment was completed. The sample consisted of two

groups: students assigned to the experimental condition receiving the PPS intervention, and students assigned to the control condition receiving customary University services. There were two levels of severity of academic under-achievment present in each of the two groups. Methods for assignment to the groups are presented in detail in the Procedures section of this Chapter.

The demographic information for both the Experimental group subjects and the Control group subjects are presented in Tables 3.1 through 3.5. The two groups were composed of

Table 3.1: Age of Subjects

	PPS	Control
Mean	22.09	21.86

Table 3.2: Race of Subjects (in per cent)

Race	PPS	Control
Caucasian	97	99
Black	3	1

a nearly equivalent number of subjects: 53 in the PPS group and 52 in the Control group. The mean age of the PPS group and the Control group was 22.09 and 21.86 years, respectively. The racial composition of the two groups was nearly the same with Caucasians comprising over 97% of the sample and the remainder composed of Blacks. In both

Table 3.3: Sex of Subjects (in per cent)

Sex	PPS	Control
Female	23	37
Male	77	63

Table 3.4: Years of College Attendence

	PPS	Control
Mean	3.52	3.59

groups, the sex of the sample roughly reflected the ratio of male to female students in attendance at Michigan Technological University. The number of years in attendance in college was nearly equivalent for both the PPS and Control groups. Approximately 65% of the students attending Michigan Tech are enrolled in an engineering curriculum. The PPS group was comprised of 60% engineering students and the Control group was comprised of 40% enrolled in the engineering curriculum.

Table 3.5: Curriculum of Subjects (in per cent)

Curriculum	PPS	Control
Engineering	60	41
Other	40	59

The 1985 Fall Quarter grade point average and the 1985 Fall Quarter Cumulative grade point averages are presented in Tables 3.6 and 3.7. Both the PPS group and Control group were comprised of two levels of severity of academic underachievment based on their level of academic probation. The grade point averages, both quarterly and cumulatively, were roughly equivalent for the PPS and Control groups and their level of severity.

Table 3.6: 1985 Fall Quarter Grade Point Average of Subjects

Level of Severity	PPS	Control
High	.99	1.00
Low	1.29	1.49

Table 3.7: 1985 Fall Quarter Cumulative Grade Point Average of Subjects

Level of Severity	PPS	Control
High	1.87	1.85
Low	2.11	2.27

Instrumentation

Several written instruments were selected as operational measures of the primary hypothetical constructs in this study. The written instruments selected are the Lifestyle Coping Inventory (Hinds, 1983), the General Tension Chart (Hinds, 1983), and the Taylor Manifest Anxiety Scale (MAS) developed from the Minnesota Multiphasic

Personality Inventory (MMPI). In addition to the written instruments, quarterly and cumulative grade point averages were selected as dependent measures of the hypothetical constructs in this study.

Lifestyle Coping Inventory

The Lifestyle Coping Inventory (Appendix A) is a 142-item, Likert-type inventory designed to assess an individual's present level of health and lifestyle behavior (Hinds, 1983). Health behavior is broadly defined as all lifestyle behaviors which have a significant impact on health (Stone, 1980). This includes behaviors with either a positive or negative effect on health. The inventory was constructed by identifying statements that had face validity as measures of health behavior. In a recent study, the internal consistency of the Lifestyle Coping Inventory was determined by computing Cronbach's alpha and it was reported to be .93 (Palombi, 1987).

The statements of health behavior are organized into seven major categories. The categories are: (a) nutritional actions (20 items), e.g., "I make sure to include fiber in my diet"; (b) physical care actions (18 items), e.g., "I climb stairs rather than ride an elevator"; (c) cognitive and emotional actions (37 items), e.g., "I share my feelings with others"; (d) low-risk actions (5 items), e.g., "I drive the speed limit"; (e) environmental actions (9 items), e.g., "I choose environments with little

noise pollution"; (f) social support actions (14 items), e.g., "I get together with a community group"; and (g) coping style actions (32 items), e.g., "I take a break, rather than try to hurry."

Individuals respond to each declarative statement by choosing one alternative among the following choices: Choice A = Never (0% of the time), Choice B = Rarely (0 - 25% of the time), Choice C = Occasionally (25 - 50% of the time), Choice D = Often (50 - 75% of the time), Choice E = Very Often (75 - 100% of the time). The higher the point total, the greater the number of health behaviors. In this study, each behavioral category of health behavior is used in addition to the total score obtained by adding all seven categories for a total point score.

The Lifestyle Coping Inventory was administered at pretreatment and posttreatment. This instrument was chosen to measure changes in health behaviors as a result of the PPS treatment. Using the total scores obtained from the pretreatment administration of the Lifestyle Coping Inventory in the present study, the split-half reliability coefficient was reported to be .84.

General Tension Chart

The General Tension Chart was designed as part of the Personal Paradigm Shift that assists an individual in identifying sources of stress that are unique to the person (Hinds, 1983). In chart format, the person identifies his/her top ten stressors, those adaptive demands that

exceed an optimal strain level. The stressors are rank ordered from "most intense" to "least intense." Then, the individual assigns a tension score to each stressor, from 4 points being "extremely stressful" to 1 point being "barely stressful." A maximum of 40 points may be generated. The higher the score, the greater the tension the individual is experiencing and the fewer number of health behaviors.

In the present study, this instrument was chosen to measure changes in health behaviors and psychological stress as a result of the PPS treatment. It was administered at pretreatment and posttreatment. Using the total scores obtained from the pretreatment administration of the General Stress Chart in the present study, the split-half reliability coefficient was reported to be .78.

Minnesota Multiphasic Personality Inventory (MMPI), Taylor Manifest Anxiety Scale

The MMPI is designed to provide an objective assessment of the major personality characteristics that influence personal and social adjustment. Hathaway and McKinley (1967) have discussed in detail the construction of the MMPI and the derivation of its scales. The development of the MMPI was accomplished by contrasting normal groups with carefully studied clinical cases. Over 800 clinical cases from the Neuropsychiatric Division of the University of Minnesota Hospital were used as normative data.

In various research studies, each of the MMPI scales has been employed as a separate test with variable losses of

discriminability. Usually, the effects of administering the items of a single scale out of context of the rest of the item pool produces a lower mean and smaller variance than when the component items are encountered in the context of other MMPI items (Dahlstrom, Welsh, & Dahlstrom, 1972).

An exception is the Taylor Manifest Anxiety Scale (Taylor, 1953), which is used extensively as a separately printed scale (Dahlstrom, Welsh, & Dahlstrom, 1972). The Taylor (MAS) is a 24 true-false item special MMPI scale, that measures physiological symptoms of anxiety, such as headaches, constipation, worry, and tension. Point values are assigned to each choice (true = 1, false = 0), and point values are added together for the total score. Therefore, the higher the point total, the greater the number of physiological symptoms of stress.

In the development of this special scale, Bechtold (1953) found statistically stable but numerically small differences in the means and variances for college students between seperate administrations of the Taylor (MAS). Additional studies of the Taylor (MAS) as a special scale have confirmed these findings (Perkins & Goldberh, 1964). Reliability of the Taylor (MAS) has been reported to be quite satisfactory and its correlation to other scales of the MMPI and other measures of anxiety, such as the Spielberger State - Trait Anxiety Scale (Spielberger, 1972) is reported at .77 (Dahlstrom, Welsh, & Dahlstrom, 1972).

The Taylor (MAS) was administered at pretreatment and posttreatment and was chosen to measure changes in psychological stress as a result of the PPS treatment.

Grade Point Averages

Grade point averages were selected as dependent measures of the hypothetical constructs in this study. The quarter and cumulative grade point averages were selected as an indicator of academic achievment and performance of health care behaviors. A number of studies have shown that low achievers experience significantly higher levels of anxiety than high achievers and demonstrate a lack of skill with personal problem solving (Mitchell & Piatrowski, 1974). In this study, grade point averages will be an indicator of an increase in performance of health care and personal problem-solving behaviors.

Procedures

Subjects in the study were identified by the Dean of Students Office on the basis of their academic status at the end of the 1985 Fall Quarter. In this experiment, subjects were selected from probation categories one, two, three, four, six, seven, and eight. These categories were described in a previous section of this chapter.

There were approximately 350 students identified from these seven categories of academic probation enrolled at the University following the 1985 Fall Quarter. Each of these students received a customary letter from the Dean of

Students Office advising them of their academic standing and requesting that they attend a customary scheduled group meeting with the Dean of Students to discuss their probationary status. At this meeting, University policies governing academic probation were discussed. In addition, an outline of customary University resources available to the students for assistance with academic achievment was presented.

At this time students were informed by the experimenter about the nature of this study and were asked if they would be willing to participate. Potential participants were told that the purpose of the study was "to investigate a personal problem-solving method of managing stress and health behavior." It was explained that those students who volunteered for the study would randomly be assigned to the Experimental group or the Control group. All students were told that their participation or non-participation in the study would not influence their current or future academic standing within the University. Potential participants were also informed that they were free to participate in any of the customary University services designed to help students with academic problems. The customary services available at the University were presented in detail (i.e., academic advisors, counseling services, study skills groups, tutorial services, career services, etc.). Once a student agreed to participate in the study, a consent form was obtained (see Appendix D). After each subject had signed a consent form,

the group of subjects was randomly assigned to either the experimental condition (PPS) or the control condition. The participants were then notified of their assignment.

PPS Group

Fifty-three students were randomly assigned to the treatment condition and were taught the psychoeducational program PPS (Hinds, 1983). In keeping with the tenets of an educational model, the experimenter assumed the role of a "teacher," or "trainer," and the subjects became the "active participants." The goal of the trainer was to present the concepts of behavior change of the PPS in a meaningful way and guide them through the twenty-four steps of the four-stage model.

The trainer began the program with an introduction to and rationale for the PPS. It was stated that the PPS is:

> "A manual that teaches people the psychological skills necessary to understand their behavior and make changes in their behavior. PPS is a way to learn how to solve personal problems, manage stress, and make better decisions about how to improve emotional and physical health. The steps in the manual will help you to understand the relationship between your feelings, thoughts, body reactions, behaviors, and self-concept. In order to make the behavior changes you want, you need to understand these relationships. Some reading and writing will be part of this program, but don't worry, there are no right or wrong answers. You are only asked to write what you think and feel at each of the twenty-four steps."

