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THE RELATIONSHIP OF PERSONALITY CONSTRUCTS
TO THE EFFECTS OF VIE THEORY JUDGMENTS
ON DELAY OF GRATIFICATION BEHAVIOR

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DEDICATION

To St. Jude Thaddeus, patron saint of hopeless causes,
and to the Holy Spirit,
without whose intercession I could not have
completed this task.

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ABSTRACT

THE RELATIONSHIP OF PERSONALITY CONSTRUCTS TO THE EFFECT OF VIE THEORY JUDGMENTS ON DELAY OF GRATIFICATION BEHAVIOR

John C. Urbanski

Certain behaviors are more appropriate in organizational contexts than others. Individuals' dispositions, consisting of various personality traits, influence their behavior in organizational contexts. Identification and selection of individuals possessing traits influencing behavior critical to performance would increase person-job fit, and result in increased organizational efficiency.

This study investigated the effects of several personality traits on delay of gratification behavior. Organizational members who are willing to "stay the course" or engage in behavior with a contingent long term reward, but little or no immediate payoff, would fit certain positions, and subsequently perform better than those unwilling to defer reward.

Based on a review of both personality and motivation literature, a model of the influences of these traits on delay behavior was specified. This model proposed that these traits contributed to delay behavior through the

respective trait's influence on deferment of reward as mediated by the three major components of VIE, or Expectancy Theory. The relationships specified in the model were tested in a laboratory experiment offering the subjects the choice of immediate versus deferred reward.

Results did not support the majority of the hypothesized relationships. Only a very small number of the direct relationships between personality traits and delay behavior were statistically significant, therefore, the specified mediating relationships were not supported. However, a majority of the specified relationships between the personality traits and respective VIE components were supported, as were most of the relationships posited to exist between VIE components and deferment of reward.

Anecdotal information obtained during the empirical test of these relationships indicated a significant flaw in operationalization of the dependent variable may have been a contributing factor to the lack of success in finding support for the study's hypotheses. Limited implications of the study for research and practice are presented, and future research directions are presented.

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CHAPTER I
INTRODUCTION

Purpose of the study

The purpose of this study is to test the impact of a global trait termed delay of gratification (DG) and its components on individuals' perceptions and beliefs, specifically, the three components of VIE theory (Porter & Lawler, 1968; Vroom, 1964), and to then ascertain the influences of these VIE components on subjects' delay of gratification behavior (Figure 1).

The current study proposes that delay of gratification behavior is influenced both directly and indirectly by a global trait of DG, which is comprised of a number of various personality constructs acting in this instance as components of the DG trait. Specifically, these components consist of locus of control (LOC) (Rotter, 1966; Levenson, 1973), future time perspective (FTP) (Kastenbaum, 1961, 1964), ego control (EC) and ego resiliency (ER) (Block & Block, 1980). Furthermore, the study proposes that these various components have an effect on components of expectancy (VIE) theory (Porter & Lawler, 1968; Vroom, 1964), which in turn are thought to mediate the effect of

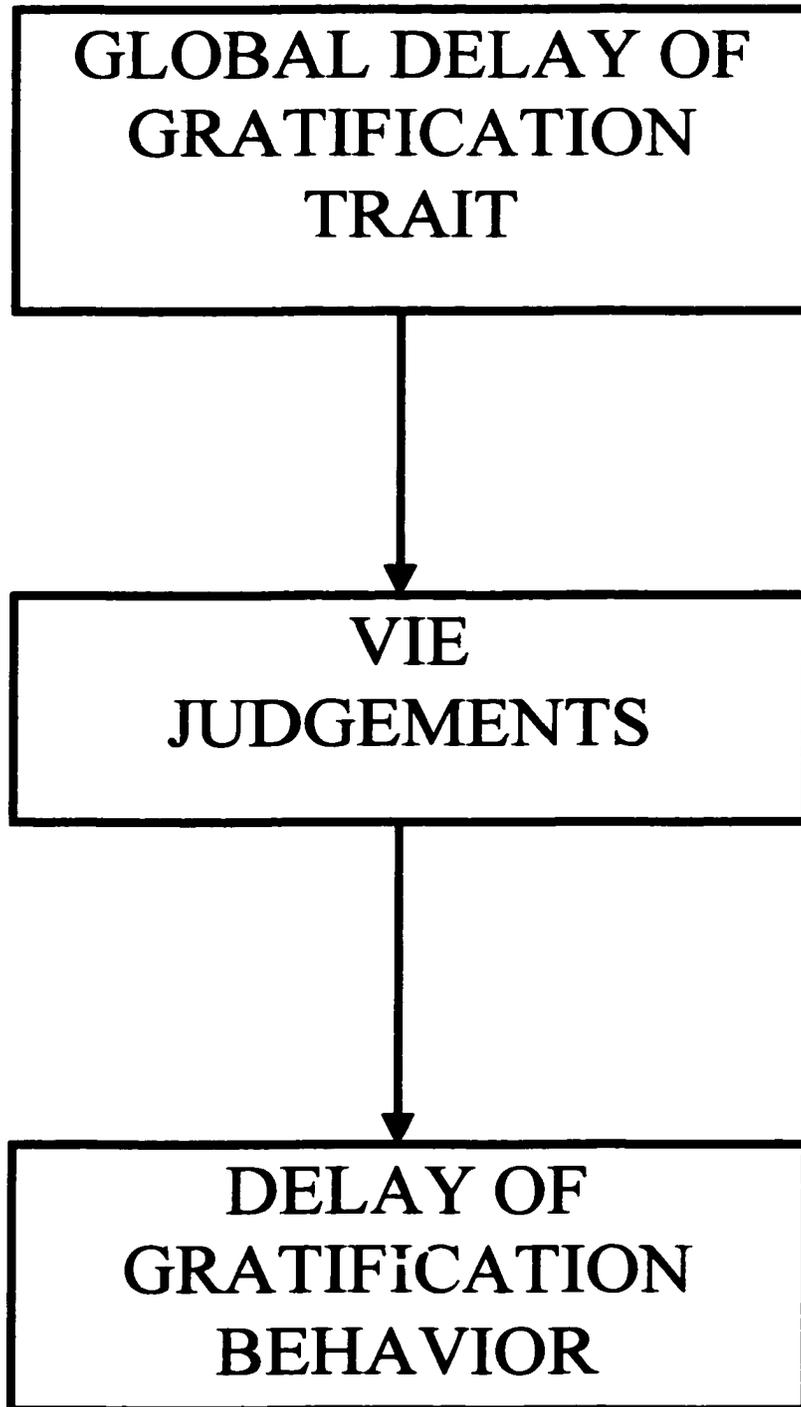


Figure 1.

the above-mentioned constructs on delay of gratification behavior. The current study is not all-inclusive, given that there are other influences on delay of gratification behavior independent of the four factors listed above. These additional influences, however, are beyond the scope of the present study.

