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Future self-concept and preventative health behavior

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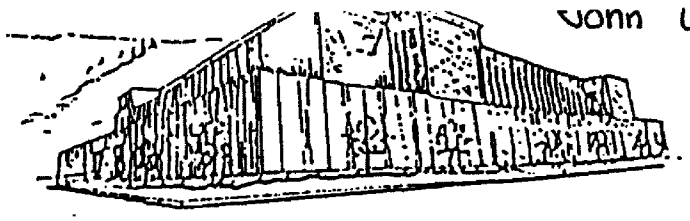

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FUTURE SELF-CONCEPT

AND

PREVENTATIVE HEALTH BEHAVIOR

by

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ABSTRACT

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Cognitive schemata have been shown to affect human behavior in a multitude of ways. Subjects who have been shown to have well developed schemata with respect to some behavior typically perform more efficiently than subjects who do not have well developed schemata in a particular area. Recent research has suggested that schemas oriented toward the future possibilities of an organism may play an important role in the goal directed behavior of that organism.

This experiment explored the relationships of future self-concept, imagery manipulations, and their interaction with engaging in preventative health behaviors. It was hypothesized that subjects who have more fully developed future self-concepts would be more likely than subjects who have less developed future self-concepts to engage in preventative health behaviors. The second hypothesis stated that imagery conditions which had subjects imagine themselves in both positive and negative future states would have greater power in having subjects engage in preventative health behaviors than either positive, negative, or neutral imagery conditions alone. It was also thought that both positive and negative imagery conditions would impact preventative health behaviors more significantly than the neutral condition alone. The third aspect of this study sought to explore the interaction of future self-concept and imagery manipulation on preventative health behaviors, predicting that there would be a positive interaction effect between these variables.

The results of this experiment found no significant correlations between future self-concept and preventative health behaviors. The imagery manipulations were found to modestly affect preventative health behaviors in that subjects in the positive imagery conditions took more condoms than subjects in the balanced (both positive and negative condition). The interaction effects of future self-concept and imagery manipulation were significant. In the balanced imagery condition, subjects who scored lower on future self-concept had increased preventative health behaviors than subjects who scored higher on future self-concept. In the neutral imagery condition, subjects who scored higher on future self-concept engaged in more preventative health behaviors than low scorers.

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INTRODUCTION

Health care providers from divergent theoretical perspectives do agree on one aspect of health care--that it can be difficult to motivate health-promoting behavior in human beings. Even when patients are faced with direct and serious consequences from unhealthy activities, they are often reluctant to change their debilitating behaviors. The promotion of information concerning health behaviors may have some impact in changing behaviors such as smoking cigarettes, practicing safe sex, and maintaining regular exercise regimes.

However, mass media appeals seem to produce only modest behavioral changes (Lau et al., 1980; Leventhahl, Meyer, & Nerenze, 1980). Approximately sixty million people in the United States currently smoke cigarettes, and an estimated twenty-seven million abuse alcohol. The American Heart Association estimates that 25 percent of all cancer deaths and approximately 350,000 premature deaths from heart attack could be avoided each year by modifying just one factor: smoking (American Heart Association, 1988). It is also estimated that a 10 percent weight reduction in men aged 35 to 55 through dietary modification and exercise would produce an estimated 20 percent decrease in coronary artery disease (American Heart Association, 1984a, 1984b; Ashley & Kannel, 1974). The question is simply, how might we motivate human beings to take better care of their health? The purpose of this study is to assess whether people's conceptions of themselves in the future might be useful in producing preventative health behaviors in the present.

Self-Concept Theory

Research suggests that a person's self-concept is integral to the regulation of behavior (Greenwald & Pratkanis, 1984; Higgins, et al., 1985; Kihlstrom & Cantor, 1984; Markus & Nurius, 1986; Markus & Wurf, 1987; Mcguire and Mcguire, 1982). Current conceptions of self-concept conceive of it as a multifaceted structure consisting of a diverse array of self-representations. It is thought that self-concept is a collection of images, conceptions, theories, prototypes, goals, or tasks (Schlenker, 1980; Greenwald, 1982; Markus, 1983; Greenwald & Pratkanis, 1984; Kihlstrom & Cantor, 1984). Many recent models focus on the cognitive representations of the self (see Kihlstrom & Cantor, 1984, for a review). Another view of the self-concept is as a system of self-schemas or generalizations derived from past experiences. While researchers variously define the self-concept in terms of prototypes, hierarchies, networks, or schemas, they generally agree that the self-structure is an interactive system which processes information and directs behavior.

The self-concept contains many different aspects of self-representations. Self-representations can be more or less central in their importance, some being core conceptions (Gergen & Gergen, 1983) or salient identities (Stryker, 1980, 1986), while others are more peripheral. Some self-representations are positive while others are negative. Self-concepts can also be temporally based, with some self-concepts referring to the present self and other self-concepts having to do with the past or future self. Nuttin referred to these as the temporal sign of self-conceptions (Nuttin, 1984). Future oriented self-conceptions may be as important as present oriented

aspects of self-conception (Markus & Nurius, 1986) and this hypothesis will be developed further in subsequent sections.

The sources of self-representations are varied. They may result from inferences people make about their attitudes and experiences. They may derive from direct assessment of the self (Trope, 1986) or from social comparisons (Suls & Miller, 1977) and interpersonal interactions (Mcguire & Mcguire, 1982). The development of self-representations is determined by the information a person receives about the self and by the individual's ability to process that information (Harter, 1983).

The self-concept can also be thought of as a system of self-schemas. Schemas reflect a person's concerns of enduring salience and investment with respect to the environment. In specific domains, these well-elaborated structures of the self shape the perceptions of the individual. Moreover, they may determine which stimuli are selected for attention, what types of inferences are drawn, and which stimuli are remembered (Greenwald & Pratkanis, 1984; Kihlstrom & Cantor, 1984; Markus, 1983; Markus & Sentis, 1982).

As mentioned the self-concept of an individual seems to have many different components. For example, an individual may have self-concepts concerning his or her academic career, physical health, or role as a family member. We seem to have a multitude of self-concepts of which only a few seem to be accessible at a particular point in time. The self-concept can perhaps be more accurately described as a currently accessible, on line, or working self-concept (Cantor & Kihlstrom, 1986; Markus & Wurf, 1987). Thus, with only a few, at best, self representations accessible

to consciousness at a single time, the idea of a working self-concept best functionally describes the self-concept. The working self-concept is viewed as a continually active, shifting array of accessible self-knowledge. Just as only the required aspects of a computer's memory are accessed or working at a given time, it is thought that only part of the complete self-concept is active at one time. This approach to self-consciousness is supported by research which indicates that individuals are heavily influenced in all aspects of their judgement, overt behavior, and memory by their currently accessible pool of thoughts (Nisbett & Ross, 1980; Higgins, King & Marvin, 1982; Snyder, 1982; Snyder & Gangestad, 1982).

Having presented some of the current theories of the self-concept, the introduction will now consider how an individual's self-concept may contribute to the regulation and direction of behavior. Certainly other factors such as the social environment, culture and internal drives need to be considered in terms of a causal explanation of the contributors to the regulation of behavior. However, it is becoming more apparent that what people believe to be true about themselves is a powerful regulator of important behaviors. It is in this respect that an individual's self-conceptions may be a significant motivating factor in his or her behavior, and the link between self-concept and motivation will be discussed next.

Motivational Theory

According to George Kelley (1955), motivation theories have typically been of two kinds--the "carrot" or the "stick". The latter type of theory emphasizes the push

of drives and the former the pull of incentives. What is common to both drive and incentive theories is an emphasis on the presence of stimuli to activate and direct the organism, either stemming from an internal drive stimulus or an external environmental incentive. Goal-directed behavior may serve as a type of motivational construct. The concept of a goal as a motivational cognitive construct has a number of advantages over internal drive and external incentive concepts. First, by emphasizing the cognitive representation or image of a goal, the organism gains freedom from the immediacy of current stimuli. When focused on a goal, the organism is able to be oriented toward the future, as far into the future as its cognitive capacities permit. Second, by distinguishing between goals and the plans used to reach these ends, a flexible and adaptive element is added to the functioning of the organism as behaviors used to obtain the goals can be evaluated prior to and during goal-directed behavior. No longer is behavior to be viewed in terms of reflexes or fixed-action patterns. Rather, recognition is given to the fact that there may be multiple routes to a goal and that the organism may select any number of possible strategies to obtain the desired end. Third, the concept of a hierarchically organized goal system (Pervin, 1983) suggests that different parts of the organism are interdependent and that the attainment of certain goals may be facilitative of, or incompatible with the attainment of other goals. This adds an element of considerable complexity to the organism's functioning; the organism now has the possibility to achieve multiple goals. With the increasing complexity of a goal system and a cognitive representational system, the organism is faced not only with the task of

selecting among goals, but also with that of developing strategies for achieving short-term and long-term single and multiple goals.

Goal selection has been postulated to be influenced by three different affective components--needs, motives, and values. Needs are generally conceived of as internal, organic motivators of behavior (Murray, 1938). While needs are innate and somewhat global in nature, motives can be conceptualized as learned and more specific. Nuttin (1984) suggests that motives are "channelized needs." Values are similar to motives in that they are fairly specific. McClelland (1985) suggests that values and motives are critically different: values are conscious and related to the behaviors people choose to do, while motives are unconscious and related to spontaneous behavior. Values are seen as directing the form that motivated behavior will take.

The relationship of needs, motives, and values to self-conceptions is rarely discussed in the literature. However, it might be inferred that needs, motives, and values contribute to which self-conceptions are formed or activated in the self-concept as a behavior is enacted. Thus, a person who has a high need for personal achievement is likely to seek out challenging situations and as the demands of these situations are met they are likely to develop the self-concept of being a high achiever. It is also likely that self-conceptions are also a source of motivation in themselves. Several theorists stress the motivational aspects of self-concept, and these are discussed briefly here to illustrate how self-concept and motivation are intimately linked.

Cantor and Kihlstrom (1986) propose the notion of "life tasks", which are

problems or goals which an individual is attempting to resolve or accomplish at a particular time. These tasks conceptually tie together self-representations and self-regulation. For example, Cantor, et al (1985) studied how college freshmen dealt with such tasks as making friends, getting good grades, and establishing an identity. Self-knowledge was found to be related to self-regulation in that tasks which were perceived as more difficult had more well-defined plans.

Schlenker (1985) views motivation in terms of achieving "desired selves". These desired selves are what the person would like to be or thinks that he or she really can be. The desired selves are thought to regulate behavior by acting as cognitive structures which mediate and actively process information from the environment. The desired self-images also set the standards of behavior for the individual.

"Self definitions" are the conceptual link between self-conceptions and self-regulated behavior for Wicklund and Gollwitzer (1982). For them the control and direction of behavior is a result of trying to complete a self-definition. Completeness is a concern by the individual to establish the self-definition in question as an enduring aspect of the self. They postulate that a person who is incomplete with respect to a particular self-definition feels a psychological tension which prompts them to take action towards realization of that self-definition.

What Cantor and Kihlstrom (1986), Schlenker (1985), and Wicklund and Gollwitzer (1982) all have in common is the motivational link between a self representation or concept and behavior. More specifically, they are each proposing

that self-concepts with a future temporal sign mediate or produce a psychological tension which motivates behavior. "Self-definitions" and "desired selves" are self-concepts which do not yet exist, they are given being in the realm of possibility and as such call the organism forth into action. The conceptualization of self-concept which is desired and not yet "real" for the organism is most clearly presented and researched in Markus and Nurius' (1986) construct of possible selves.