Group participants were instructed that their written responses to each of the steps were confidential but the trainer would look them over at any time if a participant

made that request. Typically, group members asked questions and shared responses and reactions to each step in the group and with each other. The trainer provided encouragement to the participants to ask questions and make comments throughout the program. All participants received training in the PPS in a group, and no individual training was provided.

PPS training was divided into six 1-1/2-hour sessions occurring on Tuesday evening of each week. Approximately four steps of the PPS model was taught in each session, depending on the speed of the group members in comprehending the concepts and the amount of discussion that was generated. If a participant expressed confusion about the meaning of a particular step, the trainer clarified the meaning and offered examples. Group members were encouraged not to evaluate and critique their thoughts and feelings but to write whatever came into their awareness.

Certain steps in the PPS manual were particularly important and given special attention. Step 7, "Taking a Loss," is one example. It was emphasized that any personal problem could be worked on in this program and it did not necessarily have to relate to any particular aspect of academic underachievment, although most participants did. There was an ititial tendency of group members to view their personal problem as the result of external circumstances, but participants were encouraged to develop their own

awareness of their personal responsibility for the situation they chose to work on.

The steps of the PPS were distributed according to the requirements of each of the sessions. The complete program was not distributed to any individual participants ahead of any of the sessions. If any participants could not attend a session, a makeup session was scheduled with the trainer.

Control Group

The participants in the study who were randomly assigned to the Control group were asked to complete the written instruments and allow the experimenter to obtain a copy of their quarterly and cumulative grade point averages. The pretreatment instruments were distributed by mail at the time of notification of their assignment. They were asked to return the completed forms at the end of one week. The posttreatment forms were distributed at the completion of the Experimental group treatment by mail with a request to return the completed packet within one week. Most participants responded as requested and for those who did not comply in the time frame, participants were telephoned and urged to complete the written material by the experimenter, for a posttreatment return rate of 99%. Grade point averages were obtained through the computerized listings available in the Dean of Students Office.

Design

The design in the study is a pretest - posttest Control

group design with 3-month follow-up measures, a true experimental design (Campbell & Stanley, 1963). This design takes the following form:

R	O_1	X	O_2	O_3
R	O_4		O_5	O_6

where R refers to randomization of subject groups to separate treatments, X represents the exposure of subjects to the Personal Paradigm Shift (PPS), and O represents measurement points of dependent variables.

The design is referred to as a split-plot factorial design (Keppel, 1973; Kirk, 1968). Since there are equal n's in each of the cells, the design is balanced. Figure 3.1 illustrates the overall design of the study.

Hypotheses

The primary questions of interest in this study were:

1. Can a psychoeducational approach to personal problem solving and health care decision making improve the academic achievment of academically underachieving college students as measured by grade point averages?

2. Can a psychoeducational approach to personal problem solving and health care decision making improve the general coping skills of academically underachieving college students as measured by performance of health care behaviors?

Figure 3.1

ILLUSTRATION OF THE STUDY

		Pretreatment 1 2 3 4 5	Post Treatment 1 2 3 6 7	Follow-up 8 9
T	Level 1 Severity			
	Level 2 Severity			
C	Level 1 Severity			
	Level 2 Severity			

T = PPS Group C = Control

DEPENDENT VARIABLES

1. x Coping Score
2. x MMPI (MAS)
3. x Tension Score
4. x 1986 Fall Quarterly G.P.A.
5. x 1986 Fall Cumulative G.P.A.
6. x 1986 Winter Quarterly G.P.A.
7. x 1986 Winter Cumulative G.P.A.
8. x 1986 Spring Quarterly G.P.A.
9. x 1986 Spring Cumulative G.P.A.

3. Can a psychoeducational approach to personal problem solving and health care decision making reduce manifest psychological anxiety in academically underachieving college students as measured by the Taylor Manifest Anxiety Scale?

4. Can a psychoeducational approach to personal problem solving and health care decision making assist academically underachieving college students in maintaining academic performance gains several months following termination of treatment as measured by grade point averages.

The following hypotheses were tested to answer these primary research questions.

1. H_o : The Personal Paradigm Shift group will be no different than the Control group in increasing Quarterly academic performance as measured by the grade point average.

   H_a : The personal Paradigm Shift group will show larger increases in Quarterly academic performance that the Control group as measured by the grade point average.

2. H_o : The personal Paradigm Shift group will be no different than the Control group in increasing academic performance as measured by the cumulative grade point average.

   H_a : The Personal Paradigm Shift group will show larger increases in academic performance than the Control group as measured by the cumulative grade point average.

3. H_o : The Personal Paradigm Shift group will be no different than the Control group in increasing health care behavior performance as measured by a health behavior inventory.

H_a: The Personal Paradigm Shift group will show larger increases in health care behavior than the Control group as measured by a health behavior inventory.

4. H_o: The Personal Paradigm Shift group will be no different than the Control group in reducing perceptions of psychological stress on anxiety measures.

   H_a: The Personal Paradigm Shift group will show a larger reduction in perception of psychological stress on anxiety measures.

5. H_o: Subjects assigned to the Personal Paradigm Shift group will be no different than subjects assigned to the Control group in maintaining academic performance gains 3 months following treatment as measured by quarterly grade point average.

   H_a: Subjects assigned to the Personal Paradigm Shift group will maintain greater academic performance gains 3 months following treatment as measured by quarterly grade point average than the Control group.

6. H_o: Subjects assigned to the Personal Paradigm Shift group will be no different than subjects assigned to the Control Group in maintaining academic performance gains 3 months following treatment as measured by cumulative grade point average.

   H_a: Subjects assigned to the Personal Paradigm Shift group will maintain greater academic performance gains 3 months following treatment as measured by cumulative grade point average that the Control group.

Analysis of Data

The Individual as the Unit of Analysis

The unit of analysis is the smallest division of the collection of experimental subjects who have been randomly assigned to the different conditions of the experiment and who have responded independently of each other for the duration of the treatment. In this study, the unit of analysis will be "individuals," since the treatment was

administered to subjects in groups. The statistical assumption of "independence" of error is met if the sampling distribution is normally distributed and N > 30 (Hopkins, 1982).

Use of Raw Gain Scores

In this study, the primary interest was in measuring changes that occurred as a result of the PPS. Because of this, gain scores or difference scores (Campbell & Stanley, 1963; Keppel, 1973; Kirk, 1968) were used to compare changes between the two groups, rather than use the procedure of comparing posttreatment or follow-up means. The gain score method is a statistical procedure for increasing precision, or reducing the standard error, by removing initial differences between subjects on the pretreatment observation. This method insures an unbiased estimate of treatment effects.

The raw gain score was computed by subtracting the pretreatment mean from the posttreatment mean, or by subtracting the pretreatment mean from the follow-up mean. The model for gain score analysis is $z = y - k_x$, where z is the difference score, y is the posttreatment score, x is the pretreatment score, and k is the within-group regression coefficient.

Raw gain score analysis assumes (a) equality of population variance and (b) a within-group regression

coefficient of 1.0. There is no cost of degrees of freedom when using raw gain scores.

Statistical Procedures

Two statistical procedures were used in this study: (a) two-way analysis of variance (ANOVA) and (b) multivariate analysis of variance (MANOVA). All of these procedures assume normally distributed error variance, homogeneity of error variance, and independence of error components.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores of the quarterly and cumulative grade point averages obtained by subtracting pretreatment group means from posttreatment group means. A second two-way analysis of variance (ANOVA) was conducted on the mean gain scores of the quarterly and cumulative grade point averages by subtracting pretreatment group means from follow-up group means. Two-way analysis of variance was selected as the appropriate statistical procedure because it controls for overall Type II error and allows for the consideration of an interaction effect. The simultaneous response of the experimental units reveals more information about the total effect of the treatment than the responses considered separately.

A two-way analysis of variance was performed on the total score of the coping inventory by using gain scores obtained by subtracting the pretreatment means from the posttreatment means.

A multivariate analysis of variance (MANOVA) was performed on the mean gain scores of the two stress measures obtained by subtracting pretreatment group means from posttreatment group means. MANOVA was selected as the appropriate statistical procedure because it controls for overall Type I error and it accounts for the correlations between stress measures. Individual two-way ANOVAs for each of the stress measures were then examined for descriptive and discussion purposes.

Summary

The purpose of this study was to determine the effectiveness of a psychoeducational intervention on the health care decision making and personal problem solving, the PPS, on the health and lifestyle behavior of academically underachieving college students. Subjects were recruited for the study from students identified by the Dean of Students Office at Michigan Technological University, Fall Quarter, 1985, as being on academic probation. There were 105 students who volunteered for the study and were randomly assigned to one of two treatment conditions: the experimental condition, receiving the PPS (Hinds, 1983), or the control condition, not receiving PPS training. The Experimental group received training in the PPS for six consecutive weeks of 1-1/2 hours duration. Both groups were free to receive customary University services for students on academic probation.

Dependent measures were collected at three time periods: pretreatment, posttreatment, and three months following termination of the treatment. Quarterly and cumulative grade point averages were collected at all three time periods. The Lifestyle Coping Inventory (Hinds, 1983), the General Tension Chart (Hinds, 1983) and the Taylor Manifest Anxiety Scale (1953) were administered at pretreatment and posttreatment.

The experimental unit of analysis was the individual and the sample was normally distributed. Gain scores were used to increase precision and remove pretreatment differences. Gain scores were obtained by subtracting pretreatment from posttreatment group means, and by subtracting pretreatment from follow-up group means. Two-way ANOVA and MANOVA were performed on the group means to determine statistically significant comparisons. The level of significance was set at .05 for each statistical procedure.

The results of the hypothesis tests and an interpretation of these results are presented in Chapters Four and Five.

CHAPTER 4

ANALYSIS OF RESULTS

In this chapter the results of the data analyses are presented. Each hypothesis is restated in testable form, and the results of the analyses are given, followed by a statement as to whether the hypothesis was accepted or rejected. The chapter is concluded with a summary of the hypotheses tests.