Personality researchers have used various methods to measure specific traits, or behaviors related to the trait of interest. Methods used to assess the DG trait and its related behaviors, however, do not lend themselves for use by organizations to measure these traits in adults. Therefore, a secondary objective of this study will be the creation of a Likert-type self-report measure of the DG trait and its components for use with adult subjects. DG research has been almost exclusively conducted with prepubescent and pre-school children as subjects. The methodology used to ascertain the strength of the DG trait in these studies has primarily been through observation of delay behavior which has simply been the subject's choice of "one marshmallow now, or two marshmallows one hour from now". Two problems potentially arise when attempting to use this technique with adult workers. First, administration of this type of test to potential employees would involve a large number of human resource management personnel and related expenditures for organizations, and would at best, be time-consuming to administer. Secondly, transferring

this type test to adults is not readily accomplished due to the complex nature of adult rewards, specifically, the value, or valence, placed on the reward. How does one duplicate "one marshmallow now..." with adults without the potential rewards representing some significant cost to the researcher? Additionally, due to the subjective nature of valence scores of any outcome, it would be extremely difficult to ascertain in advance what, specifically, a potential employee finds rewarding, a problem encountered when attempting to test a complete model of VIE theory (Mitchell, 1974). In summation, the observation of delay behavior method used to assess the DG trait by Funder and associates (Funder & Block, 1989; Funder, et. al, 1983), as well as Mischel and others (Mischel, Ebbesen & Zeiss, 1974; Mischel, Zeiss, & Zeiss, 1974), share similar difficulties for use with adult populations in an organizational setting.

A review of the behavioral literature uncovered several measures purporting to assess DG (Ray & Najman, 1986; Rosenbaum, 1980). Review of the DG literature, however, indicates that DG behaviors represented by these measures may be limited in scope, focusing on narrow categories of delay behavior. A small number of empirical studies have demonstrated a correlation between scores on these measures and various types of organizational behaviors (Joy & Witt, 1992; Witt, 1990, 1991, 1993); however, little or no empirical evidence exists to support the contention

that these measures actually assess delay behavior. A brief summary of these measures appears in chapter 2.

The role of delay of gratification

It is often necessary for individuals to wait an extended period of time for goals to be attained, rewards to be distributed, or other outcomes to be realized. One must endure the passage of time, of varying lengths, before some desired end-state (ES) occurs. As does the makeup of any given ES, the length of time one must wait varies by each instance.

Each ES consists of two general factors which may partially control future behavior or action on the part of the individual. First, an ES may bring reward and/or punishment to the individual, those outcomes differing in terms of strength, sign and specific manifestation. Additionally the amount of time which elapses between the individual's engaging in the behavior leading to an ES, and the realization of the ES, may differ in length, varying from seconds to eternity.

The manner in which behavior is influenced by the nature of the reward has been researched extensively. Studies demonstrate that behavior is partially controlled by what behavioral scientists term the ES's valence (Porter & Lawler, 1968, Vroom, 1964), the anticipated value, either positive (desirable) or negative (undesirable) the recipient

places on each ES, or any outcome associated with the ES. All else equal, the larger the valence of the ES, the more inclined the individual may be to engage in (positive valence) or avoid (negative valence) a particular course of behavior.

An ES often has a value that can be stated in an objective fashion. For example, some job or career categories provide larger monetary remuneration on average than do others. Each ES may have a subjective, or perceived value, as well (Lawler & Porter, 1968; Vroom, 1964). The value system of any individual may influence an individual to approach or avoid any objectively measurable ES to a greater or lesser degree than an individual with a different value system. Life experiences implant these value systems in individuals, demonstrating what should be considered to be either "good" or "bad". This experience provides the basis for subjective judgments to be made (McGuire, 1985; Olson & Zanna, 1993). The individual will be partially influenced to seek out or avoid any ES based on a societally determined subjective judgment, the value the individual holds toward it, or a combination of both influences.

Behavior influenced by time duration has not received as extensive an evaluation as the influences of reward on behavior. Although ES's are often reached after a brief time period following the initiation of behavior by the individual, it may be necessary for the individual to wait

for some time before the ES and its related reward may be reached. Just as the subjective valence of the reward may vary by individual, so may the willingness of a person to persevere in whatever action may be required to attain the reward. An individual may be capable of performing the intricate programming required to operate a nuclear power plant, yet he or she may not be willing to sustain such behavior as long as required in order to obtain the reward or outcome connected with the ES, the continued programming of the equipment over a significantly longitudinal time period.

As individuals have differing subjective valences for any reward, and differing levels of technical competency, it is probable that individuals also differ in their willingness to endure the passage of time until the reward or ES is realized (Funder, et al., 1983; Funder & Block, 1989; Mischel, 1974, 1984). Due to their nature, many ES's require different "waiting times" until they are reached. A reward connected to an ES may have the same valence for any two individuals with no significant differences in the technical competencies required to achieve the ES. The willingness of each, however, to wait to reach this ES and receive any reward related to it may influence whether each can maintain the necessary behavior long enough, without attenuating or abandoning it, until the ES or goal is reached.

The necessity for waiting may be "taught" to members of any culture or society (Bandura & Mischel, 1965). Evidence of the importance of understanding this requirement by members of a culture is demonstrated in behavioral research (Mischel, 1974, 1990). Trace evidence (Webb, Campbell, Schwartz, & Sechrest, 1966) of the desirability of this trait is exhibited in various social institutions. The Judeo-Christian religious tradition (among others) requires the "believer" wait a lifetime to attain his or her "final reward". Sanctions exist for either cessation of "good" behavior or purposely attenuating the waiting period. Secular wisdom also addresses the need to wait, evident in homilies such as "Good things come to those who wait". In summation, a variety of support for the need to wait is evident in certain cultures.

As mentioned, VIE theory states that the motivation to engage in any behavior is partially determined by the value of the reward attached to the completion of the behavior. Even though the individual may truly perceive outcomes connected to significantly longitudinal behavior to have large positive valences (\$1,000,000 is \$1,000,000, tomorrow or next year), the person's inability to delay gratification, or wait for the promised reward, may influence the individual's attempts at the sustained type of behavior necessary to achieve the outcome. The individual will abandon efforts toward this outcome and will opt for a

course of behavior leading to a reward with a smaller valence, but one more readily available or powerfully attractive despite a smaller objective value, as predicted by DG literature. The valence of the initially-promised reward in the future remains objectively and oftentimes subjectively larger than that of the smaller, second, immediately available reward, and is still more desired by the person, but he or she cannot "wait" the amount of time required to attain the larger reward.