Possible Selves

Markus and Nurius (1986) propose that an individual's "possible self" provides the motivational resources for control of his or her behavior. They describe the possible self as:

> "the ideal selves that we would very much like to become. They are also the selves we could become, and the selves we are afraid of becoming. The possible selves that are hoped for might include the successful self, the creative self, the rich self, the thin self, or the loved and admired self, whereas the dreaded possible selves could be the alone self, the depressed self, the incompetent self, the alcoholic self, the unemployed self, or the bag lady self.
>
> "An individual's repertoire of possible selves can be viewed as the cognitive manifestation of enduring goals, aspirations, motives, fears, and threats. Possible selves provide the specific self-relevant form, meaning, organization, and direction to these dynamics. As such, they provide the essential link between the self-concept and motivation." (Markus & Nurius, 1986, p. 954)

The explanatory power of possible selves as a motivational link between self-concept and behavior is based upon the notions of self-schemas and the working self-concept. Possible selves can be thought of as the future tense aspects of the self-system. They represent the individual's ideas of what he or she would like to become

or are afraid of becoming (Markus & Nurius, 1986). When these possible selves are brought into the working memory they give specific, self-relevant form and direction to one's hopes and threats. "Possible selves are specific representations of one's self in future states and circumstances that serve to organize and energize one's actions" (Ruvolo & Markus, 1989). Thus, possible selves are the manifestation of one's goals, fears, aspirations, and motives. Possible selves are the elements of the self-schemas which give structure and meaning to the future of an individual.

As possible selves are drawn into the working self-concept, they may facilitate goals and intentions into instrumental actions. As a particular future conception of the self is brought into awareness, this may involve imagining and evaluating at least some of the actions which will accompany the goal action (Neisser, 1985). The mental representation of a particular goal oriented behavior serves to distinguish this behavior from the realm of all possible behaviors. This distinguishing or contrasting of a desired goal behavior against the backdrop of all possible behaviors serves to make this behavior more likely to be pursued by the organism. This may in turn increase the chances of fulfilling these goals as now the individual gives meaning to a particular self-relevant event from the context of possibility that surround it.

Possible selves are represented in the self-concept in the same way as the present tense self-concept and can be viewed as a cognitive bridge between the present and the future. In this way it serves to specify how individuals may change from how they are now to what they will become. In a sense, possible selves guide the individual towards his or her future representations by highlighting the attention to

pertinent present information, suggesting possible sub-tasks which may lead to the desired future state, and by also discouraging behaviors which would lead to other possible (but not desired) selves.

Possible selves can be positive, negative, or balanced. A positive possible self is one which is desired by the organism. It is a state of being that is thought to be beneficial to the organism in some way. In contrast, a negative possible self is a future state of being which is to be avoided by the organism. A balanced possible self is one that contains both selves to be worked towards (positive possible selves) and selves to be actively avoided (negative possible selves). Oyserman and Markus (1990) suggest that possible selves will have maximal motivational effectiveness when they are balanced. Thus a positive possible self will have its greatest motivational impact if it is balanced by a representation of what could happen if the desired state is not reached (i.e., a negative possible self). For example, if a graduate student has the positive possible self of completing his or her Ph.D. but is not particularly motivated to study for an exam, then the matched feared possible self of failing the exam and so flunking out of graduate school can be recruited, and the desire to avoid this negative possible self should help assist their flagging motivation (Kuhl & Beckman, 1985).

Possible Selves Research Findings

The possible self construct seems to conceptually link together motivation for behavior, self-concept, and actions. Now the question arises, does this theoretical construct have much empirical support? To what extent do human beings define

themselves in the future (in not yet realized states) and to what extent do these possible selves motivate present behavior? The research on possible selves will be reviewed in order to demonstrate the viability of the construct, show evidence for the contribution of possible selves to the current emotional state of individuals, and illustrate the evidence for its role in goal-oriented behavior.

Markus and Nurius (1986) asked 210 male and female college students about the role of possibility within their self-concept. They developed a questionnaire that listed 150 possibilities for the self that was derived from six categories: (a) general descriptors (e.g., creative, selfish, intelligent); (b) physical descriptors; (c) life-style possibilities (e.g., active social life, being health conscious, a cancer victim, or alcohol dependent); (d) general abilities, for example being able to fix things, able to influence people, or knowledgeable about art or music; (e) possibilities reflecting various occupational alternatives; and (f) possibilities directly tied to the opinions of others, such as being appreciated, loved, feared, or unpopular. In each of the six domains a third of the possibilities had been pre-judged as positive, a third as negative, and a third as neutral. For each item they asked the respondent whether it described them now. They then assessed possible selves by asking (a) whether the item had described them in the past, (b) whether the item was ever considered as a possible self, (c) how probable the possible self was for them, and (d) how much they would like the item to be true for them.

The mean number of descriptors endorsed as possible was 80 (with a range from 32 to 147). For current selves the mean endorsed was 51 (with a range from 28

to 93), and for past selves the average was also 51 (with a range also of 28 to 93). A third of the subjects indicated that they thought about how they were in the past a great deal of the time, or all of the time, whereas 65 percent reported that they thought about themselves in the future a great deal of the time or all of the time. These data suggest that individuals can reflect on their possible selves and that these selves are not identical with descriptions of their current selves. These students imagine a heterogeneous set of possibilities for themselves, and these possibilities do not appear to be particularly constrained by their current selves, even in the domains such as personality, other's feelings towards them, and physical characteristics.

In a separate study, Markus and Nurius (1986) sought to evaluate the relative contribution of possible selves to the measure of an individual's current affective state and motivational state beyond the contribution of the current self-concept. Using step-wise regression they tested for the effects of possible self components (e.g., ever-considered, probable, and like-to-be selves) on the individual's affective state, motivational state, self esteem, and perceived control. All of the possible self components were found to significantly predict all of the dependent measures, even after controlling for the effects of current self-concept. The probable and like-to-be self components reflected very strong and consistent unique contributions. These findings indicate that there are indeed independent future dimensions within the self-concept that may be importantly related to the individual's current affective state.

To begin the exploration of how possible selves may influence ongoing performance, Ruvolo and Markus (1989) attempted to activate either positive or

negative possible selves in the working self-concept. Subjects were told to "imagine themselves in the future" and then were given one of four different descriptions of the future: (a) success work - "Everything has gone as well as it possibly could have. You have worked hard and succeeded in achieving your goals"; (b) success luck - "Everything has gone as well as it possibly could have. You have been very fortunate and have gotten some lucky breaks along the way"; (c) failure work - "Everything has gone as badly as it possibly could have. You have worked very hard but have failed to achieve your goals" and (d) failure luck - "Everything has gone as badly as it possibly could have. You have been very unlucky and have had some bad breaks along the way."

Subjects performed a task that was designed to assess their currently accessible selves. A series of terms were presented on a computer screen and the subject's task was simply to respond "possible for me" or "not possible for me" to each word. The stimulus words were (a) positive words reflecting high achievement or successful affiliation with others (e.g., "prestigious", "very popular", and "high powered"); (b) negative words reflecting lack of successful achievement or affiliation (e.g., "underachiever", "unmotivated", and "withdrawn"); and (c) control words (e.g., "tired" and "calm"). During this task, they recorded responses and response times. Following this self-descriptive task, the subjects worked on a performance task that measured persistence. The task was a writing task that required subjects to copy numbers with their non-dominant hand. They were instructed to stop when they wished. The success-work condition subjects worked significantly longer on the persistence task

than did the failure subjects. The contrast between the failure work and the success work conditions was highly significant. The success-luck and the failure-luck conditions did not differ significantly from each other.

To explore the nature of the working self-concept, Ruvolo and Markus (1989) examined the pattern of response times. The time to respond "possible for me" or "not possible for me" was assumed to be an indicator of the current accessibility in thought and memory of these terms or of terms related to them. Thus, short affirmative response times to the question, "is it possible for me" meant that a representation of the self that matched or was similar to the one indicated on the screen was highly accessible. The pattern of results suggest that the manipulation of the success and failure conditions did have an effect on the accessibility of positive and negative aspects of the working self-concept. For example, subjects in the success-work condition were quick to respond "yes, it is possible for me" to be prestigious, win high honors, be famous, etc. These same subjects were also faster to respond "no it is not possible for me" to be a failure, unmotivated, lazy, etc. Such a pattern of responding suggests that representations of the self as successful may have been active in the working self-concept. Those in the failure work conditions took decidedly longer to respond "no, it is not possible for me" to selves such as lazy or unsuccessful and to "yes, it is possible for me" to be successful, prestigious, and famous which suggests that representations of the self such as these were indeed active in the working self-concept. The luck conditions, the success-luck and the failure-luck, showed a pattern of responses indicating that some negative possible selves did

intrude into the working self-concept. In both groups they took longer than those in the success-work condition to claim that negative possibilities could not characterize them. These response time differences in the various imagery manipulation groups give evidence for the impact of possible selves on the working self-concept or current self-concept.

Together these results suggest that before performing the writing task, those in the success-work condition had working self-concepts that were dominated by positive possibility. As a result, these subjects were able to quickly generate representations of themselves as successful on the required task, and could prepare for the task relatively efficiently. In contrast, those who had been focused on future failure were probably consumed by conceptions or images of negative possible selves. When required to perform the task, it may have been more difficult for the failure subjects to inhibit these negative possible selves and to prepare themselves for the required task performance.

Other research has taken a broader view of the function of possible selves. Oyserman and Markus (1990), have proposed that a given possible self will have maximal motivational effectiveness when it is offset or balanced by a countervailing possible self in the same domain (see above discussion on balanced possible selves). Such a dynamic balance between one's expected and one's feared selves in a given domain creates a more intense and a more directed motivational state than either a positive possible self or feared possible self alone.

Oyserman and Markus (1990) conducted a semistructured interview study of

238 youth between the ages of 13 and 16 who varied in the degree of their delinquency--from those with no official involvement with delinquency to those confined to the state training school for delinquent youth. There were four separate groups: (a) youth attending seven inner-city Detroit schools which formed the officially non-delinquent group; (b) students attending area schools of observation, alternative schools, and public school in connection with a delinquency intervention program; (c) youth living in group home; and (d) youth living in the institution of last resort for juvenile delinquent males. Oyserman and Markus (1990) hypothesized that becoming involved and staying involved in delinquency reflects a lack of balance among one's possible selves which may result in having less motivational control over one's actions. They anticipated that the delinquent youth would display the least balance between their expected and their feared possible selves for the next year. Coders then scored the number of balanced pairs of expected and feared selves. A pair of responses (an expected and a feared self) was considered "in balance" if the expected self and the feared self represented a positive and a negative aspect of the same content area. For example, an expected self of "pass the ninth grade" might be paired with a feared self of "flunk out of school." Each respondent received a score of 0 (no balance) to 3 (balance in each of three possible pairs of expected and feared selves).

As hypothesized, significant differences in the balance of the possible selves of the four groups of youth were observed. Over 81 percent of the public school respondents had at least one clear match between their feared possible selves and their

expected possible selves. Only 55 percent of the community placement youth, 39 percent of the group home youth, and 37 percent of the training school youth had at least one match. Only 19 percent of the non-delinquent youth had no matches, while 63 percent of the training home youth had no matches between their expected possible selves and their feared possible selves. Thus, the most delinquent subsamples were those with the most asymmetrical configurations of possible selves. In addition, Oyserman and Markus (1990) also reliably predicted self-reported delinquency among the officially non-delinquent group. Youth who lacked balance in their possible selves subsequently reported higher levels of delinquent behavior than youth whose possible selves contained some balance.

Oyserman and Markus (1990) found that possible selves have higher predictive power than measures of self-efficacy in assessing whether a particular youth will behave delinquently or not. This study also suggests that having a balanced possible self provides greater motivation for an individual to behave in a particular way than does a unipolar (positive or negative only) possible self.

The Possibility of Possible Selves and Health-Promoting Behavior

As a field, psychology has generally focused upon an organism's past in order to understand and predict present and future behaviors. However, such theories, for the most part, do not adequately account for the fact that human beings often dramatically change their behavior. A substantial part of this dramatic shift in behavior may often be the result of a direct confrontation with an impending, usually

aversive, future possibility. For example, most of us probably know someone who may have changed one or more of the following: his or her eating habits, altered his or her usual way of conducting business, alcohol consumption, cigarette smoking, implemented or increased an exercise regime, and perhaps rearranged his or her family priorities as a result of being confronted with the likely possibility of cardiac failure in the near future. This example is, unfortunately, not that rare and it clearly shows the impact that a person's possible future has on present behavior.

Given the fact that health professionals cannot change the past of any individual, what may remain as a source of motivation for behavior change is an intervention in the person's future self-conceptions. If a person's conceptions of the future could be made more salient, more immediate (which is not necessarily a contradiction given that we are considering how future representations may pull for action in the present) then this may be a viable lever with which to promote preventative health behaviors.