Follow-up Return Rate

The design for this study (see Figure 3.1, Chapter Three) was a pretest-posttest control group design with follow-up. This design was employed to compare the effects of a psychoeducational intervention for health care decision making and no treatment group on academic achievment. Three types of dependent measures were used: grade point averages, severity of psychological stress, and reported frequency of health behaviors. Descriptions of each of the dependent measures were provided in Chapter Three.

There were 106 students who volunteered for the study, and were randomly assigned to either the Treatment or Control group. The Treatment group received training in the Personal Paradigm Shift (PPS) for a total of six weeks during the experiment by the same trainer.

There was a level of "severity" of academic underachievement nested into each of the two groups. Descriptions of the levels of severity were presented in Chapter Three. Of the total sample of 106 subjects, 35 subjects were identified in the "low risk" level of severity and 71 were identified in the "high risk" level of severity. One subject dropped out of the study before the treatment was completed. A total of 105 subjects completed the dependent measures at posttreatment for a return rate of 99%. A total of 88 subjects completed the dependent measures at three months following treatment, for a return rate of 83%. Table 4.1 illustrates group size at pretreatment, posttreatment, and 3-month follow-up.

Table 4.1: Size of Groups at Each Measurement Point

	Measurement Point		
Group	Pretest n	Posttest n	Follow-Up n
E_1	17	17	16
E_2	36	36	33
C_1	18	18	15
C_2	35	34	24
Total	106	105	88

Note: E_1 = Experimental group, low risk
E_2 = Experimental group, high risk
C_1 = Control group, low risk
C_2 = Control group, high risk

The size of the Experimental and Control groups at pretest were $n = 53$ and $n = 53$, respectively. The size of

the Experimental and Control groups at posttreatment were $\underline{n}$ = 53 and $\underline{n}$ = 52, respectively. The size of the Experimental and Control groups at follow-up were $\underline{n}$ = 49 and $\underline{n}$ = 39, respectively. The response rate between the two groups at posttreatment was comparable. The response rate between the two groups at follow-up was not equivalent, 92% response for the Experimental group and 73% for the Control group.

Results

In this section, each of the hypotheses of the study is evaluated with the appropriate statistical analysis. A total of six statistical hypotheses are presented. Four hypotheses were constructed to test the effects of the PPS on academic achievement, a pretreatment - posttreatment comparison of quarterly grade point averages, a pretreatment - posttreatment comparison of cumulative grade point averages, a pretreatment - follow-up comparison of quarterly grade point averages and a pretreatment - follow-up comparison of cumulative grade point averages. One hypothesis each was constructed to test the effects of the PPS on health care behavior and perceptions of psychological stress. The analyses of all hypotheses were performed on gain scores derived from either a pretreatment - posttreatment comparison or a pretreatment - follow-up comparison.

Hypothesis 1

The first hypothesis is concerned with changes in quarterly academic achievement from pretreatment to posttreatment.

H_o: There will be no difference between the mean gain scores of the Personal Paradigm Shift group and the Control group on quarterly grade point averages derived from the pretreatment - posttreatment comparison.

H_a: The Personal Paradigm Shift group's mean gain scores will be higher than the Control group's mean gain scores on quarterly grade point averages derived from the pretreatment - posttreatment comparison.

The group means for the quarterly grade point averages at all three measurement points for both groups are presented in Table 4.2.

Table 4.2: Mean Quarterly Grade Point Averages of Pretreatment, Posttreatment, and Follow-Up for Experimental and Control groups

Group	Quarterly Grade Point Averages		
	Pre $\bar{x}$	Post $\bar{x}$	Follow-Up $\bar{x}$
Experimental			
Low Risk	1.29	2.19	2.22
High Risk	.99	2.02	2.09
Control			
Low Risk	1.49	1.68	1.90
High Risk	1.00	1.64	1.57

The two groups demonstrated comparable mean quarterly grade point averages at pretreatment across levels of severity. At posttreatment, both groups across levels of

severity showed increases in mean quarterly grade point averages. At the three month follow-up point, both groups demonstrated increases in quarterly grade point averages from the pretreatment level.

Gain scores for the quarterly grade point averages were obtained by subtracting pretreatment quarterly grades from the posttreatment quarterly grades. These data are presented in Table 4.3. Positive numbers indicate an increase and negative numbers indicate a decrease in grade point averages.

Table 4.3: Mean Gain Scores (Pretreatment - Posttreatment) on Quarterly Grade Point Average.

Group	n	$\bar{x}$ gain score
Experimental		
Low Risk	17	.90
High Risk	36	1.03
Control		
Low Risk	18	.19
High Risk	34	.64

An examination of Table 4.3 reveals that all levels of the groups showed an increase in quarterly grade point average from pretreatment to posttreatment. Subjects in the Experimental group made greater quarterly grade point average gains than subjects in the Control group as evidenced by the higher scores.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores of the quarterly grade point averages

to determine whether there was a significant change between groups from pretreatment to posttreatment. The level of significance of the test was set at .05. Results of the test showed no significant difference between the groups, $F(2, 10^3) = 5.13$, $p > .05$. The null hypothesis was not rejected.

Although the results of the two-way ANOVA were not significant, the results are presented in Table 4.4 for illustration purposes.

Table 4.4: Results of Two-Way ANOVA on Pre - Post Quarterly Grade Point Averages

Source	SS	df	MS	F	Sig. F
Main Effects	8.65	2	4.32	5.13	.08
Treatment	6.51	1	6.51	7.72	.02
Severity	1.95	1	1.95	2.31	.13
Interaction	.56	1	.56	.67	.42
Within	85.16	102	.843		

Note: Tabled entries were computed using gain scores.

Hypothesis 2

The second hypothesis compared changes in cumulative academic achievement from pretreatment to posttreatment.

H_o: There will be no difference between the mean gain scores of the Personal Paradigm Shift group and the Control group on cumulative grade point averages derived from the pretreatment - posttreatment comparison.

H_a: The Personal Paradigm Shift group's mean gain scores will be higher that the Control group's mean gain scores on cumulative grade point averages derived from the pretreatment - posttreatment comparison.

The group means for the cumulative grade point averages at all three measurement points are presented in Table 4.5.

Table 4.5: Mean Cumulative Grade Point Averages at Pretreatment, Posttreatment, and Follow-Up for Experimental and Control Groups

Group	Cumulative Grade Point Averages		
	Pre $\bar{x}$	Post $\bar{x}$	Follow-Up $\bar{x}$
Experimental			
Low Risk	2.11	2.14	2.25
High Risk	1.87	1.99	2.04
Control			
Low Risk	2.27	2.30	2.29
High Risk	1.85	1.89	1.90

The two groups demonstrated comparable mean cumulative grade point averages at pretreatment across levels of severity. At posttreatment, both groups across levels of severity showed increases in cumulative grade point averages. At the three month follow-up, both groups demonstrated increases over pretreatment levels and increases over posttreatment levels.

Gain scores for the cumulative grade point averages were obtained by subtracting pretreatment cumulative means from the posttreatment cumulative means. These data are presented in Table 4.6. Positive numbers indicate an increase and negative numbers a decrease in grade point averages.

Table 4.6: Mean Gain Scores (Pretreatment - Posttreatment) on Cumulative Grade Point Average.

Group	n	$\bar{x}$ gain score
Experimental		
Low Risk	17	.03
High Risk	36	.12
Control		
Low Risk	18	.03
High Risk	34	.04

An examination of Table 4.6 reveals that all levels of the groups showed an increase in cumulative grade point averages from pretreatment to posttreatment. Subjects nested in the more severe level of academic underachievement in the experimental group made greater cumulative grade point average gains than other subjects in either group as evidenced by the higher scores.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores of the cumulative grade point averages to determine whether there was a significant change between groups from pretreatment to posttreatment. The level of significance of the test was set at .05. Results of the test showed no significant difference between the groups, $F(2,103) = 1.62$, $p > .05$. The null hypothesis was not rejected. The results of the two-way ANOVA are presented in Table 4.7 for illustrative purposes.

Table 4.7: Results of Two-Way ANOVA on Pre - Post Cumulative Grade Point Average

Source	SS	df	MS	F	Sig. F
Main Effects	.134	2	.06	1.617	.204
Treatment	.08	1	.08	2.010	.159
Severity	.05	1	.05	1.140	.288
Interaction	.04	1	.04	.976	.326
Within	4.176	102	.041		

Note: Tabled entries were computed using gain scores.

Hypothesis 3

The third hypothesis is concerned with the change in performance health care behaviors.

H_o: There will be no difference between the mean gain scores of the Personal Paradigm Shift group and the Control group as measured by the Lifestyle Coping Inventory at pretreatment and posttreatment.

H_a: The mean gain score of the PPS group will be greater than the mean gain score of the Control group as measured by the Lifestyle Coping Inventory at pretreatment and posttreatment.

The Lifestyle Coping Inventory was administered at pretreatment and posttreatment to measure changes in behavior initiated by students during treatment. The mean scores on the Lifestyle Coping Inventory for the Experimental and Control groups at pretreatment and posttreatment are presented in table 4.8.

The range for the group in the study was 253 points, from a low score of 209.00 to a high score of 454. As seen in Table 4.8, both the Experimental and the Control groups

demonstrated an increase in grand mean coping scores from pretreatment to posttreatment.

Table 4.8: Mean Scores on the Lifestyle Coping Inventory at Pretreatment and Posttreatment for Experimental and Control Groups

Group	n	Pre-$\bar{x}$	n	Post-$\bar{x}$
Experimental				
Low Risk	17	299.94	17	330.17
High Risk	36	310.72	36	340.62
Control				
Low Risk	18	287.66	18	311.52
High Risk	35	303.88	34	326.43

Note: Total possible score is 568 points.

The mean gain score data for the coping scores were obtained by subtracting pretreatment mean scores from posttreatment mean scores and are presented in Table 4.9. The Experimental group demonstrated a larger increase in coping scores than did the Control group. In addition, the Experimental group showed more variability in gain scores as evidenced by the larger standard deviations.

To test the third hypothesis, a two-way analysis of variance (ANOVA) was performed on mean gain score data for the groups on the Lifestyle Coping Inventory. Results of the two-way ANOVA were not significant, $F(2,103) = .974$, $p > .05$. The null hypothesis was not rejected in favor of the alternate hypothesis.