The willingness to wait, as mentioned before, varies individually, and therefore is an element of one's self-regulation mechanism (Bandura, 1991, Campion & Lord, 1982, Mischel, 1990), part of one's control of his or her own behavior in order to reach any goal. Similarly, the expectancy component of VIE theory states that motivation to engage in any behavior is somewhat determined by the individual's assessment as to whether he or she has the wherewithal required to successfully undertake and complete the behavior required. The individual makes a subjective judgment to determine if he or she has the required willingness to wait, or to delay gratification, behavior which would ultimately lead to the reward connected to the ES.

Delay of gratification (DG) addresses an individual's willingness to wait. Those influenced by the DG trait will forgo the chance for an immediate, smaller reward for a

larger reward some time in the future (Funder, et al., 1983; Funder & Block, 1989; Mischel, 1968, 1990; Mischel, Shoda, & Rodriguez, 1989). Any individual whose behavior is not significantly influenced by this trait may be prone to failure in situations where the willingness to wait for outcomes (and related rewards) is a significant component of behavior required for success. The individual may choose to completely withdraw from participation, or initially opt not to engage in the behavior at all.

As mentioned, the willingness to wait is not instinctive, but rather learned (Bandura & Mischel, 1965), and may vary cross-culturally (Rotenberg & Mayer, 1990; Ward, Perry, Woltz & Doolin, 1989). Those who learn the value attached to waiting as children may are then influenced later in life by this trait (Rodriguez, Mischel & Shoda, 1989). Work-related activities often require that one be willing to wait to attain goals and their related rewards, implying that the individual must defer the gratification that may be experienced upon receipt of the outcome of the behavior.

VIE theory recognizes that receipt of valued outcomes is contingent on proper behavior (assuming that the "I" or instrumentality score is large and positive): successfully "behave" and rewards will follow. Many behaviors are not rewarded until long after they are completed or have been repeated numerous times. Internal rewards related to the

job, those administered by the self (Herzberg, 1959) are often not immediately experienced either. With both types of rewards, engaging in delayed gratification may be important with jobs that contain a waiting component. Those individuals having a greater propensity to delay gratification may be more successful at jobs which require that a significant period of time must elapse between the onset of behavior and delivery of the valued outcome.

In relation to the expectancy component of VIE theory, certain job classifications may have a distinct behavioral component that requires the incumbent to wait as part of the task characteristics. For example, it has been demonstrated that home country representatives of Asian organizations can wait significantly longer than their counterparts from western organizations in order to receive favorable terms when conducting business negotiations (Tung, 1984). Those more disposed to defer reward may also be more suited for occupations where rewards for behavior may not be realized in a relatively short time frame.

The problems mentioned above are not currently well-addressed in organizational literature. Although the effects of the varying propensities to delay reward or realization of outcomes connected with behavioral choice can and should be assessed, a measurement instrument required as an integral part of testing such a relationship with adults is unavailable at present.

Dispositional influences in the workplace

Organizational literature has demonstrated that certain occupations or job categories require specific behaviors on the part of jobholders. Technical skills, specialized training, or physical strengths, among other requirements, must be present for successful completion of the position's demands and responsibilities (Fleishman & Reilly, 1992; McCormick, 1976, 1979; U.S. Dept. of Labor, 1991). This idea is termed "person-job fit" (Caldwell & O'Reilly, 1990; Patsfall & Feimer, 1985; Osipow, 1990), the notion that some people have a better mix than others of the personality traits as well as the abilities required to meet demands of specific job roles. Person-job fit generally states that individuals are more productive and satisfied the closer their personality traits "fit" requirements of the workplace environment. Person-job fit also addresses the individual's capacity to work in the contexts in which these jobs exist, to address features and demands of the context which are not endemic to the job itself. Both job and context place certain demands on one's abilities as well as one's disposition.

Personality research (Epstein, 1984; Kendrick & Funder, 1988; Mischel, 1984, 1990) supports a trait X situation interaction relationship. Briefly, this relationship states that there are two general factors that influence individual

behavior. The first factor is that of contextual or external influences, those which stem from the surrounding environment and that are beyond the individual's control. The second factor is one's personality traits, an internal control mechanism guiding individual behavior. A combination of both of these factors, act at any given moment to affect behavior of the individual.

A strong context is a situation where demands of the surrounding environment are quite forceful, and therefore become the primary impetus for one's behavior, overcoming any inner drive stemming from traits, for the individual to behave differently. It acts as an indicator as to what behavior is acceptable in a given situation. A person is directed how to behave by environmental stimuli. Strong contexts are held to be more forceful than traits, unless the person holds the trait to its extreme.

In weaker contexts, individual behavior is guided by personality traits specifically relevant to the situation at hand. Weaker contexts do not exert as much force as strong contexts. The situation is ambiguous, no clear indicators of "correct" behavior are available. Here, personality assumes control of behavior (Mischel, 1984; Snyder & Ickes, 1985).

Weak or strong contextual constraints of this nature may often occur due to the characteristics inherent in one's job, or manifested by one's organization. Job

characteristics, such as machine-paced production, or environmental characteristics such as the physical presence of supervision, may act as strong demands. Here, employee behavior is evoked and controlled by external influences (Hackman & Oldham, 1980, Kerr & Jermier, 1978; Muczyk & Reimann, 1987; Yukl, 1994). Internally generated influences on behavior may not be necessary, or even effective, for guiding behavior. If the contextual influence is strong enough, personality influences may even be negated, including suppression of counter-productive behavior initiated by some opposing internal value or value-system (Locke, 1982; Rokeach, 1973).

The demands (or non-demands) of one's job and/or organizational contexts may, then, require various types and levels of behavior that are influenced by personality traits in order for one to successfully meet these demands. As outlined earlier, individuals do differ in both the specific personality traits they hold, as well as the degree of influence any particular trait may have on the individual's behavior. It may often appear that one type of behavior may be necessary to support or sustain another type of behavior. The label "computer hacker" invokes a prototype (Cantor & Mischel, 1979) of a person with a very specialized technical proficiency for computers, but with limited social skills. The "hacker" may be extremely competent when solving some programming error, or in development of

software, yet lack the necessary social skills to behave as an integral member of a larger organizational group. Having the mental acuity to be able to come to an in-depth understanding of the U.S. legal code may be completely different from a willingness to spend long hours in the law library acquiring this knowledge, yet both are required in order for one to become a skilled attorney. The person may completely understand the technical demands of the position, but lack personal attributes necessary to fully utilize these technical skills. In positions where the incumbent is required to be self-directed for a majority of the time, any absence of control over one's personal behavior may be detrimental for the individual as well as the organization.