The empirical question is simply to what extent does a future-tense self-conception direct the health related behaviors of an individual? A related question asks, if possible selves do in fact call forth action from the present, is it possible to induce this process through activation of possible self schemas in the working self-concept?

The primary purpose of this study is to assess whether the activation of possible selves in the working memory of subjects is likely to increase health related behaviors of individuals. Ruvolo and Markus (1989) found that their imagery

manipulations did activate different possible selves in the working self-concept of their subjects.

The present study will also use guided imagery to activate future self-conceptions, in particular, with respect to the health of the subjects. There will be four manipulations or conditions consisting of guided imagery which will be positive, negative, balanced, or neutral with respect to health. Based on the Oyserman and Markus (1990) data, it is hypothesized that the balanced condition (consisting of both positive and negative images of future health) will produce the greatest impact on health related behaviors. It is also hypothesized that the three conditions which activate or make salient future self-conceptions about health will produce more health behaviors than the control group's condition (neutral guided imagery condition with respect to health.)

It is also hypothesized that individuals will vary in the degree to which their future self-conceptions are articulated or accessible with respect to their health. It is also thought that the differences in the accessibility of health-related possible selves will contribute to differences found in the quantity of preventative health behaviors. This is an intuitively reasonable hypothesis, in that, since these persons already have a well defined set of schemas having to do with their health, they are more easily able to accommodate and assimilate information having to do with their health, and this may lead to a change in behaviors more readily than individuals who do not have a well defined schema with respect to health. Thus, I expect to find some individuals who are very concerned about their futures and are acting accordingly to fulfill their

possibilities and/or to prevent certain possibilities. I also expect to find persons who are not oriented towards their future to any appreciable degree in the area of health. Therefore, it is necessary to be able to distinguish these persons as they are likely to respond differentially to the manipulations of their possible selves.

The Health Questionnaire (see Appendix A) has been designed to assess to what degree individuals tend to think of themselves in the past, present, and future with respect to health. It is also hypothesized that individuals with a fairly well articulated possible self are more likely to change their health related behaviors given some intervention. It is also possible that an interaction will occur between the degree to which a subject's possible health selves are available and the effectiveness of the guided imagery manipulation.

The last operational question for this study was how to measure preventative health behavior. In assessing the possibilities of measuring the dependent variable, it was found that The University of Montana has a number of health services available to the students. If students' behaviors could be directed toward these programs, it would then be possible to measure the effects of manipulating their possible selves in relation to actions they then subsequently take toward investigating these possibilities. I chose to investigate three levels of commitment towards preventative health behavior. These three levels are the subjects' likelihood in participating in a program at some unspecified time, specific information seeking behavior toward a particular program, and a written request to make contact with a health professional in order to schedule or to sign up for a particular service. Thus, these second two levels

(information seeking behavior and a request to contact health professionals) will allow us to be able to measure overt, "real world" goal oriented actions as a result of the possible self manipulations in the context of preventative health behaviors.

In summary, this experiment seeks to assess the degree to which individuals have articulated their possible selves with respect to their health. Then these possible selves will be manipulated through guided imagery techniques to make accessible in working memory negative, positive, balanced, and neutral health related possible selves. The effects on behavior of bringing on line the possible selves will then be measured by introducing to the subjects various preventative health programs which The University of Montana offers and measuring the degree to which the subjects take action toward participation in these programs.

METHODS

Subjects and Screening Procedures

Subjects were undergraduate students who were fulfilling their Psychology 100 experimental requirements. They were given the opportunity to participate in a large experimental screening process in order to meet some of these requirements. Potential subjects were screened by being given a Health Questionnaire (Appendix A). In the screening process 335 subjects were given the questionnaire in order to ensure that a sufficient pool of subjects was available for the experimental manipulation.

From the screened pool of subjects, subjects were chosen randomly to participate in the experiment. The only criterion in the selection of the subjects was to insure that the representation of subject's possible selves scores was a rectangular distribution. An equal number of subjects who scored high, medium, and low on the possible self questionnaire were recruited for this experiment. The subjects were contacted by phone shortly after the initial screening and were told a little about the nature of the experiment and were asked to participate. Providing the subject was willing, a time was arranged to carry out the experiment at the Clinical Psychology Center at The University of Montana. All subjects received experimental credits for their participation.

The Health Questionnaire (Appendix A)

The purpose of the Health Questionnaire is to assess the degree to which a subject has defined their future conceptions of themselves with respect to their health.

Health related future self-concepts might include such self-related notions as exercise regimes, losing weight, gaining weight, stopping smoking, changing dietary habits, having any health related goals, how one might physically feel, and how one might envision oneself as either healthy or unhealthy in the future. The extent to which subjects had either well defined or poorly defined possible selves with respect to health was determined by their responses to such questions as, "To what extent do you have any goals with respect to your health? To what extent do you think about how you might feel in the future with respect to your health? How concerned are you about your future health?" Subjects were asked to rate these questions on a Likert scale which ranged from 0 to 10. The questionnaires were scored by summing the responses given to these future oriented questions. A high score indicates an individual who has developed health relevant future self-concepts, while a low score indicates an individual who has not conceptualized themselves in the future with respect to their health.

The Dependent Measure (Student Health Services Questionnaire - Appendix B)

The Student Health Services Questionnaire is a measurement instrument designed to elicit responses which have varying degrees of commitment toward available preventive health behaviors (see Appendix B). This measure describes eight preventative health services offered through Student Health Services and the Counseling Center at The University of Montana. Programs such as exercise counseling, dietary counseling, dental services, birth control and sexually transmitted

disease information, and self-esteem programs are described. The subject then answered questions concerning how likely they are to participate in these programs (on a Likert type scale of 0 through 10), were able to request more information about any specific program, and were given an opportunity to register or make appointments for a program(s). The amount of health related behavior was then assessed by summing the subject's responses to these questions.

Introduction of the Experiment

The experimenter greeted the subjects and introduced the experiment by stating to the subject that the experiment is designed to explore the relationship of the future and present emotions. The experimenter advised the subjects that they will be asked to first answer a mood or emotional checklist to assess their current emotional state. The Mood Adjective Checklist (MACL - Appendix D) was used for the mood assessment. Then the subjects were told that a short relaxation procedure would occur, which was followed by a guided imagery exercise. Subsequent to the imagery, the subjects were told that they would be asked to fill out a Student Health Services Programs evaluation. It was explained to the subjects that this was being done as a neutral way with which to pass the required amount of time before the MACL was readministered. The subjects then filled out the Mood Adjective Checklist for the second and final time. The subjects were then asked to do a final, very short, relaxation and imagery procedure which was designed to ensure that they left with a mood that was equivalent to, or better than, when they entered the experiment.

Mood Assessment

Prior to the relaxation procedure, subjects were asked to fill out a mood checklist. The purpose of this was twofold. First, the experiment was presented to the subjects as an investigation of the relationship of the future and current emotions or feelings and so the mood checklist served to distract the subjects from the designed intent of the study. Second, it was of interest to see if there were any relationships between the different possible self manipulations and the subsequent reported emotional states of the subjects.

Relaxation Procedure

Prior to the guided imagery, subjects received progressive relaxation instructions. The instructions were recorded on a cassette tape to ensure a consistent presentation. The instructions directed the subjects to become aware of various body sensations and then to consciously relax the associated body areas. The instructions were based on Jacobson's progressive relaxation procedures (Jacobson, 1929, 1976). Please see Appendix C for a verbatim transcript of the relaxation procedures.

Imagery Manipulation

The purpose of the guided imagery conditions was to make available in the working self-concept future self-conceptions the subjects may have had which related to health. At any given point in time a subject may have any number of an infinite variety of self-conceptions in mind. For example, a subject may have the "I am an

excellent student" possible-self accessed during the experiment in which case the subject may be very compliant and curious with respect to the experiment. The guided imagery allowed the subjects to access the future self-concepts which they may have had which were related to their future health states, and to then subsequently have these specific future self-concepts involved in their decision making process regarding health motivated behaviors. After the relaxation suggestions were completed, the subject then participated in one of four guided imagery conditions.

Each guided imagery condition was recorded on a cassette tape in order to ensure that their presentation was consistent throughout the experimental conditions (see Appendix C for a full description of the imagery manipulations). The length of each guided imagery session was approximately equal throughout the conditions. The experimenter needed only to introduce the experiment to the subject and then played the appropriate imagery manipulation. The subjects were randomly assigned to one of the imagery conditions prior to the experiment.

The first guided imagery condition was a positive future self-concept manipulation. It consisted of a guided imagery exercise designed to elicit positive conceptions of the future self with respect to health. This imagery manipulation contained suggestions such as, "Imagine yourself in perfect health. You have achieved all of your goals with respect to your physical fitness. Picture yourself having done this. Imagine how it will feel to be in the physical shape which you want for yourself." The second condition consisted of a negative possible self manipulation. It consisted of a guided imagery which had the subjects access negative future

conceptions of themselves. For example, the negative imagery manipulation contained statements like: "Imagine that you have not been able to take care of yourself the way that you would have liked to. Your health has deteriorated substantially. Picture yourself in these terrible situations. Feel how awful your body feels. Consider all of the activities which you cannot do because of your ill-health." The balanced possible self manipulation consisted of a combination of both the positive and the negative imagery manipulations. In one-half of this group, the positive manipulation was given first, followed by the negative. In the second half of this group, the negative imagery manipulation preceded the positive. The reversal of the presentation order is done to guard against primacy or recency effects. The fourth manipulation consisted of a "neutral" guided imagery with respect to possible health related selves. The neutral imagery had the subjects imagine themselves on a leisurely walk through the woods.

Post-Manipulation Procedures

After the imagery manipulation the researcher said to the subjects:

> "This experiment is partly supported by Student Health Services and the Counseling Center. To show our gratitude for their support and to effectively pass some time before we re-administer the mood checklist, we have agreed to administer a survey to students so that they can better assess to what degree they are currently meeting their goals. You'll see that the questionnaire pertains to different aspects of health such as cigarette smoking, dietary concerns, exercise, sexual behavior, and dental checkups. Please read carefully through all of the items as this information will be vital in assisting Student Health Services and the Counseling Center in evaluating their programs. I'll be leaving the room for a few minutes so that you can fill out these questions. All of this information is held in the strictest of confidence. Your name or identity will not be released to anybody under any circumstances so that you can feel that you can fill out the questionnaire openly. By the way,

> Student Health Services is currently promoting a "Safe Sex Campaign" on campus and as part of that effort they wanted to make condoms available to the students. To show their appreciation for our administering their survey, they have provided us with free condoms for our subjects to take. Please feel free to take as many as you wish. Ok, I'll be waiting outside. When you are finished with the questionnaire, please just step outside and let me know."

The researcher then left the subjects alone to answer the questionnaire. When the subject had finished, the researcher readministered the Mood Adjective Checklist. Upon the completion of this instrument, the experimenter and the subject then went through the Student Health Services Questionnaire and the experimenter distributed any additional information that the subject had requested concerning any of the programs offered. Also at this time, the researcher made available sign-up sheets or phone numbers to make appointments with any programs which the subject had said that they wished to participate in. Also questions that the subject had regarding the costs, meeting times, and other considerations about various programs offered by the University were answered at this time. The subjects were asked to address an envelope with their mailing address on it so that they could be mailed the "results" of the experiment and be debriefed.

After all of the subject's questions had been answered, he or she was administered a second imagery exercise. This very brief imagery exercise was designed to ensure that the subjects left the experiment in an equivalent or better mood with which they began the experiment. This imagery procedure consisted of a short relaxation exercise and then having the subjects imagine themselves in very positive situations. A verbatim transcript of this procedure is provided in Appendix C and is

labelled "Pep Up".

The subjects were then thanked for their participation in the study and politely excused. After the subject had left the room, the experimenter counted the number of condoms left in the bowl to determine how many, if any, condoms were taken by the subject.

Debriefing Procedure

The "results" of the experiment which were mailed to the subjects were actually a complete debriefing about the experiment. These were mailed to the subjects one to two months after their completion in the experiment. The delay in the debriefing process was thought to be warranted so as not to thwart any positive health motivated actions which the subject may have initiated as a result of participating in the experiment and also to protect against subject pool contamination. In the debriefing, the subjects were also encouraged to call the experimenter if they had any additional questions and an appropriate phone number was provided.