Table 4.9: Gain Score Data on Lifestyle Coping Inventory for Pretreatment - Posttreatment Comparison for Experimental and Control Groups

Group	n	$\bar{x}$	SD
Experimental			
Low Risk	17	30.23	41.42
High Risk	36	29.90	44.42
Control			
Low Risk	18	23.86	31.17
High Risk	34	22.55	32.51

Note: Tabled entries are group mean gain scores.

Hypothesis 4

The fourth hypothesis is concerned with reduction in perceptions of psychological stress in college academic underachievers.

H_o: There will be no difference between the mean gain scores of the Personal Paradigm Shift group and the discussion group obtained from the mean scores on the Taylor Manifest Anxiety Scale and General Tension Chart at pretreatment and posttreatment.

H_a: The Personal Paradigm Shift group's mean gain scores will be smaller that the Control group's mean gain scores obtained from the mean scores on the Taylor Manifest Anxiety Scale and General Tension Chart at pretreatment and posttreatment.

The mean scores on the Taylor Manifest Anxiety Scale and the General Tension Chart obtained at pretreatment and posttreatment are presented in Tables 4.10 and 4.11. the pretreatment differences between groups were nearly equivalent, with the exception of the high risk Experimental group pretreatment mean which was lower than the others.

Table 4.10: Mean Taylor Manifest Anxiety Scores at Pretreatment and Posttreatment for Experimental and Control Groups.

Group	Taylor (MAS) Score					
	Pre			Post		
	n	$\bar{x}$	SD	n	$\bar{x}$	SD
Experimental						
Low Risk	17	19.82	9.14	17	16.00	8.52
High Risk	36	15.42	7.47	36	14.94	7.89
Control						
Low Risk	18	19.33	4.67	18	17.78	5.04
High Risk	35	20.03	8.49	34	18.20	9.05

Note: Total Taylor (MAS) score is a possible 26.

Table 4.11: Mean General Tension Chart Scores at Pretreatment and Posttreatment for Experimental and Control Groups.

Group	General Tension Score					
	Pre			Post		
	n	$\bar{x}$	SD	n	$\bar{x}$	SD
Experimental						
Low Risk	17	70.71	24.65	17	61.23	20.96
High Risk	36	64.02	23.67	36	58.76	21.33
Control						
Low Risk	18	75.89	19.05	18	69.33	20.87
High Risk	35	76.85	23.82	34	71.18	20.69

Note: Total General Tension Chart score is a possible 80.

The gain score data obtained by subtracting pretreatment group means from posttreatment group means for the Taylor (MAS) and the General Stress Chart are presented

in Table 4.12. A negative number signifies a decrease in the elevation of the two scales, toward normality, and a

Table 4.12: Mean Gain Scores (Pretreatment - Posttreatment) on Taylor (MAS) and General Tension Chart for Experimental and Control Groups

Group	Taylor (MAS) $\bar{x}$ gain score	General Tension Chart $\bar{x}$ gain score
Experimental		
Low Risk	-3.82	-9.48
High Risk	-0.48	-5.26
Control		
Low Risk	-1.55	-6.56
High Risk	-1.83	-5.67

positive number signifies an increase in elevation, toward psychological stress. Both treatment conditions showed a decrease on both scales from pretreatment to posttreatment. The low risk group in the experimental condition demonstrated larger decreases than the other groups on both scales. The high risk group of the experimental condition showed the smallest decreases on gain scores.

To test the fourth hypothesis, a MANOVA was performed on the mean gain scores for the two stress scales and was found to be non-significant, F (2,103) = .74, $p > .05$. The null hypothesis of no difference was not rejected in favor of the alternate hypothesis.

Hypothesis 5

The fifth hypothesis is concerned with maintenance of health care gains 3 months following treatment.

H_o : There will be no difference between the mean gain scores of the Personal Paradigm Shift group and the Control group obtained from quarterly grade point averages derived from the pretreatment - follow-up comparison.

H_a : The Personal Paradigm Shift group's mean gain scores will be higher that the Control group's mean gain scores on quarterly grade point averages derived from the pretreatment - follow-up comparison.

The group means for the quarterly grade point averages were presented in Table 4.2. At the three month follow-up period, both treatment groups demonstrated increases in quarterly grade point averages over the pretreatment quarterly grade point averages.

Gain scores for the quarterly grade point averages were obtained by subtracting pretreatment quarterly grades from the follow-up quarterly grades. These data are presented in Table 4.13. Positive numbers indicate an increase in quarterly grade point averages.

An examination of Table 4.13 indicates that all levels of the groups showed an increase in quarterly grade point average from pretreatment to follow-up. Subjects in the experimental treatment condition made greater quarterly grade point average gains than subjects in the Control group as evidenced by the higher scores.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores of the quarterly grade point averages

Table 4.13: Mean Gain Scores (Pretreatment - Follow-up) on Quarterly Grade Point Averages for Experimental and Control Groups.

Group	n	$\bar{x}$ gain score
Experimental		
Low Risk	16	.93
High Risk	33	1.10
Control		
Low Risk	15	.41
High Risk	24	.57

to determine whether there was a significant change between groups from pretreatment to follow-up. The level of significance of the test was set at .05. Results of the test indicate a significant difference between the groups, F (2,86) = 4.92, $p < .05$. The null hypothesis was rejected in favor of the alternate hypothesis.

The results of the two-way ANOVA are presented in Table 4.14 for illustrative purposes. Examination of the results of the two-way ANOVA indicate that the Experimental group showed a significant difference in higher quarterly grade point averages than the Control group. The results also indicate that the level of severity nested in the two groups did not account for any significant difference.

Table 4.14: Results of Two-Way ANOVA on Pre - Follow-Up Quarterly Grade Point Averages

Source	SS	df	MS	F	Sig. F
Main Effects	9.622	2	4.81	4.92	.01
Treatment	8.404	1	8.40	8.59	.01
Severity	0.858	1	.86	.88	.35
Interaction	.00	1	.00	.00	.9
Within	82.13	85	.97		

Note: Tabled entries were computed using gain scores.

Hypothesis 6

The sixth hypothesis was also concerned with maintenance of health care gains 3 months following treatment.

H_0: There will be no difference between the mean gain scores of the Personal Paradigm Shift groups and the Control group obtained from cumulative grade point averages derived from the pretreatment - follow-up comparison.

H_a: The Personal Paradigm Shift group's mean gain scores will be higher than the Control group's mean gain scores on cumulative grade point averages derived from the pretreatment - follow-up comparison.

The group means for the cumulative grade point averages were presented in Table 4.5. At the three month follow-up period, both treatment groups demonstrated increases in cumulative grade point averages over the pretreatment cumulative grade point averages.

Gain scores for the cumulative grade point averages were obtained by subtracting pretreatment cumulative grade point means from follow-up cumulative grade point means.

These data are presented in Table 4.15. Positive numbers indicate an increase in cumulative grade point average.

An examination of Table 4.15 indicates that all levels of the groups showed an increase in cumulative grade point average from pretreatment to follow-up. Subjects in the Experimental group made greater gains than subjects in the Control group as evidenced by the higher scores.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores of the cumulative grade point average to determine whether there was a significant change between

Table 4.15: Mean Gain Scores (Pretreatment - Follow-up) on Cumulative Grade Point Averages for Experimental and Control Groups.

Group	n	$\bar{x}$ gain score
Experimental		
Low Risk	16	.14
High Risk	33	.17
Control		
Low Risk	15	.02
High Risk	24	.05

groups from pretreatment to follow-up. The level of significance of the test was set at .05. Results of the test groups showed no significant difference between the groups, F (2,86) = 1.29, $p > .05$. The null hypothesis was not rejected. The results of the two-way ANOVA are presented in Table 4.16 for illustrative purposes.

Table 4.16: Results of Two-Way ANOVA on Pretreatment - Follow-Up Cumulative Grade Point Averages

Source	SS	df	MS	F	Sig. F
Main Effects	0.66	2	0.33	0.4	0.6
Treatment	0.54	1	0.54	0.67	0.4
Severity	0.15	1	0.15	0.18	0.6
Interaction	0.94	1	.94	1.16	0.2
Within	68.11	85	.811		

Note: Tabled entries were computed using gain scores.

Summary

A series of hypotheses were tested to determine the effect of the psychoeducational intervention PPS on academic achievement, health care behavior, and psychological stress in college student academic underachievers. Maintenance of gains was also tested. The statistical procedures used to test the hypotheses were two-way ANOVA and MANOVA.

Hypotheses 1 and 2 predicted differences between the PPS group and the Control group on quarterly and cumulative grade point averages at posttreatment. In both cases, the null hypothesis was not rejected at the .05 alpha level.

Hypothesis 3 predicted differences between the PPS group and the Control group on the performance of health care behaviors. The null hypothesis of no difference was not rejected at the .05 alpha level.

Hypothesis 4 predicted differences between the PPS group and the Control group on reduction of psychological stress in academic underachievers. The null hypothesis of no difference was not rejected at the .05 alpha level.

Hypotheses 5 and 6 predicted differences between the PPS group and the Control group on maintenance of gains as measured by quarterly grade point averages at follow-up. The hypothesis of no differences was rejected at the .05 alpha level. Hypothesis 6, which predicted differences in the cumulative grade point averages at follow-up was not rejected at the .05 alpha level.

In Chapter Five, a summary of the study is presented. Results of the study are discussed, along with limitations of the study. Finally, implications for future research are proposed.

CHAPTER 5

SUMMARY AND CONCLUSIONS

The major purpose of this study was to assess the effects of the psychoeducational intervention Personal Paradigm Shift on academic achievment, health care behavior, and perceptions of psychological stress in academically underachieving college students. In this chapter, a summary of the study is presented, followed by a discussion of the results and limitations of the study. Finally, implications for future research with psychoeducation and academically underachieving college students are discussed.