Overview of the Present Study

This study is described in several chapters. Chapter I has provided a general introduction of the concept examined, statements as to the two main problems related to significant longitudinal behavior in the work environment, and a statement as to the major goal of the study. Chapter II contains a review of the literature related to the problem areas identified in Chapter I, specifically constructs related to the trait of delay of gratification. Chapter II also attempts to identify behavioral and personality factors which may combine to represent the DG construct in adults, in order that a self-assessment protocol for measuring this construct may be developed for

testing purposes. Chapter III includes hypotheses stating the relationships believed to exist between the components comprising the global DG trait and components of VIE theory, and their subsequent influence on delay behavior. Chapter IV presents the specific methodology used to test relationships of constructs ostensibly influencing delay behavior. Chapter V addresses results of empirical tests designed to assess the various influences of the constructs discussed in Chapters 1-3. Finally, Chapter VI provides a discussion of the study's findings, limitations, and provides suggestions for future research in this area.

CHAPTER II

LITERATURE REVIEW

In this chapter, literature addressing delay of gratification and the four factors or components believed to be part of the global DG trait is reviewed. The influences these components may have on one's beliefs and behavior are also addressed. A brief discussion of the dominant research paradigm in this area will be presented. This discussion will address the factors of behavioral flexibility [represented by the trait of ego resiliency (Block & Block, 1980)] and ego control (Block & Block, 1980). The contribution of other personality traits to motivation-related beliefs and DG behavior, specifically future time perspective (Heimberg, 1963, Kastenbaum, 1961, 1964; Kleinberg, 1968; Nuttin, 1964) and locus of control (Levenson, 1972, 1973; Rotter, 1966), will also be discussed, as will the operation of the three major components of VIE theory.

Before the discussion of delay of gratification continues, however, its choice as a dispositional variable to be used in organizational research rather than other, more well-known (to management researchers) dispositional

influences must be briefly addressed. Personality issues in the organizational literature in recent years have tended to focus on the influence of the "Big Five" personality factors (Digman, 1990; Noller, Law, & Comrey, 1987) on work-related behaviors (Barrick & Mount, 1991; Barrick, Mount, & Strauss, 1993; Gellatly, 1996). As conceptualized, however, these five factors are not traditional traits per se, but rather factors representing clusters of traits. Traits within any cluster are similar in some respects, but differ as well. As noted by Barrick and Mount (1993), the Big Five is actually a taxonomy of personality traits, a categorization not meant to replace the individual traits comprising each Big Five factor.

As an example of this categorization, Gellatly (1996) notes that the Big Five dimension of Conscientiousness consists of traits such as ambition, persistence, discipline, carefree, and impetuosity. Each of these traits has an influence on behavior which differs in some fashion from other traits in the cluster. In a similar vein, using delay of gratification in organizational research rather than using any of the factors of the Big Five recognizes delay of gratification's unique influence on behavior, and allows a more focused analysis of the effects of this specific trait on the beliefs and behaviors of interest, postponement of reward.

DG and related research provide support for the

presence of at least four factors which may contribute to a global DG trait, which in turn influences an individual's decision to defer reward. The first of these factors is Block's notion of ego control (Block & Haan, 1971; Block & Block, 1980, Funder, Block & Block, 1983; Funder & Block, 1989). As defined by Block (Block & Block, 1980), the construct of ego control, or EC, refers to a personality structure which influences the individual's level of control over impulsive behavior, especially those behaviors which may be socially proscribed. EC generally influences DG behavior by assisting the individual in resisting an impulse to engage in immediate reward.

Another influence on DG behavior included in the current study is that of behavior flexibility, the general propensity of the individual to adapt behavior in order to address contextual demands. Block (1980) terms this adaptation ego resiliency. Ego resiliency, or ER, is a cognitive structure which assists the individual in overriding the effects of ego control on behavior when it is situationally appropriate to do so. It assists the individual in adapting behavior to contextual demands in a socially appropriate manner.

A third factor contributing to the global DG trait is future time perspective (FTP, Kastenbaum, 1961, 1964; Leshan, 1952; Wallace, 1956), which concerns events in the future, or how present behavior may affect future outcomes.

FTP is defined as the general time orientation of the individual: the directional focus (past, present, future) of the person's thoughts. Future orientation denotes cognition which is concerned with events that may occur in the future, as well as how present behavior may affect these future outcomes. The length of time (days, weeks, months, years) into the future one projects thoughts, as well as the richness with which one pictures any future event, are indicators of one's FTP. Since delaying gratification invariably involves waiting some length of time into the future for receipt of a reward, those more focused on future consequences of their behavior may be more likely to defer reward.

The fourth factor believed to influence DG behavior is locus of control, or LOC (Rotter, 1966) which refers to the degree to which individuals believe they have control over events and outcomes in their lives. Those with an internal locus believe they exert significant control over their lives, those with an external locus believe events and agents in the surrounding environment have the greatest influence and control over their lives, and that they may be powerless to overcome such influences. Since those with an internal LOC believe their behavior controls contextual factors rather than vice versa, they should be more resistant to the temptation of the immediate reward, pitting internal regulation against the reward power or attraction

of the readily available outcome in order to negate the reward's influence on the individual's behavior.

It should be noted that while empirical assessment has demonstrated that each of the four factors independently explains some significant portion of variance in delay of gratification behavior, no single factor alone has been able to explain a majority of this variance. As is often the case, DG researchers have tended to pit their own explanations against those of others in terms of efficaciousness, rather than attempting to combine each theory into one explanation. In this dissertation, I examine the relationship of each of these constructs to motivational beliefs and delay of gratification behavior, utilizing self-report measures of each construct.

As noted in Chapter I, individuals are continually faced with choices to delay in organizational environments, choices which may have an impact on behavior directly related to the level at which the individual functions in his or her organizational role. Identification of those whose behavior is influenced by the DG trait may allow matching of such individuals to jobs or contexts which require waiting for some period of time before the outcome connected to the job behavior may be experienced.

To use the traditional method of assessment of preference for deferred reward, the creation, in a laboratory setting, of choices between deferred or immediate

reward as used by delay of gratification researchers (Funder, et al., 1983; Funder & Block, 1989; Mischel, Shoda, & Peake, 1988, Mischel, Zeiss, & Zeiss, 1974), would be, at best, time-consuming and expensive for organizations to administer. Use of self-report measures of traits posited to underlie the global DG trait would allow this trait to be readily assessed during the selection process.