RESULTS

Preliminary Analyses: Factor Analysis of Health Concerns Questionnaire

161 subjects (83 women and 78 men) completed all measures in this experiment. The initial analysis of the data gathered was to determine factors contained within the Health Questionnaire. Although meaningful factors had been obtained in the pilot data (i.e., a factor which was composed of questions which fit the construct of having a future self-concept emerged), this was again tested for in the main study. The Health Questionnaire (see Appendix A) asked all subjects 34 questions such as "How important are your health goals to you?, To what extent are you engaged in any activities which promote your health?, Please rate the degree to which you actually think about or imagine yourself in the future." A principal components analysis with varimax (orthogonal) rotation was performed on the 34 questions for this questionnaire. A loading of .60 or greater was required for a question to be included as a component of a factor. The questions which loaded on the 10 principal factors are given in Table 1 on the following page.

Table 1									
Factor 1		Factor 2		Factor 3		Factor 4		Factor 5	
Q3	.69	Q21a	.70	Q7	.82	Q26a	.83	Q19	.70
Q5	.60	Q21b	.81	Q9	.83	Q26b	.60	Q20	.76
Q13	.60	Q21c	.88	Q10	.81	Q26	.77		
Q15	.68	Q21d	.90			Q27	.71		
Q18	.78	Q21e	.82			Q28	.73		
Q23	.77								
Factor 6		Factor 7		Factor 8		Factor 9		Factor 10	
SexPast	.70	Q30	.85	Q4	.77	ExHealth	.64	Q22	.79
SexNow	.72	Q31	.88						
Q16	-.75								
Q17	-.73								

The Eigenvalues and percentage of variance accounted for by each factor are presented in Table 2.

Table 2		
Eigenvalues and Percentage of Variance of the 10 Factors		
	Eigenvalue	Percentage of Variance
Factor 1	10.98	26.1%
Factor 2	4.78	11.4%
Factor 3	2.51	6.0%
Factor 4	2.14	5.1%
Factor 5	1.92	4.6%
Factor 6	1.62	3.9%
Factor 7	1.33	3.2%
Factor 8	1.13	2.7%
Factor 9	1.11	2.6%
Factor 10	1.00	2.4%

The first factor accounted for 26.1% of the variance. This factor was found to consist of the following questions: "1) To what degree do you think about your health in the future? 2) How important are your health goals to you? 3) To what extent do you actually envision or think about yourself as either healthy or unhealthy in the future? 4) Please rate to what extent you actually imagine or think about how you will physically feel in the future? 5) To what extent, if any, do you have any goals regarding your health? and 6) Please rate the degree to which you actually think about or imagine yourself physically feeling in the future." The components of this factor were tested for internal consistency, and an alpha coefficient of .87 was found.

The second factor accounted for 11.4% of the variance, and consisted of the 5 questions which read, "Please rate the level of health that you expect to have in _____ (6 months, 1 year, 2 years, 5 years, and 20 years)."

The third factor accounted for 6.0% of the variance and consisted of the questions: "To what extent are you actually engaged in any activities or habits which promote your health? On average, how many days per week do you exercise? To what extent does your current exercise regime match your goals with respect to your health? To what extent are your present health related activities actually practiced with the aim of feeling good in the present? To what extent are your present health related activities practiced with the aim of feeling good in the future?"

The fourth factor accounted for 5.1% of the variance and consisted of the questions: "To what extent do you actually worry about your health in the present? To what extent do you actually worry about your health in the past? To what extent

do you actually worry about your health in the future? To what degree do you actually find yourself imagining or thinking about yourself in the future? To what extent do you actually imagine how you will emotionally feel in the future?"

The fifth factor accounted for 4.6% of the variance and consisted of the following questions: "Please rate how normal your health has been to date. Please rate the amount of ill-health that you have experienced in your life."

The sixth factor comprised 3.9% of the variance and consisted of the questions: "Have you been sexually active in the past? If you have been sexually active in the past, what percentage of the time did you practice safe sex? Are you currently sexually active? If you are currently sexually active, what percentage of the time do you practice safe sex?"

The seventh factor accounted for 3.2% of the variance and contained the following questions: "How often do you seek regular dental checkups? How often do you schedule regular medical checkups?"

The eighth factor accounted for 2.7% of the variance and consisted of the question: To what degree have you thought about your health in the past?" The ninth factor added 2.6% additional variance and contained the question "Do you practice anything else which promotes your health?" The tenth factor accounted for an additional 2.4% of variance and consisted of the question, "Have you ever had a serious illness or physical injury?" Thirty-two percent of the variance was unaccounted for by these 10 factors.

In sum, the factor analysis of the questions on the Health Questionnaire yielded

10 factors which could be labelled: 1) future self-concept with respect to health behaviors; 2) expected quality of health in the future; 3) current exercise regime; 4) health concerns; 5) extent of illness; 6) sexual activity in the past and present; 7) current preventative health behaviors; 8) past health concerns; 9) additional health promoting behaviors and 10) history of serious illness. Thus, the Health Questionnaire performed as hypothesized in being able to parcel out factors which have face validity into theoretically meaningful content areas. Most significantly for this study, the questions which were thought to tap into the construct of a future self-concept did, in fact, load together. It is also noteworthy that this factor accounted for the greatest percentage of variance. The intracorrelations of the 10 Factors are presented in Table 3, below. The intracorrelations of the dependent variables are presented in Table 4.

Table 3

Intracorrelations of the 10 Factors

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 2	.4416**				
Factor 3	.4440**	.5317**			
Factor 4	.5330**	.1312*	.1464**		
Factor 5	.2368**	.2375**	.3625**	.1831**	
Factor 6	.0859	.0477	.0749	.0789	-.0251
Factor 7	.1282*	.0970	.1877**	.1062	.2447**
Factor 8	.3397**	.1378*	.2399**	.3166**	.2342**
Factor 9	.2243**	.1722*	.3172**	.0074	.0100
Factor 10	.0456	.0363	.0643	.0476	.1548**

* indicates significance at the .05 level
** indicates significance at the .01 level

Table 3 continued

	Factor 6	Factor 7	Factor 8	Factor 9
Factor 7	.0620			
Factor 8	.0528	.1329*		
Factor 9	.0882	-.0067	.1015	
Factor 10	.0077	.0823	.0057	.0965

* indicates significance at the .05 level
** indicates significance at the .01 level

Table 4

Intracorrelations of Dependent Variables

	Want Info	Sign Up	Sum SHSQ	Condoms
Likelihood	.7177**	.5651**	.9895**	.0499
Want Info		.6373**	.7963**	-.0468
Sign Up			.6564**	-.0138
Sum SHSQ				.0344

** indicates significance at the .01 level

Relation of Future Self-Concept and Health-Related Behaviors

One hypothesis of this study was that future self-conceptions may be correlated with preventative health behaviors. Specifically, it was hypothesized that the degree to which individuals thought about themselves in the future would be positively correlated with taking preventative health actions in the present. In order to test this hypothesis, the Pearson Product Moment correlations were calculated between each of the factors on the Health Questionnaire and each of the primary dependent variables, which assessed preventative health related behaviors (see Appendix B - the Student

Health Services Questionnaire - e.g., would you like any information regarding a smoking cessation program at this time?). The future self-concept scores (obtained by summing all of the questions which significantly loaded on this factor) and the additional factors were correlated with the subjects' responses to the questions: "How likely are you to participate in this program? Would you like more information about this program? Would you like to sign-up or register for this program at this time?" The 10 factors were also correlated with a score which summed the likelihood of participation, desire for more information, and signing-up behavior across the various health programs offered in the Student Health Services Questionnaire (hereafter termed "Sum SHSQ"). Of note here is the fact that the future self-concept scores did not significantly correlate with wanting more information, likelihood of participation, signing up for programs, Sum SHSQ, or condoms. Of the ten factors, factor 8 (the degree to which a subject is concerned about their health in the past) was found to positively correlate ($p<.05$) with the Sum SHSQ. Factor 10 (history of serious illness) was found to positively correlate with the number of condoms taken by the subjects ($p<.05$). These correlations need to be interpreted with caution as neither of these relationships were predicted and they may be due to chance alone. These results are summarized in Table 5 on the following page.

Effects of Imagery Procedure on Preventative Health Behaviors

It was hypothesized that the balanced condition of first presenting a short positive imagery exercise and then a short negative imagery exercise would have

equivalent effects to the balanced condition of first presenting a negative imagery exercise followed by a positive imagery exercise. This hypothesis was confirmed, no

Table 5

Correlations of the Factors and the Dependent Variables

	Likelihood	Want Info	Sign Up	Sum SHSQ	Condoms
Factor 1	-.0020	.0542	.1143	-.0167	.0955
Factor 2	-.1117	-.0882	.0533	-.0533	.0752
Factor 3	-.1348	-.0977	-.0371	-.1297	.0784
Factor 4	.0003	.0703	.0658	.0159	-.0733
Factor 5	-.0368	-.0420	-.1358	-.0500	-.0009
Factor 6	-.0761	-.0716	-.1442	-.0875	-.0817
Factor 7	.0368	.0347	-.0782	.0278	-.0980
Factor 8	.1513	.1525	.1310	.1599*	-.0030
Factor 9	.0682	.1510	.0760	.0845	.1176
Factor 10	.0726	.0087	.0177	.0639	.1929*

* indicates significance at the .05 level

significant order effects were found (F=.014, p=.905). As a result of these analyses, the two conditions have been combined into one balanced condition for the remaining analyses.

The second major hypothesis of this study was that the imagery manipulations would affect preventative health behaviors. Specifically, it was hypothesized that the balanced imagery condition would have the largest effect, the positive and negative imagery conditions would have the second largest effect, and that the neutral imagery condition would have the least effect. In order to test these hypotheses, One-Way Analyses of Variance were performed on each of the primary dependent variables.

The results of these analyses are presented in Table 6 below.

Table 6

Summary of Effects of Imagery Condition on Dependent Variables
One-Way Analysis of Variance

Cell Means

	N	Likelihood	Want Info	Sign Up	Sum SHSQ	Condoms
Neutral	39	17.97	1.46	.4872	19.92	3.00
Positive	42	19.31	1.79	.6429	21.74	4.81
Negative	40	19.75	1.76	.6750	22.20	4.10
Balanced	40	18.40	1.42	.6500	20.47	2.20
SS Between		79.21	4.61	.8628	135.15	163.42
MS Between		26.40	1.54	.2876	45.05	54.47
SS Within		12441.05	297.51	170.76	17597.76	3940.47
MS Within		79.24	1.89	1.0877	112.09	25.10
F		.3332	.811	.2644	.4019	2.17
p		.8114	.4896	.8510	.7518	.09

Table 7

Oneway Anova
Number of Condoms Taken by Procedure

Contrast of Procedures	S. Error	D.F.	p
neutral vs. positive	1.1059	68.9	.107
neutral vs. negative	1.1191	55.7	.330
neutral vs. balanced	0.6487	76.1	.221
positive vs. negative	1.4190	79.9	.618
positive vs. balanced	1.0873	56.0	.020*
negative vs. balanced	1.1007	53.0	.090

* indicates significance at the .05 level

These data indicate that the imagery conditions did not significantly affect the

subject's propensity to initiate substantial preventative health related behaviors (i.e., to express an interest in a health program or to sign up for a health program). However, these data do demonstrate that the imagery conditions did significantly contribute to the subjects taking of condoms (a relatively easy to perform preventative health behavior).

Interactive Effects of Future Self-Concept and Imagery Procedure on Preventative Health Behaviors

The third hypothesis of this study was that there would be an interaction between the degree to which a person has a future self-concept and the imagery manipulations. The interaction between future self-concept and the manipulation was tested for with the following statistical procedures. The subjects' scores for future self-concept were converted to z-scores. The imagery conditions were then transposed into numerical codes based upon the a priori hypothesized effects. Specifically, the neutral condition was dummy coded as 0, the positive and negative conditions were dummy coded as 1, and the balanced imagery condition was coded as 2. These codings are logically based upon the hypothesis that the balanced imagery condition would have the greatest effect, followed by both the positive and negative conditions, with the prediction that the expected effect of the neutral condition would be the smallest of the procedural conditions. These dummy codes were then converted into z scores. An interaction variable was then created by multiplying the future self-concept z-scores and the procedural variable z-scores. This interaction variable was then regressed (along with the two main effect variables) on the dependent variables.