Summary

The purpose of this study was to determine the impact of a psychoeducational intervention for health management and personal problem solving, PPS, on academic achievment, perceptions of psychological stress, and health care behavior on academically underachieving college students at a state university. The need for the study emerged from several observations: increased student attrition and the need for stronger university retention programs, the impact of poor problem-solving abilities and maladaptive health and lifestyle choices on academic achievment, and the variability of gains reported in the current treatment of

academically underachieving college students. It was hypothesized that the PPS would assist students in identifying important psychological, health and nutrition, environmental, and psychosocial variables that influence lifestyle choices and academic achievement. The PPS involves the student in an educational process of observing and determining the personal choices made for lifestyle behavior. The PPS teaches the student how to make personal change.

The theoretical background of the PPS arises from the educational model of human service delivery. The essential concepts of this educational model include the ideas that human behavior results from experience and learning. In contrast to the illness model in psychology, the education model assumes that the individual has not yet learned the specific personal and interpersonal skills required for a satisfying lifestyle. Consistent with the educational model theory, the PPS follows the practices of psychoeducational interventions: (a) the psychologist becomes a teacher to the client, (b) client problems are viewed as competency deficits, and (c) clients actively participate in solving their own problems.

Students of this model are engaged in a process of goal setting and are actively taught requisite skills necessary for attainment of goals. The PPS assists the student in identifying the health care, psychological, and psychosocial variables that influence health care and academic

achievement. Additionally, the PPS teaches students the structure of a detailed model for making personal change.

Four areas of literature were reviewed: features of psychoeducational interventions with a focus on problem-solving programs; coping skills training and self control; stress in the academically underachieving college student; and a brief summary of existing interventions for academic underachievement with a review of follow-up studies.

General behavior change programs have a common goal of teaching participants a set of principles which have application to a variety of personal problems. Personal problem-solving manuals typically instruct the participant through a five-stage process of behavior change: (a) general orientation, (b) problem definition and formulation, (c) generation of alternatives, (d) decision making, and (e) verification. These manuals are usually logical and teach operant principles of behavior change.

Contributions from the cognitive-behavioral area in teaching participants behavior change include coping skills training and self-control. Training in the fundamental role of cognitions in personal problems, the process of self-monitoring, and principles of problem solving mark coping skills programs. Self-control programs are concerned with the individual assuming responsibility to guide, direct, and control those features of behavior that lead to targeted positive consequences.

This study was carried out with a sample of academically underachieving college students. Academic underachievement and its accompanying stress in college students contribute to impaired social relations, poor physical and nutritional health, difficulty with career decisions, test anxiety, and feelings of helplessness and hopelessness. These symptoms often result in maladaptive behaviors and lifestyle choices and often result in student attrition from university institutions.

A number of stress management programs for college students reported in the literature have had limited results in increasing academic performance. Single focus behavioral treatment programs have had success with alleviating symptoms of stress in college students, but limited effectiveness with increasing academic performance as measured by grade point averages. Multicomponent treatment programs have also demonstrated effectiveness with alleviating symptoms of stress in college students but have been inconsistent in increasing academic performance.

Approximately 350 academic underachieving college students were identified by the Dean of Students office at Michigan Technological University in the Fall Quarter of 1985. A total of 106 subjects volunteered to participate in this experiment and were randomly assigned to one of two treatment groups. For six consecutive weeks, one group received the psychoeducational intervention, PPS; the other group received no treatment other than customary university

resources for academically underachieving students, such as personal counseling, career workshops, stress management classes, academic planning with advisors, and departmental tutorials. Each treatment condition was composed of equal or a proportional number of subjects.

Dependent measures were collected at three periods: pretreatment, posttreatment, and 3-month follow-up. The instruments used were the MMPI, Taylor Manifest Anxiety Scale, the General Tension Chart, the Lifestyle Coping Inventory, and the quarterly and cumulative grade point averages.

Quarterly and cumulative grade point averages were collected at all three measurement points. Mean elevations were assessed at pretreatment and posttreatment, and pretreatment and follow-up. A total mean score from the Lifestyle Coping Inventory, representing numbers and frequency of performance of health care behaviors, was assessed at pretreatment and posttreatment. Mean elevations of the Taylor Manifest Anxiety Scale and the General Tension Chart, measures of perceptions of psychological stress, were assessed at pretreatment and posttreatment. The response rate at posttreatment for both groups was 99%, and the response rate at follow-up was 92% for the experimental group and 73% for the control group.

. The design for this study was a pretest - posttest control group design with follow-up measures. It was employed to test the hypotheses of the study. The unit of

analysis was the individual and the sample means were examined. Analyses were performed using mean gain scores (post minus pre and follow-up minus pre) as the observations.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores of the quarterly grade point averages examining the pretest - posttest comparison. A significant difference was found between groups at the .05 level of significance.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores of the cumulative grade point averages examining the pretest - posttest comparison. No significant difference was found between groups at the .05 level of significance.

A two-way analysis of variance (ANOVA) was performed on the mean gain scores obtained from the pretest - posttest comparison on the total mean coping scores of the Lifestyle Coping Inventory. No significant difference between groups was found at the .05 level of significance.

A MANOVA was performed on the mean gain score observations obtained on the pretest - posttest comparison on the General Tension Chart and Taylor Manifest Anxiety Scale. No significant difference between the groups on either measure was observed at the .05 level of significance.

Two additional two-way analysis of variance were performed on the mean gain scores obtained from the pretest

- follow-up comparison of quarterly and cumulative grade point averages. The first two-way analysis of variance on the comparison of the quarterly grade point average showed a significant difference between groups by treatment. The second two-way analysis comparing cumulative grade point average mean gain scores obtained at the pretreatment - follow-up comparison did not reveal a significant difference between groups at the .05 level of significance.

Examination of the data revealed that on the hypotheses comparing pretreatment and posttreatment mean gain scores on quarterly grade point averages there was a significant statistical difference between groups. A significant difference was also found between groups at the pretreatment - follow-up comparison of mean gain scores on quarterly grade point averages. No other statistically significant difference between groups was found on the other dependent measures in the study. It is important to note, however, that the mean gain scores for the PPS group were greater in the hypothesized direction than the mean gain scores for the Control group on the dependent measures.

Discussion

The results of this treatment study demonstrated only mixed support for the original hypotheses. It was found that the group of academically underachieving college students who received the psychological intervention, PPS, did not significantly differ from the group of academically underachieving college students who received no treatment in

reducing stress, increasing performance of health care behaviors, or increasing academic achievement as measured by cumulative grade point averages at posttreatment or follow-up. The PPS group, however, did demonstrate a significant difference over the control group in increasing academic achievement as measured by quarterly grade point averages at posttreatment and again at the three months follow-up. A discussion of those results with implications for theory and limitations of the study is now presented.

Stress Perceptions

Changes in the perceptions of psychological stress as measured by the Taylor Manifest Anxiety Scale (MMPI) and the General Stress Chart (Hinds, 1983) were not significantly different between groups from pretreatment to posttreatment. This lack of significance may be understood in a couple of ways. The first understanding may have to do with the time of the administration of the two instruments. At the beginning of the project the subjects were experiencing considerable distress at the prospect of being on academic probation. Additionally, for the majority of the students in the project who were in the more severe level of academic probation, they were also experiencing the pressure of having to significantly improve their academic performance during the quarter of treatment or face possible dismissal from the university. The posttreatment administration of the stress measurements occurred just prior to the final

examination period of the quarter. In a typical quarter at Michigan Tech, the final two weeks prior to final exams is also a period where professors typically accelerate the rate of presentation of class material and additional examinations and projects become due at the point in time of this administration. Another plausible explanation for the non-significance between groups on the stress measures may have occurred in the way that the students approached the instruments. These instruments were the only ones that addressed stress specifically and the scoring of the instruments may have been approached by the subjects as a means of discharging frustration or seeking attention in a global statement of their psychological distress.

The two groups, however, reduced their report of psychological stress from pretreatment to posttreatment at different rates as shown by examination of the group means. Although not significantly different, the means for the PPS group were lower on both instruments at posttreatment than the Control group. It is possible that the PPS group may have required more time to integrate the behavior change concepts, and therefore a significant difference could have been detected over a longer period of time. If the instruments had been administered at follow-up and the PPS group continued to show a lower report of stress, it would suggest that the PPS subjects had internalized the health care management process.

This finding differs from other research studies found in the literature. Decker, Williams, and Hall (1982) reported success in reducing stress symptoms of individual students with a multimodal stress management training program. In contrast to this present study, their treatment group was composed of graduate students with moderate levels of stress symptomatology. This study focused on students who were perceived to be experiencing severe and chronic stress symptomatology because they were in danger of being academically dismissed from the university during the academic quarter of treatment. This would seem to account for different results in the two studies with regard to the reduction of stress symptomatology. Other studies reported in the literature have focused more specifically on the reduction of symptoms associated with test anxiety.

Health Care Behavior

The difference between changes in the two groups from pretreatment to posttreatment in performance of health care behavior was found to not be significant. Additionally, the means of the two groups from pretreatment to posttreatment were very similar and both groups showed a gain in performance of health care behaviors at the posttreatment administration. It is difficult to assess the meaning of this slight variability.

This is the first research study that attempted to specifically promote health care behavior in a psychoeducational program for academically underachieving

college students. Other programs that have been successful with this population have been multimodal in focus, specifically addressing study skill deficits, test anxiety, and relaxation techniques (Decker & Russell, 1981; Hart & Keller, 1980).

In contrast to these behavior change and coping skills programs that are found in the literature, the PPS program teaches a process of change. This difference in focus may help to account for the lack of significant results in this study in increasing health care behaviro performance. Successful outcomes in behavioral programs (Mahoney, 1974; Goldfried & Goldfried, 1975) target specific behaviors to be achieved and provide a strategy designed to achieve the behavioral goal. Similarly, successful coping skills training programs (Beck, 1976; Mahoney, 1974; Lazarus, 1980) often are designed to teach a single skill. The PPS does not requre a group focus on any given behavioral goal, but rather allows the individual to self select a goal that is personal.