Existing self-report measures of DG have been too narrow in scope (Horner, 1979; Ray & Najman, 1985; Rosenbaum, 1980) to provide accurate assessments of an individual's willingness to delay gratification. Each of these existing measures addresses only a very small portion of the spectrum of potential choices individuals may make when choosing between immediate or delayed rewards. For example, the Ray and Najman measure focuses almost exclusively on monetary issues. The survey items address variations of one theme, the choice between saving money or spending it very shortly after receiving it. As mentioned earlier, VIE theory recognizes that a myriad of different outcomes are often available to the individual. Therefore, measures concentrating on one specific type of outcome may not, in all likelihood, address other outcomes influencing individuals' behavior. More importantly, perhaps, none of these measures has undergone validity testing to support claims that the measures actually assess the trait of DG. No evidence can be found in the literature which links

scores on these measures to any type of delay behavior. To avoid such narrowness of scope, the self-report measure of DG constructed here utilizes elements of each of the four factors believed to influence DG behavior in order to maximize the proposed instrument's predictive and explanatory potential.

In addition to examining the relationship of the four constructs outlined above to delay behavior, the current study addresses the influence of these four constructs on the three major components of VIE theory (Vroom, 1964) or expectancy theory, as it is alternatively termed in organizational literature. An extensive review of VIE literature found no study attempting to link VIE theory to the DG trait or to DG behavior in any fashion, however, the operation of the four constructs and their influences on behavior seems to infer that components of VIE theory may be related to delay behavior in some manner. Although research addressing VIE theory and its influences on behavior has resulted in quite a number of explanations as to the operation of VIE theory, it is not within the scope of this study to provide a comprehensive review of VIE theory (Readers should refer to Landy and Becker (1990), Miller and Grush (1988), Minor (1980), or Mitchell (1974, 1982), for more detailed analyses of VIE theory. The following discussion of VIE theory in this chapter, unless otherwise noted, represents a synthesis of information from these

sources). This study primarily addresses the relationship of the four personality constructs addressed above to the three major components that comprise VIE theory (Van Eerde & Thierry, 1996). A general discussion of the operation of VIE theory and its influences on behavior immediately follows.

The Three Basic VIE Components

As a whole, VIE theory addresses a set of beliefs held by individuals. These beliefs are subjective in nature, and therefore vary among individuals. It is the contention of the current study that this individual variation in beliefs is determined in part by influences on individuals' perceptions originating in the four personality constructs of interest. Although a description of the operation of each of the VIE components is given shortly hereafter, the proposed effects of each of the personality constructs on these beliefs is provided in the discussion of each personality construct.

Valence

Valence (V) is generally defined as the level of an individual's anticipated satisfaction which would occur due to receipt of a particular outcome contingent on his or her behavior (Vroom, 1964) in essence, whether or not he or she has positive affect (likes or desires) for the outcome, or has negative affect (dislikes or does not desire) for the outcome. Additionally, valence refers to the level or

strength of this affect, ranging from none to powerful. The level of affect an individual can potentially have for any outcome therefore can vary from intense dislike to intense desire. The level and direction of the affect an individual has for any outcome is termed the valence of the outcome. Valence influences individual behavior through the attraction the outcome has for the individual. All else being equal, individuals will be more likely to engage in behavior leading to a strongly desired, or attractive outcome than an less attractive or less intensely desired outcome, or to an unattractive outcome, one that has negative affect for the individual (Van Eerde & Theiryry, 1996).

Instrumentality

Instrumentality (I), also termed effort-reward probability, refers to the likelihood, or probability perceived by the individual that a certain behavior will lead to a specific outcome. Essentially, the individual assesses the probability that if he or she behaves in a certain fashion, this behavior will result in, or will be instrumental for, receipt of a contingent outcome. Instrumentality strength ranges from zero, indicating there is absolutely no possibility of experiencing this outcome, to "1" (Mitchell, 1974), indicating that experiencing the outcome is an absolute certainty. All else being equal, the stronger the perceived probability of receipt of outcome,

the more influence this outcome will have on behavior. Porter and Lawler (1968) state that these probabilities are not static, and may change strength based on an individual's experiences with specific effort-reward situations.

Expectancy

Expectancy (E), also termed effort-performance expectancy (Minor, 1980, Mitchell, 1974), addresses the individual's perception or belief that if he or she exerts effort, he or she will be successful in engaging in some behavior required for receipt of a particular outcome. In essence, the individual is assessing the probability that "If I try, I will be successful at this behavior". Again, this probability estimate, or likelihood of success, ranges from zero, indicating that there is absolutely no expectation of successful behavior, to "1", indicating that there is absolute surety that effort will result in successful behavior. Lawler (1973) has specified the operation of a feedback loop which affects an individual's expectancy beliefs. Should an individual be successful in his or her attempt at performance, the expectancy strength concerning a successive attempt will be increased by the prior success. Failure would decrease this expectancy strength. This particular feature becomes important in light of the proposed relationship between personality constructs and behavior discussed later in this chapter.

Overall, VIE theory predicts a multiplicative

relationship among the three components (Although this aspect of VIE theory has been subject to criticism (Locke, 1975), again, it is not the purpose of this study to provide an exhaustive discussion of VIE theory). Briefly, the impetus to engage in any behavior is equal to the score of $V \times I \times E$. The higher a positive score (as an outcome's valence can be either positive or negative), the more inclined the individual will be to engage in the behavior. The higher the negative score, the more likely the individual to avoid this behavior and related outcomes.

Of prime importance to the current study is the notion that the strength of all VIE components are based on individuals' beliefs and values, which makes them subjective in nature, and therefore differing in strength between individuals. Miller and Grush (1988, p. 108), note that Fishbein and Ajzen (1975; Ajzen & Fishbein, 1980) address the influence of individual attitudes on VIE perceptions; attitudes generally agreed to be composed of individuals' beliefs about an attitudinal object (McGuire, 1985). Miller and Grush also note the indirect influence personality traits (Zanna, Olsen & Fazio, 1980) have on behavior through the trait's effect on an individual's attitude. Here, traits may affect the belief component of one's attitude, subsequently influencing VIE perceptions and related behavior.

One's values concerning an object may also differ

significantly from that of another individual. For example, as mentioned in Chapter I, the sum of one million dollars has an objective value, however, it has a subjective value as well. A contrast of the perspective of Mother Teresa, one who had foresworn all material wealth, to the perspective of Donald Trump, the self-proclaimed "King of Cash", to this amount will suffice as an explanation. Expectancy theorists (Mitchell, 1974; Van Eerde & Theirry, 1996) note the strength of both the E and I components concerning a specific behavior or outcome can vary among individuals, and can also fluctuate within individuals. It is a premise of the current study that the four personality variables examined act on an individual's perceptions in a way which plays a role in influencing the strength and direction of his or her VIE components, which in turn, may influence one's decision to delay gratification.