These data are presented in Table 8 below.

Table 8		
Interaction Effects of Future-Concept and Procedure		
Dependent Variables	Beta	Significance Level
Likelihood	-.1959	.0139*
Want Info	-.0886	.2692
Sign Up	-.0988	.2145
Sum SHSQ	-.1859	.0197*
Condoms	.0008	.9915

Cell Means for Significant Interactions			
Dependent Variable - Likelihood			
Future Self Score	Neutral	Pos. or Neg.	Balanced
Low	15.58	19.70	21.21
High	20.25	19.31	15.86
Dependent Variable - Sum SHSQ			
Future Self Score	Neutral	Pos. or Neg.	Balanced
Low	16.95	21.85	23.87
High	22.75	22.11	17.40

Results from these five regression equations revealed significant interactions occurred for both likelihood ($p < .0139$) and Sum SHSQ ($p < .0197$) when the a priori hypothesized groupings of procedural variables are used. The interactions were non-significant for wanting more information, signing up for programs, and the number of condoms taken by subjects. To determine the directions of the interactions, the future self-concept scores were split into high and low scoring groups and then the means from the likelihood and Sum SHSQ groups were compared across imagery conditions

(these data are presented in Table 8). The means revealed that in the neutral conditions, the high future self-concept subjects (mean = 20.25) are indicating that they are more likely to participate in preventative health programs at some time than are low future self-concept subjects (mean = 15.58). In the negative and positive imagery conditions high and low future self-concept scores are similar (means = 18.78 and 20.13, respectively). In the balanced condition, however, this study found that low future self-concept scoring subjects (mean = 21.21) are indicating that they are more likely than high scoring future self-concept subjects (mean = 15.86) to participate in health programs in the future. A similar pattern is found with respect to the dependent variable of Sum SHSQ, which is a composite score of all the questions asking subjects to participate in preventative health programs. In the neutral condition, when future self-concept scores were low, the Sum SHSQ was low (mean = 16.95) and in the high future self-concept scores the Sum SHSQ was higher (mean = 22.75). In the positive and negative imagery conditions, the Sum SHSQ scores for the low and high future self-concept subjects were comparable (means = 22.36 and 21.49, respectively). For the balanced imagery condition, the low scoring subjects had a mean Sum SHSQ score of 23.87 and the high scoring future self-concept had a mean Sum SHSQ score of 17.40.

Essentially, these data suggest that there are positive effects produced by the various imagery conditions only when the subjects are low on future self-concept. Subjects who have a more developed future self-concept are impacted negatively by the non-neutral imagery conditions (they are less likely to engage in preventative

health behaviors).

Ancillary Analyses

In addition to the data which concerned the main hypotheses which were reported above, this study found several interesting additional results. First, an analysis of variance showed that significantly more males (64%) than females (46%) reported that they were currently sexually active ($p = .020$; $F = 5.566$). There was no significant difference between the number of condoms that women vs. men took ($p = .205$; $F = 1.624$). Sexually active subjects took significantly more condoms than non-sexually active subjects ($p = .054$; $F = 3.760$). Some of these results are summarized in Table 9 and Table 10.

Table 9

Procedure

	Neutral	Positive	Negative	Balanced
Average # of condoms	3.00	4.81	4.10	2.20

Table 10

Procedure

		Neutral	Positive	Negative	Balanced
Sex	Female	2.55	3.65	3.50	1.95
	Male	3.47	6.21	2.71	2.65
Currently Sexually Active	No	1.89	2.95	2.71	2.65
	Yes	3.95	6.67	4.85	1.75

The purpose of this study was hidden from the subjects by describing to them

that the experiment had to do with a mood manipulation and as part of this deception, they were given the Mood Adjective Checklist both prior and subsequent to the imagery manipulation. These data were analyzed using a one-way analysis and the following results were found. The changes in mood scores are summarized in Table 11, below.

Table 11

Changes in Mood

Imagery Condition	Mean Change in Mood Score	S.D.
Neutral	-.5128	4.82
Positive	+.4524	5.76
Negative	-3.7250	8.86
Balanced	-1.5000	5.13

The analyses found that there were significant differences between the negative and positive imagery groups ($p < .014$: $F = 2.518$) and between the neutral and negative imagery groups ($p < .049$; $F = 2.008$). A trend was noted between the positive and the balanced condition ($p < .109$; $F = 1.623$). These results could be considered as a check on the imagery manipulation and offer support as to its efficacy.

DISCUSSION

Summary of Findings

There were several main hypotheses in this experiment. The first hypothesis was that subjects who had more highly developed or well articulated future self-concepts would be more likely to engage in preventative health behaviors than subjects who were found to have less developed future self-concepts. The second hypothesis was that the imagery manipulations would have a significant effect on promoting health related behaviors. The third hypothesis stated that there would be an interaction effect between the degree of development of future self-concept in a subject and the imagery manipulation. Specifically, it was hypothesized that there would be a synergistic effect - that subjects with the greatest amounts of future self-concept in the balanced imagery manipulation would produce the most health related behaviors.

The analysis found that there was a significant interaction effect between the degree of development of future self-concept and imagery condition on two of the dependent variables (likelihood of participating and the Sum SHSQ), although this interaction was not in the predicted patterns. The imagery manipulations did produce significant preventative health behaviors in condom taking by the subjects. The imagery manipulations did not produce any significant effects with respect to any of the other dependent variables. A significant correlation between the degree of future self-concept and preventative behaviors was not found in this study. These results will be discussed in further detail below.

Discussion of the Interaction Effects

The results of the interaction analyses are interesting. Although neither the future self-concept nor the imagery manipulation produced main effects of a significant level, the interaction between the strength of the subjects' future self-concept and the imagery procedure which they participated in, did produce significant interaction effects with respect to the subjects' likelihood of participating in programs, and the Sum SHSQ (the composite score of likelihood of participating, wanting more information, and signing up for a health program).

As predicted, subjects with high scores on the measure of future self-concept who were in the neutral imagery condition had greater scores on both their reported likelihood of participation as well as their overall score (Sum SHSQ) than subjects who scored low on the measure of future self-concept. What was interesting about the interaction data was the fact that subjects in the balanced imagery condition who scored high on their future self-concept scored lower on both the likelihood and Sum SHSQ measures than did subjects who scored low on their future self-concept questions.

One explanation of these results is the hypothesis that the degree to which a person thinks of him or herself in the future is correlated to goal oriented behavior in an inverted U fashion. Perhaps the efficacy of future self-concept is similar to theories of arousal in which both minimal and excessive arousal result in subjects' inability to maximally perform tasks, while a moderate level of arousal results in optimal performance. Analogously, if a subject is required to become too cognizant of

their future possibilities (like being too aroused) they may not be able to respond to stimuli in an optimal fashion. Thus, the subjects who are already high on their future self-concept may not wish to take advantage of health programs when both their positive and negative self-schemas have been activated. In a sense, they may be over-aroused and so unable or unwilling to engage in preventative health behaviors.

However, the low scorers on future self-concept are unable to engage in preventative health behaviors in the neutral condition as they do not have sufficient arousal, or the stimuli do not as yet have sufficient salience to them. When they are placed within the condition which presents both a vivid positive and negative possible health futures, the low future self-concept scorers then have sufficient stimulation to make salient their future self-concepts with respect to health and so then do in fact act in ways to promote their health. In a sense, low scorers may be at the bottom left part of the inverted U, and the activation of both positive and negative possible selves allows them to move up the U to a position which allows for more optimal goal oriented behaviors. On the other hand, high future self-concept subjects may be already near the highest point on the upside down U and so activating both their positive and negative health schemas may serve to bring them down the right side of the U into an area with a less than optimal response repertoire. The analogy of how arousal states relate to functioning may serve to illustrate how the interaction effect of future self-concept and imagery condition may be accounted for.

The interpretation of these data are very similar to the results found by Witte (1992). In this study, Witte looked at the interaction of attitude change and the

amount of fear arousal potential present in a persuasive message. What Witte found was that subjects who had initial levels of high anxiety, had high levels of attitude change in the low fear arousal condition and low levels of attitude change in the high fear arousal condition. Subjects who had low levels of initial anxiety, scored low on attitude change in the low fear arousal persuasive message and scored high on attitude change in the high fear arousal message. These results are quite similar in conceptual nature to those found in this study and so lend credence to the plausibility of the inverted U hypothesis as a valid explanation for these interaction patterns.

Discussion of the Imagery Manipulations

A main effect for imagery manipulation was found with respect to condom taking behavior. The finding that the imagery manipulation did have a significant effect on condom taking behavior might be accounted for if one considers what frame of mind a subject would have to be in to be anticipating or hoping to be engaging in sexual behaviors in the near future. A person who is expecting to be in good health, have a high energy level, and may be feeling good about themselves is more likely to anticipate being able to have more sexual encounters than someone in a less optimistic state. We might expect then that the subjects in the negative condition would have taken the least number of condoms, with the previously related reasoning that they would be in the opposite condition of positive imagery group. This was not the case and, in fact, they took the second greatest number of condoms behind the positive condition. Perhaps then, in imagining themselves with having poor health in the

future that this activated a future self-concept which they wished to avoid great enough to produce pro-active behavior.

Thus, one explanation of the fact that the positive imagery group took the most condoms is the hypothesis that as a result of this manipulation, that these subjects were in a more optimistic and generally positive mood (this idea is supported by the analysis of the mood of the subjects as measured by the MACL both prior and subsequent to the imagery manipulation) and so might be expecting a greater number of opportunities to engage in sex, and therefore would be expected to appropriate a greater number of condoms. The subjects in the negative imagery condition are nearly equally motivated to avoid the potentially disastrous consequences of having unprotected sex. Although they are not in an optimistic and energized mood, their fear of future bad health is sufficient for them to behave in a proactive manner.

These results are quite interesting in that it was predicted that the balanced condition would produce the most preventative health behaviors. The rational behind this hypothesis is that when the self-concept contains elements to be working toward as well as elements to be working to avoid (i.e., sickness), then the individual should be more willing to engage in the appropriate behaviors that would satisfy both. Interestingly, the subjects in the balanced condition actually took the least number of condoms of any imagery group, while those in the positive imagery group took the most. This finding is opposite to that of what was predicted.

One rationale which would account for this finding is that in considering both very positive as well as very negative possible futures, that the subjects may be left

with a feeling of resignation - that they may perceive that they have little control over their future health and so any pro-active behaviors which they might perform may seem ineffective or perhaps even irrelevant. The process of activating both a positive future self-concept and a negative future self-concept in close temporal proximity, could have the effect of negating the motivational aspects of either due to the fatalistic state this may induce. However, these data do not repudiate the hypothesis that if subjects who have both positive and negative future self-concepts may display the greatest number of goal oriented behaviors overall, as long as both the positive and negative schemas are not brought into working memory in close temporal proximity to each other.

Oneway analysis of variance failed to find any significant main effects for imagery manipulation with respect to likelihood of participating, wanting more information about programs, or signing up for preventative health programs.

One explanation for the nonsignificant findings is that it may have been unreasonable to expect that having the subjects participate in one imagery session would be substantial enough to activate and make salient future self-concepts which had to do with health. Clearly, the time and energy required to make a commitment toward one of these programs is considerable (the shortest program consisted of 4 one hour meetings). It might be that if the subjects were exposed to multiple imagery sessions, that this would make their health goals salient enough so that they would be willing to commit to these extensive programs.

The above hypothesis is supported when it is noted that the oneway analysis of

condoms taken by imagery condition did produce significant differences between the groups. Condom taking behavior required relatively little effort on the part of the subjects and so might be a more sensitive measure of the effects of a single imagery session. It may be reasonable then to explore whether an increase in the number of imagery sessions would have an impact on preventative health behaviors.

Clearly these explanations are hypothetical in nature and would benefit from further empirical testing as to their validity and explanatory power. However, they can be adequately accounted for within the framework of schema theory. In particular, although at first glance these findings may seem to contradict some of the basic hypotheses of future self-concept theories, (that a balanced possible self which contains both positive and negative possibilities will allow for the most goal oriented behaviors with respect to those particular schemata - e.g., Oyserman & Markus, 1990) these contradictions can be adequately accommodated into this theory by understanding the variable of temporal proximity of the schemas with respect to each other. Further exploration concerning the importance of the temporal nature of positive and negative self-concepts may adequately account for these findings.