From an intuitive perspective, the Lifestyle Coping Inventory may have had an instructional effect of its own between administrations and help account for the little variance between groups. The instrument provides an organized structure to many of the psychological and psychosocial variables that influence an individual's actions and this may have a potential effect on future actions of the subject. Additionally, the instrument

provides some concrete information about health care behavior that may have directly influenced subjects behavior, for example, items in the instrument that address the amounts of vegetables to be eaten daily and the examination of daily physical activity levels. These statements make an indirect, concrete behavioral assessment that may promote change itself, regardless of participating in the PPS program. Engineering students are particularly oriented toward concrete actions and these students under psychological distress often look for prescriptive types of solutions to problems.

A further examination of the individual categories of the Lifestyle Coping Inventory may reveal specific differences between the two groups that may address the relationship the PPS intervention may have on behavioral changes in the PPS subjects. Since the grand mean of the instrument was used for measurement of change, more subtle differences may have occurred between the two groups in specific categories. Future research needs to explore this question.

A further explanation of the lack of statistically significant difference between the two groups on performance of health care behavior, again, may have been in the relative short period of time between the pretreatment and posttreatment administration of the instrument. This may not have allowed sufficient time to demonstrate health care

behavior change that may appear as a result of the PPS intervention.

Academic Performance

The difference between the changes in the two groups from pretreatment to posttreatment and pretreatment to follow-up in academic performance was found to be highly significant. This was true for each of the hypotheses concerned with quarterly academic achievement as measured by grade point averages. This is an exciting finding since it supports the assertion that the PPS was having the desired effect on academic performance. The conclusion here is that the PPS is an intervention that influences an individual's future behavior. It is also consistent with the structure of the PPS program that an individual is instructed to integrate a variety of psychological and psychosocial variable into an organized process. It can be argued that the PPS not only produces the desired effect at the conclusion of treatment, but also the process is one that allows the individual to continue to consolidate the learning of the process and maintain the behavioral changes.

The fact that no significant difference was found between the two groups from pretreatment to posttreatment and pretreatment to follow-up in academic performance as measured by the cumulative grade point average can be understood in two important ways. First, the cumulative grade point average is a reflection of chronic academic

underachievement and this occurred in a time period that the intervention did not address. Secondly, the cumulative grade point average also is more reflective of long term patterns of academic and health care behaviors, and it was unlikely to have changed significantly between the two groups during the short duration of the treatment.

Retention

Although hypotheses about retention of academically underachieveing students were not formulated in this study, it is important to address in this discussion the difference in the retention rate between the two groups. At posttreatment the two groups were nearly equivalent. Only one student in the study dropped out of the University during the quarter treatment was administered. At the end of the follow-up period, the difference between the two groups was more significant. In the group that received the PPS treatment, 49 of the original 53 subjects remained enrolled at the University, in contrast to the nontreatment group which had only 39 of the original 53 subjects.

It can be argued that the PPS had the desired effect of not only increasing academic performance but also of increasing student retention. This can best be understood in the context of Fishbein and Ajzen's (1975) model of intentionality as a precursor to behavior. Intent is defined as the combination of the results of past behaviors (school performance), attitudes and norms (Bean, 1980). An unsuccessful student academic performance suggests that

he/she maintains attitudes and beliefs about performing behaviors that interfere with academic achievement. The PPS provides in its structure a process that guides the individual to examine those beliefs and attitudes, as well as the consequences of behavior. It can be argued that this results in a change of intentionality for the student, and results in increased student motivation, as well as University retention. This finding also supports the further application of a psychoeducational intervention to help students problem solve difficulties experienced in attaining academic achievement.

Limitations of the Study

Several factors may account for the absence of statistically significant finding in some of the tested hypotheses. These include inappropriate dependent measures, brief treatment period, size of the treatment group, the fact that there was improvement in both groups, and the developmental and personality constructs of the subjects in both groups. Each of these factors is discussed here with implications for the use of psychoeducational interventions with this population.

It is possible that the dependent measures used in the study, the Taylor (MAS), the General Tension Chart, and the Lifestyle Coping Inventory, were inappropriate, and other measures may have been more suitable to measure the effect of the PPS on this sample. The nature of the effect of the

PPS on academically underachieving college students is not yet well established, so constructs different from those investigated in the study need to be identified and researched. Two constructs that may be influenced by the PPS are a sense of coherence (Antonovsky, 1980) and self-efficacy (Bandura, 1977). Sense of coherence is defined as a global orientation which expresses the extent to which one has a feeling of confidence that one's internal and external worlds are predictable. Bandura advanced that an important process in behavior change is the degree to which the person can expect to be able to perform the new behavior or achieve the determined goal. The PPS would appear to influence both of these concepts.

Both groups in the study demonstrated improvement on the written dependent measures and made it difficult to conclude that treatment results in greater gains in one group over the other. Intuitively, the thought is advanced that subjects in both groups were exposed to a learning experience which forced them to examine many physiological and psychosocial variables from a personal perspective and thus became recipients of concrete ideas which were at least marginally integrated in to their individual problem solving skill repertoire.

The time available to administer the PPS intervention may have been too brief and contributed to the lack of measurable effects of the PPS condition. Most behavioral change programs consist of four or five steps, contrasted to

the 24 steps in the PPS program. This process requires concentration, persistance, and motivation from participants and may be better presented over a longer period of time. The shorter length of time also may not have permitted internalization of the behavior change model of the PPS between the pretreatment and posttreatment measurements.

In conjunction with the short duration of time of the treatment, the size of the treatment group (N = 53) may have been too large for the individual participants to address questions experienced while going through the treatment program. This may have had an effect of discouraging participants from asking for clarification of any of the 24 steps of the program which may have been facilitative to more rapid learning and internalization of the behavior change concepts.

Another possible factor that may have limited the effectiveness of the PPS treatment may have to do with the developmental issue facing college students, as well as the global personality constructs that may be present in engineering majors that predominated in the sample. For most of the students at this age of development, this is their first experience at developing self responsibility skills outside of the family structure and guidance. A predominate number of students entering college have a difficult time balancing their new personal freedoms apart form adult supervision and the responsibilities demanded of them in a college environment. This becomes their first

experience in beginning to examine how their own attitudes, perceptions, and social factors influence their behavior. This may be reflected in the changes that occurred between pretreatment - posttreatment and pretreatment - follow-up differences in academic performance. This hypothesis is also consistent with the theoretical implication of the PPS intervention and its emphasis on self awareness and integration of many psychological and psychosocial variables with behavior change.

Additionally, engineering students, particularly at this university demonstrate a higher performance on Math SAT scores than on Verbal SAT scores. This suggests a personal orientation of the sample toward concrete, prescriptive types of interventions for personal problem solving and a trend away from an abstract, reflective thinking process. This personality orientation may contribute to the length of time to solidify the learning of the process of the PPS, as well as contribute to some difficulties in understanding the sophisticated concepts of the PPS intervention.

Implications for Further Research

The results of this study document the need for further exploration of the psychoeducational intervention PPS as a procedure to be utilized in the treatment of academically underachieving college students. This research investigated the effectiveness of educating academic underachievers in managing the psychological and psychosocial factors that affect academic performance. Given the results of the

hypotheses tested in this study, a replication of the study would be warranted at this time. Several considerations for future research are now presented.

A replication study may want to consider making some refinements in the PPS program itself. As discussed earlier, extending the duration of the program itself would probably contribute to an easier integration of the concepts presented. The added length of the program could optimally be used to allow participants to understand more fully the concepts being presented. Some thought may also want to be given to simplifying the text of the PPS program and including more examples of personal problems and stress themes that may be assimilated by the college student. The current sophistication level of the program may be confusing to the developmental level of the college student and interfere with learning.

A replication study may also want to consider investigating the effectiveness of the PPS intervention to determine if there is a difference between personality traits among college students and their ability to integrate the concepts presented. Would students with stronger verbal abilities be able to integrate personal awareness and behavioral change to a greater degree than students with lowered verbal abilities and stronger math abilities?

The size of the group in which the PPS is taught may also want to be addressed in a replication study. Is their an optimal group size that permits instruction and optimal

individual interaction with the material being presented? In the present experiment, teaching the PPS to a group of 53 students did not allow for enough time for individual attention from the instructor in answering and clarifying all questions. A large group size may contribute to decreased concentration, motivation, and personal committment to the PPS treatment. A smaller group size may increase cohesion and other "curative" factors (Yalom, 1977) that would enhance attraction to the task.

Further research may also want to examine the effectiveness of training academically underachieving college students in comparison to a type of multicomponent stress management program such as developed by Decker, Williams, & Hall (1982). This type of study could explore a comparison of concepts found in the PPS and not found in another program.

Another consideration for further research would be to address the affect of the clinician administering the PPS intervention. A design that would compare multiple PPS presentations with different trainers may want to be considered. It is possible that students may achieve more academically because of a self-perceived interest by the trainer in their improvement. Use of multiple trainers could address this issue and reaffirm that the changes are due to the concepts of the program and not the interaction with the trainer.

Finally, efforts to continue to integrate the psychoeducational conceptual model into human service delivery areas that encourages students to assume greater responsibility for their behavioral changes is encouraged. A psychoeducation based approach seems to have potential benefit in helping increase university student retention. This study was an attempt to investigate the usefulness of this approach in helping college students achieve more productive and satisfying lives.

APPENDICES

APPENDIX A

Appendix A

LIFESTYLE COPING INVENTORY

by
William C. Hinds
Professor, Counseling
Psychology Program
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Health Promotion - Stress Reduction

Behavioral Coping Inventory by William C. Hinds

This inventory is designed to help you understand your health promotion - stress reduction actions. The following pages cover various lifestyle, nutritional, drug, exercise, environmental, problem solving and psychosocial habits that affect your health and stress levels. Your answers can provide you with valuable feedback when compared with other who have taken this instrument. Please answer each item honestly as possible. Your health promotion - stress reduction intervention strategies depend on self-generated accurate feedback.

Directions:

1) With this inventory, you should have a special answer sheet on which to mark your answers.

2) Please make no marks on this booklet; it will be used again by other people.

3) Use any soft, black, led pencil (such as a No. 2) to make your mark on the answer sheet.

4) Fill in your name and other information on the answer sheet. Follow carefully the instructions for filling in your name.

5) Make a heavy, dark mark for each answer - <u>not</u> a cross or a check mark.

6) If you make a mistake or change your mind, erase carefully and thoroughly.