The three components of expectancy theory essentially then address the motivation of an individual to engage in any course of behavior, in this instance, delay of gratification, or behavior which due to its nature, requires one to defer reward. All else being equal, the greater the level of expectancy of the individual in being successful in delaying, the greater the instrumentality perceptions of the individual that the delayed reward will be personally forthcoming, and the more strongly positive the valence of the outcomes to the individual, the more likely it is that

the individual will decide to engage in delay behavior.

Theoretical Development and Empirical Testing of the
DG Trait

Ego Control

Jack and Jean Block and associates (Block & Martin, 1955; Funder & Block, 1989; Funder, et al., 1983) have examined the effects of the EC and ER constructs on delay of gratification behavior. The Blocks contend that delay of gratification primarily stems from an innate disposition (EC) for controlling or "stifling" impulses to display any type of behavior, whether or not engaging in this behavior would be situationally advantageous. Funder and Block (1989) suggest that this propensity to throttle impulses may, at times, be situationally maladaptive, and may hinder engaging in beneficial, adaptive behavior. For example, being disposed to inhibit or delay gratification may allow success in the context of employment, but be personally costly in situations which permit or encourage leisure-type activities. Here, the behavior is maladaptive, as the individual has nothing to gain and much to lose by delaying.

The Blocks' position is that fairly stable dispositions exist in terms of expression of behavior. Specific to this research, deferment of reward will often occur even when situationally inappropriate. Two constructs underlie this

disposition toward impulse control: ego-control or undercontrol (EC), and ego resiliency (ER) (Block & Haan, 1971; Block & Block, 1980). As discussed in Chapter I, these two constructs are two of the four factors or components that comprise the global DG trait which is the subject of the current study.

EC is based on Lewin's (1935) idea of boundary permeability, the ability of any psychological sub-system to contain any force or need generated by the system. Permeability refers to the degree to which the subsystem can prevent the impulse from being transferred to a sensori-motor system that transforms the impulse into behavior. Individuals differ in the level of permeability of these boundaries. Impermeable boundaries are those which quite easily contain the impulses. Permeable boundaries allow generated impulses to be readily passed to the sensori-motor system which transforms them into behavioral manifestations.

Block's (1971, 1980) notion of EC exists on a continuum and is related to Lewin's notion of boundary permeability. At the upper end of the EC continuum lie ego controllers, those who can readily suppress behavior, no matter what the source may be. At the lower end of the continuum are those termed ego undercontrollers, those unable to check behavior, no matter how impulsive. Those with relatively impermeable boundaries are described as having ego overcontrol; need impulses are easily contained in their respective system and

any potential behavior related to these impulses is checked. Therefore, environmental distractions triggering need impulses can be readily dealt with. When boundary impermeability prevents need impulses from penetrating boundaries and being transformed into behavior, contextual influences on behavior are negated. Behavior does not necessarily represent an adaptive response. Desire for the immediate reward may still be strong, but tight rein can be kept on behavior, as impulses triggered by the reward are readily thwarted.

Those with readily permeable boundaries are described as having ego undercontrol. Any contextual demand will trigger a subsequent behavioral response, impulses have free rein and are rarely suppressed. As regards delay of gratification behavior, any reward or outcome the individual perceives to have a positive valence generates a need impulse, which readily crosses the boundary into the sensori-motor system; this impulse is then manifested as behavior directed toward meeting the need.

As conceived by the Blocks, individuals operating at the control end of the continuum are highly inhibited in terms of any type of immediate behavioral response or expression. When deliberate, planful action is required or is beneficial, this orientation is useful to the individual. In instances where gratification has no legitimate reason to be postponed, this orientation may be detrimental to the

holder. He or she may forgo immediate, beneficial outcomes unnecessarily.

Those at the under-control end of the continuum are characterized by behavior which is extremely responsive to environmental stimuli. Needs are readily manifested into related behaviors. Individuals tend to be incapable of focusing on any one behavior for an extended period. Behavior becomes spontaneous, occurring without prior planning or deliberation. In instances where impromptu actions are advantageous to the individual, this orientation is beneficial, but where consideration and deliberation are necessary, this orientation will be detrimental.

Ego Resiliency

ER is also derived from Lewin's idea of various psychological systems and boundaries. As does EC, ER exists on a continuum, ranging from "brittle" (extremely inelastic) to "resilient" (extremely elastic) (Block & Block, 1980). ER specifically refers to the "elasticity" of such boundaries; the temporary adjustment by the individual of boundary permeability in order to meet demands from the surrounding context. This adjustment, however, is not a complete adaptation to context. The initial reaction of the individual is anchored by a base level of EC. ER assists with adaptation from this initial orientation of behavioral control. The degree of ER influences the degree to which the individual can adjust the effects of his or her base level

of EC on behavior. The more "resilient" the individual, the farther, in either direction, he or she can temporarily modify the dispositional effects of EC on behavior.

In essence, EC and ER work in concert with one another, with ER acting as a modifier of the effects of EC on behavior. When faced with environmental demands, the individual can, to a varying degree, temporarily modify the base level of barrier permeability, and therefore, the degree of impulse control influenced by the level of permeability. One has a stable disposition toward over- or under-control which guides behavior in the large majority of situations encountered. ER, however, does permit temporary adjustment of the effects of this disposition on behavior, in either direction. The individual can "loosen up" behavior, or become more rigid, depending on situational demands. Across similar situations, ego-control strength guides behavior. In new or unfamiliar situations, ER may assist in guiding one's behavior to cope with the new demand; however, once familiar, EC orientation may again resume the role of guiding behavior.

According to the Blocks, behavior is primarily determined by one's disposition to under- or over-control whether it is situationally appropriate or not. Only occasionally is this disposition overridden by ER to make it situationally appropriate.

Behavior occurring at either end of the EC continuum

should not be regarded as adaptive. Adaptive behavior permits one to take full advantage of any contextual demand, whether it be rapid response to some unforeseen opportunity, or requiring the lengthy unfolding of detailed plans for behavior. The closer toward the polar extremes of EC one approaches, the greater the propensity one would have to act in a manner counter to adaptive behavior. In terms of the present research, EC, when high, would cause the individual to delay reward when there is no good reason to do so. When low, EC would not prohibit the individual from immediately gratifying desires when the need for prudence in doing so is readily apparent.