Future Self-Concept and the Dependent Variables

One of the principal research questions in this study was the hypothesis that the degree to which a person thinks about his or her self in the future would impact how he or she behaves in the present. The introduction explicated the theory that as future conceptions of the self are brought into working memory or one's self consciousness,

that they can serve to organize and energize one's actions. Thus, future self-concepts, or what Markus has termed "possible selves", may facilitate goals and intentions into instrumental actions. Future self-concept schemas serve to distinguish possible courses of action which the individual may wish to move towards as well as those that he or she may wish to avoid from the backdrop of infinite possibilities available to the person.

Future self-concepts can be thought of as being on a continuum of being readily available to working memory (well developed) to a future self-concept which is barely defined within the self structure, and therefore not very accessible to working memory. In broader terms, some people have very clear and well defined ideas about their futures and others have a much more vaguely defined conception of themselves in the future.

If a well developed future self-concept does in fact help direct a person's actions, then the degree to which this construct is developed within an individual as it pertains to a particular life area, should be correlated with how a person behaves in a particular area.

This hypothesis was tested by correlating the subjects' future self-concepts with specific health related behaviors. This experiment failed to find any main effects between the degree to which subjects think about themselves in the future with respect to their health and engaging in preventative health behaviors. The subjects' future self-concepts related to health did not positively correlate with any of the dependent variables.

There are several rationales which might explain this data. The first is that the dependent variables (signing up for preventative health programs) was too much of a "stretch" for the subjects.

This "stretch hypothesis" is given some credence by the results of the pilot study. In this study, a significant positive correlation was found between future self-concept related to health and preventative health behaviors. One explanation for the discrepancy in the pilot data and this study is that in the pilot study a program which had to do with effectively managing stress was included. This program was by far the most popular of the programs offered and received the most requests for additional information, estimated likelihood of participating, and signing up behavior. This program was not included in the actual study (due to a managerial error). This oversight is thought to be significant in that "stress" is commonly experienced by many undergraduate students and is considered by most students to be a non-derogatory fact of living. Being "stressed out" is considered normal by most people. The subjects' attitudes toward this program in particular, may be substantially different from other preventative health programs. For example, there may be a pejorative association with programs that have to do with sexually transmitted diseases or seeking alcohol counseling. Thus, the deletion of this program coupled with the generally socially undesirable qualities of many of the programs offered, may have contributed to the non-significant correlation between future self-concept and preventative health behaviors.

A second line of reasoning which might have some bearing upon the lack of

correlation between future self-concept and preventative health behaviors is the fact that the vast majority of this sample were freshmen and sophomores at a state university. Although the exact ages of the subjects were not gathered, it is very reasonable to assume that the mean age was somewhere between 20 and 25 years of age. The youthfulness of this sample may have contributed to their non-significant amount of taking advantage of preventative health programs in that as a sample which had probably experienced little significant health problems to date, they would be considerably less concerned about their health than perhaps an older sample may have been. Thus, although they may have relevant future self-structures with respect to their health, these cognitive structures may not have sufficient historical relevance in order to necessitate changes in behavior.

Of course it is also possible that this data accurately reflects the fact that there may not be a correlation between future self-concept and present behavior. As was discussed above, a significant interaction effect between future self-concept and the imagery manipulation was found. These results suggest that although no significant main effects were found for future self-concept, that this is still an important construct in contributing to the determination of a subject's behavior.

Additional Discussion

The factor analysis of the 34 questions on the Health Questionnaire (Appendix B) was critical to this study, in that without confirmation of the fact that the questions which were thought to have face validity with respect to loading on the future self-

concept construct, this experiment would have been meaningless. The analysis revealed that not only did the questions which were thought to be related to a future self-concept load together on the same construct but that this factor accounted for the greatest percentage of variance in the Health Questionnaire. Thus, it is thought that the fact that a factor which could be described as a future self-concept with respect to health did emerge and the fact that it was the factor which accounted for the most variance in this set of questions is encouraging to this line of research.

It is interesting to note that the future self-concept did not significantly correlate with preventative health behaviors, however Factor 8, past health concerns, did positively correlate with the Sum SHSQ. This factor contained only one question and that was "To what degree have you thought about your health in the past?" It is likely that people who are concerned about their health in the past have had something to be concerned about, i.e., bad health. Therefore, it makes sense that subjects who endorse a high rate of concern about their health in the past would then be motivated to prevent the reoccurrence of bad health. This relationship between past health, present concerns with past health, and preventative health behaviors could explain this positive significant correlation.

The results of the effects of the imagery manipulation on the subjects' mood were expected. The neutral condition produced a slight decrease in mood elevation, the negative imagery a significant decrease in mood, the positive imagery an increase in mood elevation, and the balanced imagery condition produced a small decrease in mood elevation. These results make sense in that subjects entered the experiment

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reporting a mood elevation of +8.6 (meaning that on average the subjects endorsed 8.6 more positive mood adjectives than negative mood adjectives). Thus, since subjects were already reporting a positive mood, it would be harder for them to be able to increase their mood by thinking about positive futures. On the other hand, since they started with a positive mood state, it would be considerably easier to deflate this mood by having the subjects imagine more negative futures for themselves. This would account for the relatively smaller increase in mood elevation with the positive imagery as opposed to the larger decrease in mood elevation produced by the negative imagery condition. These imagery conditions are thought to have been effective in that the mood changes they produced were significantly different.

The balanced condition was also found to deflate the subjects' mood. This decrease in mood elevation in the balanced condition might be accounted for again by the fact that subjects imagining themselves in both very positive and very negative future states might have some difficulty in reconciling the two disparate possibilities and so tend to become somewhat resigned about their future prospects. This fatalistic response could then produce the decrease in mood elevation.

General Considerations and Future Research

One of the more intriguing outcomes of this study is the interaction effect findings. Subjects who scored high on future self-concept in the balanced imagery condition produced the least preventative health behavior with respect to some dependent variables. This is in direct contrast with what some of Markus' research

has shown (e.g., Oyserman & Markus, 1990) in that they found that subjects who had both a positive and negative possible self were more likely to be successful High School students. It may still be true that a future self-concept which contains both future self-concepts to be striven for as well as those to be actively avoided would allow for subjects to be able to work both towards the desirable futures and work away from the futures they wish to avoid. What might be the important variable here is the temporal relationship of when these schemas are activated. If a person has both positive and negative future self-concepts, then the probability of one of these schemas being activated may be greater than a person who has only a positive or a negative schema with respect to some endeavor. In this way, the positive and negative schemas may both help to serve the individual in behaving instrumentally in differing kinds of situations, when differing stimuli are present. This process may be radically different from the process of activating both positive and negative future self-concepts in close temporal proximity to each other - which might result in a type of fatalism or apathy by the subject. Thus, these data may not repudiate future self-concept theory, they may serve to refine it. What these data do imply is that it may be unproductive to have both of these self-concepts available to the working memory at the same time. This makes some intuitive sense in that to have both optimistic as well as pessimistic views held simultaneously, could lead many subjects to a fatalistic stance towards their possible behaviors. This reasoning implies that the temporal relationship of future self-schema needs to be empirically explored.

What these data do suggest is that it may be productive to assess to what

degree subjects envision themselves with respect to future health states. The results of this study would imply that this would be valuable information in that subjects who score low on future self-concept with respect to health might be helped to more fully apprehend the consequences of their present actions and so to engage in preventative health behaviors by having them consider both the positive and the negative outcomes of their present health related activities (or lack thereof). This intervention would not be recommended for subjects who had more developed future self-concepts with respect to health on the basis of this study. In fact, this would seem to be contraindicated for subjects with high future self-concepts with respect to health. Thus, this study suggest that the degree to which a subject thinks about their health in the future might dictate the type of intervention used (including no intervention) to facilitate engagement in preventative health activities.

An exploration into whether subjects who have excellent health do, in fact, have both positive and negative future self-concepts with respect to their health is also necessary. This data would assist in clarifying some of the questions raised in this study as to whether it may have been the close temporal proximity of the positive and negative imagery conditions which accounted for the results of the imagery manipulations. In a similar fashion, some experimentation needs to be done as to what kind of temporal relationship for the activation of possible selves with differing valences, if any, would contribute to the optimal facilitation of engaging in preventative health behaviors.

Another line of research was suggested by this study relating to whether an

increase in the number or length of the imagery manipulations might produce an increase in the amount of preventative health behaviors. The only dependent variable which was significantly affected by the imagery manipulations was the taking of condoms by subjects. This behavior is considered to be relatively easy as compared to the level of commitment which subjects would have to demonstrate for the preventative health programs. Thus, it would be interesting to explore whether more extensive exposure to the imagery conditions would produce substantial enough changes in the health related schemata of the subjects to motivate them towards engaging in the more demanding kinds of programs.

In summary, this project found some interesting interaction effects of future self-concept and activating cognitive schema (e.g., the imagery conditions) with respect to facilitating preventive health behaviors. Although most of the hypothesized main effects were not empirically supported, this study points to several key areas that require further investigation. This is clearly an area where further research is needed to clarify the many interesting questions which this study has raised.

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APPENDIX A

HEALTH QUESTIONNAIRE

1. Please rate your current level of health.

Extremely Poor				Average						Excellent
0	1	2	3	4	5	6	7	8	9	10

2. To what extent are you presently concerned about your health?

Not at All				Average						Very Concerned
0	1	2	3	4	5	6	7	8	9	10

3. To what degree do you think about your health in the future?

Not at All				Average						All the Time
0	1	2	3	4	5	6	7	8	9	10

4. To what degree have you thought about your health in the past?

Not at All				Average						All the Time
0	1	2	3	4	5	6	7	8	9	10

5. How important are your health goals to you?

Not Important				Average						Extremely Important
0	1	2	3	4	5	6	7	8	9	10

6. How have you physically felt in the past few weeks?

Terrible				Average						Excellent
0	1	2	3	4	5	6	7	8	9	10

7. To what extent are you actually engaged in any activities or habits which promote your health?

Not at All				Average						Very Engaged
0	1	2	3	4	5	6	7	8	9	10

8. To what extent are you engaged in any activities or habits which promote ill-health (e.g., smoking, drinking alcohol, using other drugs, over eating, etc.)?

Not at All — Average — Very Engaged

0 1 2 3 4 5 6 7 8 9 10

9. To what extent does your current exercise regime match your goals with respect to your health?

Not at All — Average — Very Matched

0 1 2 3 4 5 6 7 8 9 10

10. On average, how many days per week do you exercise?

0 1 2 3 4 5 6 7

11. To what extent are you "healthy" with respect to your diet?

Not at All — Average — Very Healthy

0 1 2 3 4 5 6 7 8 9 10

12. Do you practice anything else which promotes your health? Yes / No

Please describe:

13. To what extent, if any, do you have any goals regarding your health?

No Goals — Average — Lots of Goals

0 1 2 3 4 5 6 7 8 9 10

If you do have goals with respect to your health, please briefly describe them:

14. Please rate how important it is for you to feel good physically and emotionally in the future.

Not Important — Average — Very Important

0 1 2 3 4 5 6 7 8 9 10

15. Please rate the degree to which you actually think about or imagine yourself physically feeling in the future.

None — Average — All the Time

0 1 2 3 4 5 6 7 8 9 10

16. Have you been sexually active in the past? Yes / No

If yes, what percentage of the time did you practice safe sex?

Never — Sometimes — Always

0 1 2 3 4 5 6 7 8 9 10

17. Are you currently sexually active? Yes / No

If yes, what percentage of the time do you practice safe sex?