4) Mark on your answer sheet <u>one</u> of the five possible choices.

Choice A = Never (0% of the Time)
Choice B = Rarely (0% - 25% of the Time)
Choice C = Occasionally (25% - 50% of the Time
Choice D = Often (50% - 75% of the Time)
Choice E = Very Often (75% - 100% of the Time)

Example: <u>Question One</u>. I eat two servings of vegetables daily.
Answer: Choice B - 25% of the Time.

	A	B	C	D	E
Question One		X			

Please turn the page and begin.

Mark each statement as a weekly average if it applies to your actions.

	Never	Rarely	Occasionally	Often	Almost Always
1. I keep my living environment quiet.	A	B	C	D	E
2. I eat two servings of vegetables daily.	A	B	C	D	E
3. I follow my own values, rather than go out of my way to make sure people like me.	A	B	C	D	E
4. I let others make choices rather than try and manipulate them to meet my needs.	A	B	C	D	E
5. I let other people know when I'm sick.	A	B	C	D	E
6. I avoid salting my food at the table.	A	B	C	D	E
7. I provide myself with small and constant self rewards to keep me motivated.	A	B	C	D	E
8. I express my feelings of anger.	A	B	C	D	E
9. I avoid shoulds and should nots in my self-statements.	A	B	C	D	E
10. I engage in an active sport, e.g. racquet ball, swimming, touch football, tennis, etc. at leat once a week.	A	B	C	D	E
11. I avoid eating meat and instead substitute fish and poultry.	A	B	C	D	E
12. I let others win sometimes, rather than try to win in most situations.	A	B	C	D	E
13. I balance work and play, rather than pay a high price for success.	A	B	C	D	E
14. I drive at the speed limit.	A	B	C	D	E
15. I build in self-improvement actions in my lifestyle.	A	B	C	D	E
16. I keep my weight within ten pounds of what I consider my ideal weight.	A	B	C	D	E
17. I have brown rice rather than white rice.	A	B	C	D	E
18. I make sure to include fiber in my diet.	A	B	C	D	E

19.	I choose environments which have an artistic or esthetic value.	A	B	C	D	E
20.	I relax and get interested, rather than get angry with people who are slower than me.	A	B	C	D	E
21.	I seek out others at work or in the neighborhood.	A	B	C	D	E
22.	I avoid sugar and sweets (cookies, cakes, ice cream).	A	B	C	D	E
23.	I practice some form of relaxation at least fifteen minutes a day, e.g. progressive relaxation, yoga, biofeedback, meditation, imagery exercises or deep breathing exercises.	A	B	C	D	E
24.	I avoid drinking or eating a lot before going to bed.	A	B	C	D	E
25.	I avoid making generalizations about myself, e.g. I'm dumb, ugly, a failure, etc.	A	B	C	D	E
26.	I engage in activities that give me a sense of competency, e.g. hobby, pasttime, avocation, etc.	A	B	C	D	E
27.	I visit or talk to a good friend.	A	B	C	D	E
28.	I keep my living environment clean.	A	B	C	D	E
29.	I avoid the use of tabacco.	A	B	C	D	E
30.	I make my own decisions, even though some people might not like them.	A	B	C	D	E
31.	I set my own standards, rather than worry about other's standards for me.	A	B	C	D	E
32.	I take advice from others.	A	B	C	D	E
33.	I share my experiences with other people.	A	B	C	D	E
34.	I get out and talk with groups of people.	A	B	C	D	E
35.	I engage in thoughts that relax my body.	A	B	C	D	E
36.	I wear seat belts when I drive.	A	B	C	D	E
37.	I use thought stopping strategies to avoid obsessing over events with no control.	A	B	C	D	E
38.	I stick up for my own rights.	A	B	C	D	E
39.	I invite people over to my place for drinks or a meal.	A	B	C	D	E
40.	When waiting in lines, I amuse myself, rather than get angry.	A	B	C	D	E

41. I avoid taking more that two alcoholic drinks a day. A B C D E

42. I seek feedback on my actions. A B C D E

43. I get my teeth cleaned twice a year. A B C D E

44. I eat whole bread instead of white bread. A B C D E

45. I use pepper and herbs to season my food instead of salt. A B C D E

46. I walk when possible rather than ride in an automobile. A B C D E

47. I let others express what they are feeling. A B C D E

48. I drink only two cups or less of tea or coffee with caffeine a day. A B C D E

49. I let myself be dependent, rather than appear tough and strong most of the time. A B C D E

50. I accept that people are interested in what I say. A B C D E

51. I seek out others, rather than feel neglected or rejected. A B C D E

52. I accept my worthiness as a person, and express it to other people. A B C D E

53. I go out of my way to talk to strangers. A B C D E

54. I do activities with a social group. A B C D E

55. My living environment is convenient, e.g. meals, laundry services, telephone, etc. A B C D E

56. I substitute low calorie drinks for high calorie drinks. A B C D E

57. I engage in resistance exercise to tone and stregthen my muscles. For example: weights or isometric exercise. A B C D E

58. I express and share with others a <u>wide</u> range of emotions, e.g. anger, distress, fear, shame. A B C D E

59. I avoid perfectionistic self-standards. A B C D E

60. I let myself cry. A B C D E

61. I seek out experiences where I have to be alone. A B C D E

62. I'm outgoing in new situations. A B C D E

63. I trust others, rather than acting like the world is full of hostile people. A B C D E

64. I use positive imagination to approach fearful events. A B C D E

65.	I avoid worrying about consequences which I can not predict.	A	B	C	D	E
66.	I avoid saving up (inhibiting) my feelings, e.g. anger, distress, etc.	A	B	C	D	E
67.	I avoid personalizing things I can't control.	A	B	C	D	E
68.	When I get into a stressed state, I take a break.	A	B	C	D	E
69.	I make sure I get an adequate amount of sleep.	A	B	C	D	E
70.	I avoid high-sodium foods.	A	B	C	D	E
71.	I eat two servings of fruit daily.	A	B	C	D	E
72.	I climb stairs rather than ride an elevator.	A	B	C	D	E
73.	I avoid comparing myself to other people, and instead set self-standards for improvements.	A	B	C	D	E
74.	I use visualization to relax my body.	A	B	C	D	E
75.	I choose environments free of air pollution.	A	B	C	D	E
76.	I relax rather than try to lead in most situations.	A	B	C	D	E
77.	I share my emotions with other people.	A	B	C	D	E
78.	I make demands on others, even though it may not make me popular with them.	A	B	C	D	E
79.	I do things just for the enjoyment of doing them, even if I have to "waste" some time.	A	B	C	D	E
80.	I choose environments that are relaxing.	A	B	C	D	E
81.	I get together with my co-workers.	A	B	C	D	E
82.	I go to the park or visit a pleasant environment.	A	B	C	D	E
83.	I label what I'm feeling.	A	B	C	D	E
84.	I set modest action standards for myself so I can meet my goals.	A	B	C	D	E
85.	I engage in active physical work, e.g. washing the car, housework, chopping wood, at least twice a week.	A	B	C	D	E
86.	I get physical exams at least once a year, e.g. heart, pap smear, breast exam, prostate gland, etc.	A	B	C	D	E
87.	I avoid processed foods, and instead eat fresh foods.	A	B	C	D	E

88.	I eat foods that are steamed, baked or broiled instead of pan fried or french fried.	A	B	C	D	E
89.	When I'm suffering from an illness or injury, I take time to restore my physical self.	A	B	C	D	E
90.	I share my feelings with others.	A	B	C	D	E
91.	I spontaneously express my feelings.	A	B	C	D	E
92.	Once I have decided on an action, I do not spend time worrying about whether people are going to criticize me.	A	B	C	D	E
93.	I get away for a relaxing weekend or vacation twice a year.	A	B	C	D	E
94.	I relax during meals and don't discuss business or stressful subjects.	A	B	C	D	E
95.	I eat low fat snacks.	A	B	C	D	E
96.	I choose environments with little noise pollution.	A	B	C	D	E
97.	I use polyunsaturated margarine instead of butter.	A	B	C	D	E
98.	I floss my teeth once a day.	A	B	C	D	E
99.	I let myself experience the distress of loss.	A	B	C	D	E
100.	I avoid making negative interpretations about events in my life.	A	B	C	D	E
101.	I try to understand the beliefs that motivate me.	A	B	C	D	E
102.	I listen to others, rather than arguing for my point of view most of the time.	A	B	C	D	E
103.	I get involved in group activities.	A	B	C	D	E
104.	I think about my strengths and skills, rather than worry about being weak and helpless.	A	B	C	D	E
105.	I say twice as many positive statements to myself as negative.	A	B	C	D	E
106.	I avoid justifying my actions and mistakes to myself and others.	A	B	C	D	E
107.	I walk a half an hour a day at one time.	A	B	C	D	E
108.	I get together with a community group.	A	B	C	D	E
109.	My living environment is organized.	A	B	C	D	E

110.	I read labels on foods and beverages so I know about their nutritional contents.	A	B	C	D	E
111.	I spend twenty minutes three times a week engaged in aerobic exercise, e.g. jogging, cycling, swimming, rebounding, etc.	A	B	C	D	E
112.	I avoid dwelling on the past.	A	B	C	D	E
113.	I accept the fact that others will not like me.	A	B	C	D	E
114.	I confront people, rather than worrying about others approving of me.	A	B	C	D	E
115.	I laugh and feel joyful.	A	B	C	D	E
116.	I cognitively reward myself for accomplishing tasks.	A	B	C	D	E
117.	I avoid making negative statements about others.	A	B	C	D	E
118.	I engage in stretching or limbering exercises once a day.	A	B	C	D	E
119.	I eat low fat cheese instead of high fat cheese.	A	B	C	D	E
120.	I take time to play.	A	B	C	D	E
121.	I drink beverages that contain little sugar.	A	B	C	D	E
122.	I think of the future with positive expectations.	A	B	C	D	E
123.	I avoid thinking in terms of absolutes, e.g. rights and wrongs, good and bad.	A	B	C	D	E
124.	I am assertive in a wide variety of situations.	A	B	C	D	E
125.	I face conflicts head on, rather than avoid frictions and difficulties.	A	B	C	D	E
126.	I take a break, rather than try to hurry.	A	B	C	D	E
127.	I'll let things sit, rather than try to do more than three things at once.	A	B	C	D	E
128.	I admit my mistakes to others.	A	B	C	D	E
129.	I get together with a political action group.	A	B	C	D	E
130.	I make an effort to be around friends and associates.	A	B	C	D	E
131.	I get involved in friendships with many people.	A	B	C	D	E
132.	I try and keep close relationships.	A	B	C	D	E
133.	I avoid buying processed foods that are highly salted.	A	B	C	D	E

134.	I accept my limitations and do not become discouraged when other people do things well.	A	B	C	D	E
135.	I avoid eating more than three eggs a week.	A	B	C	D	E
136.	I get together with a religious group.	A	B	C	D	E

List any other strategies you use to promote your own health.