The EC-ER phenomenon is posited to stem from general childhood socialization experiences (Block & Haan, 1971). The child learns "appropriate" behavior, to be generally restrained or impulsive. Holding such factors as socio-economic status (SES) and intelligence constant, differences in parental behavior reliably predicted the child's orientation to either under- or overcontrol. Those subjected to parental over-control (authoritarian, conservative and restrained home environments) manifest overcontrol; those less socialized by parents, i.e., those allowed to more or less do as they please and not provided with a clear idea of the requirements of the surrounding social milieu such as the need to delay gratification, manifest undercontrol (Block & Haan, 1971). Two general

antecedents are apparent: the degree to which parents allow the child some control or personal freedom over his or her life-decisions, and the willingness of the parents to inculcate "proper" social norms of behavior in their offspring.

Empirical Research Relating EC and ER to Behavior

Walter Mischel and associates provide some of the earliest evidence regarding delay of gratification behavior (Mischel, 1958, 1961a, 1961b). Although his perspective on personality focused on individuals' cognitive competencies (Mischel, 1974, 1990) as impetus for behavior, rather than the more traditional trait approach, some of the findings of the Mischel cohort are directly relevant to the current research. In a series of studies, Mischel observed that children not exposed to rewards delayed significantly longer than any subjects in reward-present conditions. Observation of children who were able to delay in the presence of any combination of the rewards, however, provided insight as to the way they were able to do so. Delayers engaged in some type of activity in order to distract their attention from the reward (Mischel & Ebbesen, 1970).

In a second study (Mischel, Ebbesen & Zeiss, 1972), decreased salience of rewards increased subjects' delay time both when rewards were present and absent. Further research determined that the individual cognitively transforms the

desired object into an abstract, neutral mental representation, making it much easier to delay (Moore, Mischel & Zeiss, 1976; Mischel & Moore, 1980).

Following Mischel's work of this period, Block and associates conducted delay of gratification studies examining the roles of EC and ER on delay behavior from the more traditional trait perspective of personality. An initial study (Funder, Block & Block, 1983) measured EC and ER using the California Q-set (CQS) (Block, 1978). Subjects' delay behaviors were compared to the level of the subjects' EC and ER. DG was operationalized using two discrete methods.

The DG operationalizations were purposely fashioned by the researchers in a non-adaptive manifestation to demonstrate the influences of EC and ER on DG behavior when compared to the influences of Mischel's competencies. In Mischel's DG studies, subjects were given the choice of an immediate small reward vs. a larger delayed reward. Those with superior competencies would be able to intelligently "adapt" their behavior to allow them access to the greater reward. Block and associates, however, designed two delay situations in which waiting or delaying provided no additional reward benefit to the individual. Whether the subject immediately or belatedly engaged in the reward behavior, the outcome was exactly the same. Because there were no advantages to delaying, Funder, et. al stated that

here, delay was not adaptive, therefore, delay would simply be a matter of the general disposition to control impulses.

Findings indicated that delay behavior was directly related to the subjects' levels of EC and ER. The relationship of EC on delay behavior was positive, however, the relationship was stronger in males than in females. The relationship of ER to delay behavior was also positive, however, in this instance, it was stronger for females. It should be mentioned that although ER was conceptualized by Block as modifying the influence of EC on behavior (Block & Block, 1980), in this study, its relationship to behavior was analyzed as that of an independent variable.

In later studies of delay, Mischel, et al., (1988) also used the CQS as an indicator of competency, and found that a number of individual items from the CQS, representing the ER construct, demonstrated large, significant correlations with delay behavior. As Mischel predicted, the ER correlates were positively associated with delay behavior. No association with EC, as found by the Block party (Funder, et al., 1983; Funder & Block, 1989) was apparent.

An additional study by Block and associates (Funder & Block, 1989) assessed the relationship of EC and ER to delay behavior in a adaptive delay situation. Waiting would result in a larger reward than would immediate gratification; however, the attraction or power of the immediately available reward was made very compelling in

order to tax the subjects' propensity to delay, and to assure that the immediate reward had a significantly different valence to subjects than the delayed reward.

Again, the CQS was used to determine the strength of subjects' EC and ER. Initial results indicated that both EC and ER had significant, independent relationships with delay behavior. Shoda, et al., (1990) used the CQS to assess behavioral correlates of delay, and found large, significant correlations between observer assessments of the presence of the delay correlates and actual delay behavior.

The studies described above support the notion of at least two distinct general antecedents of delay behaviors, resistance to powerful immediate rewards manifested as EC, as well as the adaptation required to forgo immediate reward in order to maximize future reward, manifested as ER.

Although a literature review did not uncover any studies attempting to determine if any relationship exists between the constructs of EC and ER and VIE theory, these constructs may affect certain VIE beliefs, and thereby influence delay behavior. As described by the Block studies, EC may directly affect both valence and expectancy beliefs, while ER may serve to adjust EC's influence on expectancy.

A strong EC indicates that one is successful in resisting engaging in impulsive types of behavior. As a consequence, one would have a strong self-efficacy belief

concerning his or her willingness to defer reward, or to resist immediate reward. This strong self-efficacy belief would increase one's expectancy that he or she could engage in delay behavior or behavior requiring deferment of reward. As mentioned by Block (1971), those who develop into "controllers" are those whose parents required them to forgo impulsive behavior as children. As children, controllers were required to wait. This past behavior may serve as a basis for one's beliefs about his or her ability to wait. As VIE theory notes (Lawler, 1971, 1973), when an individual has success engaging in a particular behavior, his or her subsequent beliefs concerning future success with this behavior increase, in turn increasing expectancy beliefs related to delay behavior. In essence, initial success as a "delayer" leads to increased success in the future in similar circumstances. In situations when the individual may not have sufficient EC strength required to resist temptation of immediate reward, an elastic ER would help the individual strengthen resistance to the impulse caused by the immediate reward, and the resulting delay behavior would again increase subsequent expectancy beliefs concerning delay behavior.

EC may also influence the valence individuals place on delayed outcomes in two ways. First, the individual with strong EC has control over impulses, and chooses deferred reward, even though as pointed out by Block that waiting may

often not bring a significant increase in outcome for the individual. A rationalization effect may occur as a result. The individual has waited for the deferred reward. Obviously, there must be "something" about the reward that made it worth waiting for, even though no objective difference between immediate and delayed rewards may be apparent. Therefore, the individual subjectively increases the valence of the reward to match his or her behavior.

Secondly, the strength of the EC of "controllers" is influenced by parents and other significant individuals during the child's development. Parents and the surrounding social milieu teach the child that controlling impulses, in this instance, deferring reward, is "good". The child learns that delayed outcomes, simply because they are delayed, have a higher positive value than immediate rewards, and therefore, a higher positive valence than immediate reward.