Never — Sometimes — Always

0 1 2 3 4 5 6 7 8 9 10

18. To what extent do you actually envision or think about yourself as either healthy or unhealthy in the future?

Never — Average — All the time

0 1 2 3 4 5 6 7 8 9 10

19. Please rate how normal your health has been to date.

Abnormal — Normal — Exceptional

0 1 2 3 4 5 6 7 8 9 10

20. Please rate the amount of ill-health that you have experienced in your life.

No Ill-Health — Significant Amounts

0 1 2 3 4 5 6 7 8 9 10

21. Please rate the level of health you realistically expect to have:

<u>Six months from now:</u>

Very Unhealthy — Very Healthy

0 1 2 3 4 5 6 7 8 9 10

One year from now:

Very Unhealthy Very Healthy
0 1 2 3 4 5 6 7 8 9 10

Two years from now:

Very Unhealthy Very Healthy
0 1 2 3 4 5 6 7 8 9 10

Five years from now:

Very Unhealthy Very Healthy
0 1 2 3 4 5 6 7 8 9 10

Twenty years from now:

Very Unhealthy Very Healthy
0 1 2 3 4 5 6 7 8 9 10

22. Have you ever had a serious illness or physical injury? Yes / No

If yes, please describe:

23. Please rate to what extent you actually imagine or think about how you will physically feel in the future?

Never All the Time
0 1 2 3 4 5 6 7 8 9 10

24. To what extent are you presently aware of or concerned about your physical well-being?

Not at All Very Concerned
0 1 2 3 4 5 6 7 8 9 10

25. To what extent is your health an important issue for you?

Not at All Very Important
0 1 2 3 4 5 6 7 8 9 10

26. To what extent do you actually worry about your health in the present?

Not at All — All the Time

0 1 2 3 4 5 6 7 8 9 10

To what extent do you actually worry about your health in the past?

Not at All — All the Time

0 1 2 3 4 5 6 7 8 9 10

To what extent do you actually worry about your health in the future?

Not at All — All the Time

0 1 2 3 4 5 6 7 8 9 10

27. To what degree do you actually find yourself imagining or thinking about yourself in the future?

Not at All — All the Time

0 1 2 3 4 5 6 7 8 9 10

28. To what extent do you actually imagine how you will emotionally feel in the future?

Never — Always

0 1 2 3 4 5 6 7 8 9 10

30. How often do you obtain regular dental checkups?

Never — Always

0 1 2 3 4 5 6 7 8 9 10

31. How often do you receive regular medical checkups?

Never — Always

0 1 2 3 4 5 6 7 8 9 10

32. How would you rate yourself at taking care of yourself?

Lousy — Excellent

0 1 2 3 4 5 6 7 8 9 10

33. To what extent are your present health-related activities actually practiced with the aim of feeling good in the present?

Not at All										Entirely
0	1	2	3	4	5	6	7	8	9	10

34. To what extent are your present health-related activities actually practiced with the aim of feeling good in the future?

Not at All										Entirely
0	1	2	3	4	5	6	7	8	9	10

APPENDIX B

STUDENT HEALTH SERVICES QUESTIONNAIRE

Introduction

Student Health Services and the Counseling Center are trying to improve the programs that they offer to the students at The University of Montana. Please take a few moments to fill out the following questionnaire. If you would like to sign up for any of the programs that we offer, please feel free to do so. Remember, there is no time like the present when it comes to acting on your health. Thank you for your time and considerations.

Exercise

Does your current exercise routine match your goals for your health? Have you ever promised yourself that you would finally start doing something for yourself just to find that it never quite seems to happen? Student Health Services offers an exercise program for students of all ages who are not naturally inclined to exercise on their own. The "Get Up and Go" program us designed to provide you with an individually tailored program which will meet all of your personal needs. Exercise counseling will be provided which will help you match your particular exercise goals with your interests, time constraints, and level of desired fitness. It has also been found that the peer support which is provided in this program is a vital ingredient for the ongoing continuation of an enjoyable exercise routine. If you have ever promised yourself that you would start some form of exercise and it just never quite happened, then the "Get Up and Go" program could offer just the support that you need to finally do something for your body.

How likely are you to participate in this program?

Very Unlikely Very Likely

0 1 2 3 4 5 6 7 8 9 10

Would you like more information about this program at this time? Yes / No

Would you like to reserve a space for yourself in the next "Get Up and Go" class? Yes / No

Nicotine Use

Nicotine in any form impairs the quality of your life and can cause shortness of breath, less energy, and greater susceptibility to colds. Smoking, chewing, or dipping can lead to cancer, cause gum disease, induce mouth sores, cost you a bundle, and ruin your looks. Have you ever wanted to quit or promised yourself that you would quit and just couldn't quite pull it off? Have you quit only to start your habit again? It may be that all you need to stop your nicotine habit forever is the structure and support of a well designed nicotine cessation program. Campus Wellness offers a six session program which is designed to allow you to successfully terminate your nicotine habits. The program is also designed to produce this result with minimum feelings of withdrawal. So do something really good for yourself and take advantage of this special program today. This program is based on the American Lung Association model.

If you use nicotine in any form, how likely are you to participate in a program such as "Knock-Out Nicotine?"

Very Unlikely Very Likely

0 1 2 3 4 5 6 7 8 9 10

Would you like more information about this program at this time? Yes / No

Would you like to guarantee your spot in the next program by signing up for it now? Yes / No

Heart Risks and Cholesterol Levels

Having a healthy heart is vital for good health. To make sure that you are in good health you should know what kind of shape your heart is in. This is easily done with a cholesterol level profile and a cardiac risk assessment. If you would like to know your cholesterol levels, have any history of heart disease in your family, smoke, or are overweight, then you may want to consider taking advantage of the "Healthy Heart Class." This class will determine your blood lipid profile (cholesterol levels), provide an individualized risk analysis for heart disease, and if warranted, will recommend any follow-up medical consultation.

How likely are you to participate in this program at some time?

Very Unlikely Very likely

0 1 2 3 4 5 6 7 8 9 10

Would you like any additional information about this class at this time?

Yes / No

Would you like to reserve your spot in the next available program?

Yes / No

Dietary and Body Image Concerns

Have you ever been concerned about your eating habits? Do you every worry about the quality of the food that you eat? Have you ever been concerned about your body weight? Would you like to learn how to prepare healthier foods? Would you like to lose any weight? Have you ever been concerned with your body image? Do you ever use food as a crutch or as a relief from stress? Have you ever "binged"?

If you thought the answer might be yes to any of the preceding questions, then please consider taking advantage of the many programs offered here at the University. Student Health Services and the Counseling Center offer classes in weight management, weight reduction, nutritional guidance, natural food preparation, and food preoccupation counseling.

If any of these issues are of concern to you, how likely would you be to take advantage of any of these programs?

Very Unlikely Very Likely

0 1 2 3 4 5 6 7 8 9 10

Would you like more information about any of these programs at this time?

Yes / No

Would you like to do something good for yourself and register for any of these classes at this time? Yes / No

Alcohol and Substance Use

Have you every thought that you may have an alcohol or drug problem? Have you ever used alcohol or drugs to help relieve stress, anxiety, or emotional problems? Have you ever not remembered what happened the night before when you have been partying? Have you ever been embarrassed by something which you had done as a result of alcohol or drug use? Have you ever just wanted to stop yourself form drinking or using drugs and found that you couldn't?

Have you ever considered getting some counseling to assist you in managing your alcohol use or other drug use?

Yes / No

How likely would you use counseling if it were provided to you free of charge and was confidential?

Very Unlikely Very Likely

0 1 2 3 4 5 6 7 8 9 10

Would you like more information about programs which the Counseling Center offers? Yes / No

Would you like to make an appointment to meet with a therapist at the Counseling Center to discuss any difficulties you may be having? Yes / No

Sex Related Information

Did you ever want to know more about STD's (sexually transmitted diseases) but were afraid to ask? Do you want to know more about AIDS or be confidentially tested for AIDS? Do you have any questions concerning birth control, birth control classes, pap smears, or breast examinations? Would you like to find out about fun and non-embarrassing ways of answering your questions concerning sex? Do you have any concerns about ever having been sexually abused? Do you know all that you need to know in order to have a healthy, happy, and safe sexual life?

How likely are you to participate in a sexual information seminar or to seek medical or therapeutic counseling with respect to sexual concerns (e.g., birth control counseling, AIDS counseling, or any other sexually related topic) in the next year?

Very Unlikely Very Likely

0 1 2 3 4 5 6 7 8 9 10

Would you like to receive any more information about the many programs about sex and related topics offered through Student Health Services?

Yes / No

Would you like to make an appointment for any medical or counseling services at this time? Yes / No

Please take as many of the free condoms as you would like. These condoms are provided by Student Health Services.

Dental Services

Have you been ignoring your teeth? When is the last time that you have had your teeth cleaned or received a dental check-up? Did you know that part of your student health services fee paid for most of the cost of your dental check-ups? Don't you want to take care of your teeth today?

How likely are you to use the dental services provided by the Health Services in the next year?

Very Unlikely Very Likely

0 1 2 3 4 5 6 7 8 9 10

Would you like more information about the cost of and extent of dental services provided by Health Services?

Yes / No

Would you like to make an appointment for a dental service at this time?

Yes / No

Counseling Services

Most human beings go through difficult or transitionary periods in their lives. Many students have trouble adjusting to the different demands of college life. Quite a few folks experience low self-esteem at different parts of their lives. Many people can use assistance in their interpersonal lives, their relationships, and coping with the demands of their lives. Some people just need to talk with somebody to help them cope with various concerns. The Counseling Center provides confidential and expert counseling for any personal difficulties which you may be facing.

How likely are you to use any counseling services within the next few years?

Very Unlikely Very Likely

0 1 2 3 4 5 6 7 8 9 10

Would you like to receive any more information about the services offered at the Counseling Center at this time?

Yes / No

Would you like to schedule an appointment to meet with a therapist at the Counseling Center at this time?

Yes / No

APPENDIX C

Relaxation Procedure

Prior to the guided imagery the subjects will receive progressive relaxation instructions. The instructions will be given by the researcher by playing the appropriate cassette tape. The numbers in parentheses indicate how many seconds the narrator will pause between suggestions. The relaxation portion of all of the manipulations will be as follows:

> "I am going to guide you through an imagery technique. We have found that imagery exercises are most effective if the person is relaxed. So before we actually do the imagery, we'll have you completely relax your body. It is not possible to fail at relaxing, so you can just follow the process and enjoy the procedure. First let's begin by taking several deep breaths to help you start to relax (researcher takes 3 audible deep breaths along with the subject in order to demonstrate to the subject that this is permissible, and is in fact desirable). Now gently close your eyes and start to relax your body. That's good, let's take a few more deep breaths to fully relax (researcher demonstrates 2 deep breaths). Good. (1) Now in order to assist in the relaxation process, notice the muscles in your forehead (5). Do you sense any tension in your forehead? (2) Before we relax this area, raise your eyebrows up as far as they'll go. Hold the tension in your forehead (2), hold it (2), hold it (2). Now release (3). Feel the full relaxation in your forehead. Breathe. Relax. Notice the relaxed feelings in your forehead. Now think about your right foot. Feel any of the sensations happening in your right foot. Now start to relax any tension which you feel in your right foot (5). Good. Now consciously release any tensions you find in your right ankle (5). Now release any tensions that you find in your right calf (10). Good. Now release any discomfort or tensions that you notice around or behind or near your right knee (5). Now release any and all tensions which you feel around your right thigh. That's it, just release any tightness or holding that you feel (10). You do not have to exert any effort to support your right leg, it is completely relaxed. If any part of your right leg needs any further relaxation you may do that now (10). Now you can completely relax your left leg. Start with your left foot and completely relax it (5). Now relax your left ankle, consciously let any tensions go (10). Relax your left calf (10). Relax all around the back of your left knee. Just notice any tensions or sensations and let them go (10). Now completely relax your left thigh. You can just let it drop into the weight of the chair, it will support itself and drop into the chair, releasing any tension or holdings (10). Now release any tensions in your buttocks. Allow your buttocks to rest into

the chair (10). Now feel your lower back and release any tensions that you may find there (10). Now release any and all tightness in your upper back, paying particular attention to your shoulder area. Let your upper back and shoulders rest, they can drop into the rest of the body (15). Release all tensions that you feel (5). Now go through your right arm and let it drop into your body and the chair, releasing any tensions that you notice there (10). Now notice the sensations that you can feel in your left arm. Notice any tensions and start to release them (10). Relax (5). Now mentally go through your neck area, starting with the base of your neck and working up to the very top of your neck where it connects with your head and consciously release any pressure or rightness or tension which you may find in your neck (5). Relax (5). Relax (5). Now notice the very top of your head. Sometimes people carry tension on the top of their heads. Release any tension found here (10). Notice your forehead muscles. Release any pressure found here (5). Release any tension around your eyes (5), around your mouth (5), and around your jaw (10). Now take a few moments and survey your body and release any tension found anywhere. Take a few deep, relaxed breaths to assist your relaxation (researcher takes 2 just barely audible deep breaths to encourage the subject). Completely relaxed. Nothing to do right now but just to relax (10). Good."