137.	_____	A	B	C	D	E
138.	_____	A	B	C	D	E
139.	_____	A	B	C	D	E

List your top three strategies for the relief of stress.

140.	_____	A	B	C	D	E
141.	_____	A	B	C	D	E
142.	_____	A	B	C	D	E

Directions:

Once you have completed the inventory, score each item in the following manner: zero points for every A answer; one point for every B answer; two points for every C answer; three points for every D answer; and four points for every E answer. Then add up your points for each item in the following categories.

Nutritional Actions:

Item	Points	Item	Points
# 2	_____	# 70	_____
# 6	_____	# 71	_____
# 11	_____	# 87	_____
# 17	_____	# 88	_____
# 18	_____	# 95	_____
# 22	_____	# 97	_____
# 44	_____	# 110	_____
# 45	_____	# 121	_____
# 48	_____	# 133	_____
# 56	_____	# 135	_____
		TOTAL	_____

Physical Care Actions:

Item	Points	Item	Points
# 10	_____	# 72	_____
# 16	_____	# 85	_____
# 23	_____	# 89	_____
# 24	_____	# 94	_____
# 35	_____	# 98	_____
# 43	_____	# 107	_____
# 46	_____	# 111	_____
# 57	_____	# 118	_____
# 69	_____	# 119	_____
		TOTAL	_____

Cognitive and Emotional Action:

Item	Points	Item	Points
# 7	_____	# 78	_____
# 8	_____	# 83	_____
# 9	_____	# 84	_____
# 15	_____	# 90	_____
# 25	_____	# 91	_____
# 26	_____	# 99	_____
# 37	_____	# 100	_____
# 40	_____	# 101	_____
# 42	_____	# 104	_____
# 50	_____	# 105	_____
# 58	_____	# 106	_____
# 59	_____	# 112	_____
# 60	_____	# 115	_____
# 64	_____	# 116	_____
# 65	_____	# 117	_____
# 66	_____	# 120	_____
# 67	_____	# 122	_____
# 74	_____	# 123	_____
# 77	_____	TOTAL	_____

Low-Risk Actions:

Item	Points
# 14	_____
# 36	_____
# 86	_____
# 29	_____
# 41	_____
TOTAL	_____

Environmental Actions:

# 1	_____
# 19	_____
# 28	_____
# 55	_____
# 75	_____
# 80	_____
# 82	_____
# 96	_____
# 109	_____
TOTAL	_____

Social Support Actions:

Item	Points	Item	Points
# 21	_____	# 81	_____
# 27	_____	# 108	_____
# 23	_____	# 129	_____
# 34	_____	# 132	_____
# 39	_____	# 136	_____
# 53	_____	# 62	_____
# 54	_____	# 103	_____
		TOTAL	_____

Coping Style Actions:

Item	Points	Item	Points
# 3	_____	# 68	_____
# 4	_____	# 73	_____
# 5	_____	# 76	_____
# 12	_____	# 78	_____
# 13	_____	# 92	_____
# 26	_____	# 102	_____
# 30	_____	# 113	_____
# 31	_____	# 114	_____
# 32	_____	# 124	_____
# 38	_____	# 125	_____
# 47	_____	# 126	_____
# 49	_____	# 127	_____
# 51	_____	# 128	_____
# 52	_____	# 130	_____
# 61	_____	# 131	_____
# 63	_____	# 134	_____
		TOTAL	_____

DIRECTIONS:

Once you have completed the inventory, score the various sections listed below and record your scores. Next find out your achieved percentage score for each category. Since these 136 behaviors have been shown by research to correlate positively with health, building your achieved percentage scores will give you a goal to work toward. (See 24A for forumla and sample chart and 24B for your chart to complete.)

LIFESTYLE COPING CHART

Health Actions	Possible Scores	Your Score	Achieved Percentage
Nutritional Actions	80	60	75%
Physical Care Actions	76	55	72%
Cognitive & Emotional Actions	148	92	62%
Low-Risk Actions	20	15	75%
Environmental Actions	36	32	89%
Social Support Actions	56	51	91%
Coping Style Actions	128	91	71%
TOTAL ACHIEVED PERCENTAGE	544	396	73%

(SAMPLE CHART)

APPENDIX B

Appendix B

General Tension Chart

Week of:_____

Tension Points

Sources of Stress	M	T	W	Th	F	Sat	Sun	Average Weekly Total	Post Weekly Rank
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

Weekly Tension Total: _____ Possible: 40

Tension Points

4 = Extremely Stressful - Accompanied by overt physical or psychological symptoms.

3 = Very Stressful - Makes you very uncomfortable, and you go to great lengths to avoid.

2 = Slightly Stressful - Always seems difficult to handle

1 = Barely Stressful - You don't like the stressor, but you can handle

0 = No noticable stress

APPENDIX C

Appendix C

TAYLOR MANIFEST ANXIETY SCALE

Please circle True (T) or False (F) as the statement applies to you.

1.	My hands and feet are usually warm enough.	T	F
2.	I work under a great deal of tension.	T	F
3.	I have diarrhea once a month or more.	T	F
4.	I am very seldom troubled by constipation.	T	F
5.	I am troubled by attacks of nausea.	T	F
6.	I have nightmares every few nights.	T	F
7.	I find it hard to keep my mind on a task or job.	T	F
8.	My sleep is fitful and disturbed.	T	F
9.	I wish I could be as happy as others seem to be.	T	F
10.	I am certainly lacking in self-confidence.	T	F
11.	I am happy most of the time.	T	F
12.	I have a great deal of stomach trouble.	T	F
13.	I certainly feel useless at times.	T	F
14.	I cry easily.	T	F
15.	I do not tire quickly.	T	F
16.	I frequently notice that my hands shake when I try to do something.	T	F
17.	I have very few headaches.	T	F
18.	Sometimes, when embarrassed, I break out in a sweat which annoys me greatly.	T	F
19.	I frequently find myself worrying about something.	T	F
20.	I hardly ever notice my heart pounding and I am seldom short of breath.	T	F
21.	I have periods of such great restlessness that I cannot sit long in a chair.	T	F

22.	I dream frequently about things that are best kept to myself.	T	F
23.	I believe I am no more nervous than most others.	T	F
24.	I sweat very easily even on cool days.	T	F
25.	I am entirely self-confident	T	F
26.	I have very few fears compared to my friends.	T	F
27.	Life is a strain for me much of the time.	T	F
28.	I am more sensitive than most other people.	T	F
29.	I am easily embarrassed.	T	F
30.	I worry over money and business.	T	F
31.	I cannot keep my mind on one thing.	T	F
32.	I feel anxiety about something or someone almost all of the time.	T	F
33.	Sometimes I become so excited that I find it hard to get to sleep.	T	F
34.	I have been afraid of things or people that I knew could not hurt me.	T	F
35.	I am inclined to take things hard.	T	F
36.	I am unusually self-conscious.	T	F
37.	I have sometimes felt that difficulties were piling up so high that I could not overcome them.	T	F
38.	I am usually calm and not easily upset.	T	F
39.	At times I think that I am no good at all.	T	F
40.	I feel hungry almost all the time.	T	F
41.	I worry quite a bit over possible misfortunes.	T	F
42.	It makes me nervous to have to wait.	T	F
43.	I have had periods in which I lost sleep over worry.	T	F
44.	I must admit that I have at times been worried beyond reason over something that really did not matter.	T	F
45.	I am a high-strung person.	T	F
46.	I practically never blush.	T	F

47. I blush no more often than others. T F

48. I am often afraid that I am going to blush. T F

49. I shrink from facing a crisis or difficulty. T F

50. I sometimes feel I am about to go to pieces. T F

SHORT FORM includes items numbered: 2, 7, 10, 11, 13, 19, 21, 23, 27, 28, 31, 32, 35, 36, 38, 39, 45, 49 and 50.

Source: Dahlstrom and Welsh An MMPI Handbook.

APPENDIX D

Appendix D

INFORMED CONSENT FORM

I understand that the purpose of my participation in this study is to investigate the effects of a life style intervention program that assists in reversing self-defeating life style patterns that contribute to academic underachievement. this study is a dissertation research project for a PH.D. in Counseling Psychology from Michigan State University.

I understand that by participating in this study, I will be assigned to one of two groups: (1) a group that learns personal problem solving or (2) a group that may participate in the customary university resources for improving academic achievement. If I am assigned to the group that learns personal problem solving, I understand that I will participate in four, consecutive weekly sessions of 1 1/2 hours duration each, for a total of 6 hours. If I am assigned to the group that may participate in the customary university resources for improving academic achievement, I understand that I will complete assessment instruments to be administered twice during the research project for a total time commitment of approximately 1 1/2 hours.

Furthermore, I understand that I will be identified by code number and not by name. I understand that for all information recorded, my confidentiality will be strictly maintained and these records will not be released to the university. I also understand that I may choose not to participate in this study or discontinue my participation at any time without penalty.

Additionally, I understand that there is no guarantee that my participation in this study will result in benefits to me. I understand that whether or not I agree to participate in this study, I am eligible to participate in the customary university resources for academic achievement. I also understand that I may request a summary of the results of this study and these results will be mailed to me.

The details of this study have been explained to me and my questions answered to my satisfaction. I participate in this study freely, trusting that new knowledge may be obtained which may be of value to me and others.

_____ _____

Signature of Participant Date

_____ _____

Signature of Researcher Date

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