Positive Imagery Procedure

The audiotape will play the following to the subject:

"Now we are going to begin a guided imagery exercise. You do not have to actually see the images in your head, simply imagine what it would be like to experience them. There is no right or wrong way to do the exercise, simply imagine the different scenarios to the best of your abilities. Ok, now begin to imagine yourself in the future in the best possible health (5). Imagine what you might look like with excellent health (10). Imagine how your body will feel to you if you have the perfect health that you desire (5). What are the sensations that you might have with optimal health (5)? What body sensations might you have if you had excellent health? Imagine that you are feeling these sensations now (10). See the clothes that you might wear and how you would look. Consider all of the activities that you could do if you had terrific health. Imagine yourself doing some of these activities (10). How does it make you feel emotionally being able to successfully do all of these things (10)? How does it feel to have the health and physical fitness which you want (10)? Let your imagination flow and think of all of the good things that will happen to you as a result of

your excellent health (10). Good. Ok, now start to let these images go (10). We are going to start to imagine another set of images (10). Now start to see yourself in the future. In the future how will your life be different if you were to change any bad habits that you may have (10)? How might you physically feel if you made these changes (5)? How would you feel emotionally (5)? Envision yourself with all of the benefits of having excellent health (10). Imagine all of the possibilities available to you with superb health (5). Pretend that you have achieved your optimum health, how will you feel about yourself (5)? How will important people in your life feel about you (5)? Let whatever emotions and feelings that you would associate with optimum health presence themselves for you (15). Allow yourself to experience these feelings. Allow yourself to enjoy all of the good thoughts and feelings you can have about yourself with excellent health (10). Relax and let your imagination wander through all of the benefits that you will have with good health (15). Take a few more moments to really enjoy all of the good thoughts and feelings that you would have with perfect health (15). Ok, when you are ready you can start to come back to the present. You may want to slowly wiggle some parts of your body to help in waking up. As you are ready, you can open your eyes and look around you. The experimenter will be with you in a moment."

Negative Imagery Procedure

"Now we are going to begin a guided imagery exercise. You do not have to actually see the images in your head, simply imagine what it would be like to experience them. There is no right or wrong way to do the exercises, simply imagine the different scenarios to the best of your abilities. Ok, now begin to imagine yourself in the future (10). What might you look like? Now start to imagine yourself in the future and some bad things have happened to your health (10). Think of a few possible things that could go wrong with your body and picture yourself with these physical problems (10). Just for a little while, really imagine yourself with some health problems. What might they be for you? How would you feel physically with these problems (15)? What would you think about yourself with these problems (10)? What will other people think about you when they find out that you have these physical illnesses (10)? Think about how you will feel emotionally with these problems (10). Will these problems make you feel any particular way (10)? What are some of the consequences of having these physical problems (10)? Is there anything which you cannot do because of your illness (5)? Imagine how you will feel when you can't do what you want to do because of your problems (10). See and feel

the other ways that your problems will cost you (10). Think about some of the things that you have always liked to do and now can't because of this illness or injury. How does this make you feel that you no longer can do these things (10)? Imagine yourself feeling the sensations that your body would have if you had this problem (10). Think of some of the bad habits you have and consider what will happen if this problem just gets progressively worse and worse. Envision yourself in the future with the problems stemming from this bad habit. See yourself in the worst scenario possible as a result of this bad habit (10). Allow yourself to experience all of the feelings you might associate with terrible health (15). Allow yourself to imagine feeling all of the emotional pain associated with your bad health (15). Consider all of the consequences of having terrible health in the future (10). What happens to your family as a result of your bad health (10)? What happens to your career as a result of your bad health? Think about other areas of your life where your bad health costs you something (10). Imagine yourself actually having to go through this experience and all of its consequences (10). Let your imagination wander through all of these terrible things (10). Take a few more moments and feel and imagine yourself in this possible situation (15). Ok, when you are ready you can start to come back to the present. You may want to wiggle some part of your body to help you in waking up. As you are ready you can open your eyes and look around you. The experimenter will be with you in a moment."

Balanced Imagery Procedure

This manipulation will consist of positive imagery and negative imagery. In one half of the subjects who receive the balanced imagery manipulation the positive imagery will precede the negative imagery. In the second half of the subjects the negative imagery will precede the positive. In outlining this procedure I will state the positive imagery first and then the negative imagery. In the reversed condition the imagery content is exactly the same as the first condition, with simply the order of the valence of the imagery reversed.

The audiotape will play to the subject:

Positive Balanced Imagery

"Now we are going to begin a guided imagery exercise. You do not have to actually see the images in your head, simply imagine what it would be like to experience them. There is no right or wrong way to do the exercise, simply imagine the different scenarios to the best of

your abilities. Ok, now begin to imagine yourself in the future in the best possible health (5). Imagine what you might look like (10). Imagine how your body will feel to you if you have the health that you desire (10). Consider some of the activities that you might do if you had perfect health (10). How do you emotionally feel being able to do all of these things? Do you feel good about yourself (10)? Let your imagination flow and think of all of the good things that will happen as a result of your good health (10). Imagine all of the opportunities available to you with perfect health (10). How do other people think of you now that you have excellent health (15)? How do you feel about yourself now that you have accomplished your health goals (10)? Let whatever emotions and feelings that you would associate with optimum health presence themselves for you (15). Allow yourself to experience these feelings. Allow yourself to enjoy all of the good thoughts and feelings you have about yourself with excellent health (15). Relax and take a few more moments to really enjoy all of your good thoughts and feelings that you have because you have achieved vibrant health (30). Ok, now start to let these images go (10). We are going to start to imagine another set of images (15)."

Negative Balanced Imagery

"Now we are going to begin another guided imagery exercise. Again, you do not have to physically see the images in your mind, you can just imagine what it would be like to experience them. Start to imagine yourself in the future, what might you look like (5)? Now start to imagine yourself in the future and pretend that some terrible events have happened to your health (10). Think of a few likely things that could go wrong with your body and picture yourself with these problems having happened (15). Just for a little while, really imagine yourself with some bad health problems, what would this really be like for you (15)? How would you physically feel (15)? How would you emotionally feel (15)? Imagine some of the consequences that having these physical problems will cause you (10). Think of some of the habits you hay have which you would like to change and consider their worst outcome (15). Envision yourself in the future with the problems which will stem from your bad habits (10). How might you feel if these problems just get worse and worse (10)? Allow yourself to experience all of the feelings that you associate with bad health (15). Imagine yourself having to go through all of the experiences of having really terrible health, let your imagination wander and feel all of the bad things about having rotten health (20). Take a few more moments and feel and imagine yourself in these bad situations (20). Ok, when you are ready you can start to come back to the present. You may want to

wiggle some part of your body to help in waking you up. As you are ready you can open your eyes and look around you. The experimenter will be with you in a moment."

Neutral Imagery Procedure

"Now we are going to begin a guided imagery exercise. You do not have to actually see the images in your head, simply imagine what it would be like to experience them. There is no right or wrong way to do the exercises, simply imagine the different scenarios to the best of your abilities. Ok, now start to imagine yourself taking a walk in the wood today. You may be by yourself or you may be with friends. It's today but you've got this time to go on a small walk. You don't have anything that you have to do, you can just enjoy the scenery. Start to experience what it would be like to be walking in the woods right now (15). You can go as fast or as slowly as you'd like (10). Maybe you're walking along and you find a small stream. You have plenty of time to explore the stream now, take some time to look around (20). You can explore wherever and whatever you wish (10). It's just a pleasant day in the woods (10). Let your imagination just wander and experience this little walk (15). Good. Ok, now start to let these images go (10). We are going to imagine another set of images (10). Now start to imagine yourself on another walk in the woods. What kinds of things do you find along your walk (10)? Just notice your experience without trying to judge it or assess it in any way (10). Notice the plants or trees that you can see (15). Notice any other things in your surroundings (15). Follow your imagination in your walk (15). Perhaps you find a valley or a hillside or whatever you'd like. Take some time to explore this area (15). Ok, now it's time to start heading back to the beginning of your journey (10). Start to become ready to leave your walk in the woods (10). Now when you are ready you can start to come back to this room. You may want to wiggle some part of your body to help you in reorienting. As you are ready you can open your eyes and look around you. The experimenter will be with you in a moment."

Pep Up Tape

This short relaxation and pleasant imagery experience was designed to insure that all subjects left in as good or better mood than when they entered the experiment. The instructions are as follows:

"This imagery exercise is designed to have you feel at least as good or better than you felt before you started this experiment. Ok, now start to relax your body again, take a deep breath and relax (5). Good, now start to imagine yourself in an enjoyable situation (10). Let your imagination wander, and enjoy yourself in whatever you find yourself thinking about (10). Now, pick something else which you really like to do and picture yourself doing this (5). Let your imagination go and envision yourself fully in this pleasurable activity (5). Now, think of another activity that you've particularly wanted to do for awhile and see yourself engaged in this activity (10). That's it, let your mind wander to explore these fun activities. Alright, now select one final thing that you would like to do (5). Start to think of what it would be like to reexperience this now (10). Allow yourself to fully feel how this was or could be for you (10). Good, now when you are ready, start to come back to the present. You may want to wiggle some part of your body to assist you in re-orienting. Stretch your body and open your eyes gently when you are ready. The experimenter will be with you in a moment."

APPENDIX D

Directions: On this sheet you will find words which describe different kinds of moods and feelings. Mark an X in the boxes beside the words which describe how you feel RIGHT NOW. Some of the words may sound alike, but we want you to check all the words that describe your feelings. Work quickly.

1. ___active
2. ___adventurous
3. ___affectionate
4. ___afraid
5. ___agitated
6. ___agreeable
7. ___aggressive
8. ___alive
9. ___alone
10. ___amiable
11. ___amused
12. ___angry
13. ___annoyed
14. ___awful
15. ___bashful
16. ___bitter
17. ___blue
18. ___bored
19. ___calm
20. ___cautious
21. ___cheerful
22. ___clean
23. ___complaining
24. ___contented
25. ___contrary
26. ___cool
27. ___cooperative
28. ___critical
29. ___cross
30. ___cruel
31. ___daring
32. ___desperate
33. ___destroyed
34. ___devoted
35. ___disagreeable
49. ___friendly
50. ___frightened
51. ___furious
52. ___gentle
53. ___glad
54. ___gloomy
55. ___good
56. ___good-natured
57. ___grim
58. ___happy
59. ___healthy
60. ___hopeless
61. ___hostile
62. ___impatient
63. ___incensed
64. ___indignant
65. ___inspired
66. ___interested
67. ___irritated
68. ___jealous
69. ___joyful
70. ___kindly
71. ___lively
72. ___lonely
73. ___lost
74. ___loving
75. ___low
76. ___lucky
77. ___mad
78. ___mean
79. ___meek
80. ___merry
81. ___mild
82. ___miserable
83. ___nervous
97. ___rough
98. ___sad
99. ___safe
100. ___satisfied
101. ___secure
102. ___shaky
103. ___shy
104. ___soothed
105. ___steady
106. ___stubborn
107. ___stormy
108. ___strong
109. ___suffering
110. ___sullen
111. ___sunk
112. ___sympathetic
113. ___tame
114. ___tender
115. ___tense
116. ___terrible
117. ___thoughtful
118. ___timid
119. ___tormented
120. ___understanding
121. ___unhappy
122. ___unsociable
123. ___upset
124. ___vexed
125. ___warm
126. ___whole
127. ___wild
128. ___willful
129. ___wilted
130. ___worrying
131. ___young

36. ___discontented
37. ___discouraged
38. ___disgusted
39. ___displeased
40. ___energetic
41. ___enraged
42. ___enthusiastic
43. ___fearful
44. ___fine
45. ___fit
46. ___forlorn
47. ___frank
48. ___free
84. ___obliging
85. ___offended
86. ___outraged
87. ___panicky
88. ___patient
89. ___peaceful
90. ___pleased
91. ___pleasant
92. ___polite
93. ___powerful
94. ___quiet
95. ___reckless
96. ___rejected