Future Time Perspective

Although the concept of FTP as an influence on DG behavior has been mentioned by various DG researchers, few studies have attempted to directly link FTP to DG behavior or to VIE components. The development of both FTP as well as the DG trait, and their respective influences on delay behaviors, however, are similar in several regards. FTP, as a component of the global DG trait, addresses an

individual's focus on the future, both the length of time which must elapse before certain events or outcomes are experienced, as well as the type and certainty of occurrence of any event.

Wallace (1956) defines FTP as the accuracy of individuals in estimating an approximate time of occurrence for future events, a concept known as extension; as well as the degree of clarity with which the individual is able to provide a representation of any such event, a concept termed coherence. Here, FTP indicates the accuracy of the individual in determining when and how events in his or her future will unfold. The more developed one's FTP, the more clearly, orderly, and further distant one can conceptualize a personal future to extend. Coherence is similar to the idea of a class of cognitive representations termed event schemas, or scripts (Schank & Abelson, 1977). Coherence of FTP allows the individual to order future occurring events in a temporal sequence as they relate to some larger event.

A more complete model of FTP was formulated by Kastenbaum (1961, 1964) combining Wallace's findings with additional components of Kastenbaum's creation. In Kastenbaum's model, time perspective has two broad components: structure, which addresses the underlying variables influencing time perspective, and function, the influences any individual's perspective has on his or her actions.

Kastenbaum (1964) identifies several structural considerations. As noted above, Wallace (1956) initially identified the components of future extension and coherence. Kastenbaum (1961) proposed two additional dimensions. Density refers to the specific number of outcomes one can conceptualize as occurring in his or her future. The more outcomes or events one can imagine, the denser one's FTP. Directionality, or time span orientation, is the time period or temporal direction most often dwelt on during one's cognitions, the past, present or future. Directionality partially influences self-attributions concerning the causality of one's behavior. Individuals attempt to determine if it is a past, present, or future event which has influenced behavior. People with a future orientation would be influenced by future events or outcomes, which, in turn, may potentially influence their decision to defer reward.

Although not specifically stated by Kastenbaum, the two concepts of directionality and density seem to potentially operate independently of each other. An individual may prefer to nostalgically dwell on the past, but can, when called upon to do so, have a clear sense of what may be presented by the future. It may be that this particular person perceives many negative events in his or her future, and would rather dwell on the past.

Kastenbaum's FTP model also proposes frames of reference

individuals use to interpret the influences of time on their own personal existence. These frames of reference note possible links between FTP and other components of the proposed model used for the current study, specifically LOC, as well as instrumentality from VIE theory. In discussion of the personal framework, Kastenbaum notes the concept of agency (Rosenfelt, Kastenbaum & Slater, 1964) as it is related to one's personal perspective of time. Agency refers to an individual's perceived control over any past, present or future events. One may view one's self as passive, subject entirely to influence of past, present or future events; or as an agent, one who has been or will be personally responsible for the occurrence of the event. A marked similarity in influence between "agency" effects and the internal and external components of LOC is readily apparent. Either one is in control of one's personal history and behavior, past, present, and possible; or one is merely flotsam, subject to all external influences met through time. This component will be considered further in the discussion of LOC below.

The other frame of reference germane to the current research is one's probabilistic orientation. Individuals assess the probability of an event's occurrence based on objective evidence or information, including prior experiences. A probabilistic orientation would have influences on decision-making similar to those of one's

instrumentality beliefs. The more probable or improbable the likelihood of future occurrences, the more likely one's choice will be influenced by them. Here, FTP may influence an individual's instrumentality perceptions regarding the occurrence of a future outcome. As discussed earlier, instrumentality affects one's perception of the probability of the occurrence of any outcome contingent on some behavior, in this instance, the probability of receipt of a delayed reward.

Time perspective also serves several functions. The most important, in regards to the present research, is the relationship of FTP to deferment of reward. Kastenbaum (1964) notes that FTP allows individuals to create alternatives to immediate, impulsive action in response to a readily available stimulus (p. 103). With a developed FTP, the individual is capable of ignoring the present context and its influences, and can focus on future events. Similar to the effects of the Blocks' (Block & Block, 1980) notion of ego control, the development of FTP frees individuals from effects of immediately available rewards, allowing them to manipulate and control contextual features rather than vice versa. Having some sense of the future allows one to visualize future goals and also plan ways to attain them.

Various FTP components may affect certain VIE beliefs of individuals, specifically instrumentality beliefs concerning the delayed, or future, reward. As mentioned

above, Kastenbaum proposes FTP as consisting of several dimensions; density, extension, and directionality. Each of these dimensions may have a particular influence on individuals' instrumentality beliefs concerning future events. A "dense" future infers that the individual perceives many possible personal outcomes in his or her future, what will happen to that individual is not "fuzzy". The more dense one's future ideations, the more likely one can perceive the deferred outcome as existing concretely in his or her personal future, increasing the instrumentality belief regarding the event's occurrence. Extension influences the temporal span of the individual's ideations. The greater the extension, the farther into the future the person can visualize occurrence of events and outcomes. Extension would assist the individual in perceiving the delayed reward as part of his or her future. If one can ideate about events and outcomes occurring six months from now, one can perceive a reward deferred that length of time. Directionality references the time period most often the focus of individual thought, the past, present or future. One's behavior is influenced by ideations concerning the respective time period dwelled on. If one ideates about the future, he or she would be concerned with or influenced by future outcomes, including delayed reward. Again, being able to perceive, or "visualize" the future reward increases its concreteness to the individual, thereby increasing the

perception of its possible occurrence. This would increase the individual's instrumentality beliefs concerning the delayed reward.

FTP and Effects on Delay of Gratification Behavior

Heimberg (1963) attempted to use individual differences in FTP to predict other behaviors. Heimberg defines FTP as the degree to which an individual believes his or her personally relevant future is predictable, controllable, and structured.

Although not expressed in VIE terms, as VIE theory had not been widely disseminated at this time, Heimberg states the level of one's FTP has effects upon individual behavior quite similar to those of the valence and instrumentality components of VIE theory (Vroom, 1964). Heimberg posits that the weight, or score, of an outcome, or valence, is directly related to the period of time which must elapse before the individual realizes this outcome. Those more future-distant outcomes have less weight or strength due to the increased waiting period required for receipt, and therefore have less influence on behavior than more immediately available outcomes. In terms of instrumentality (I) effects, more future-distant outcomes are perceived as having a lower probability of occurrence, causing a lower I score to be assigned them; consequently, they are less influential on

behavior. A strong FTP limits the decline in strength of both valence and I scores of future-distant outcomes.

Heimberg also hypothesized direct relationships of FTP with an internal LOC as well as with DG behavior. Those with a strong FTP believe themselves to be in control of their future, and, as with an internal LOC, their environment. This hypothesis was supported. Heimberg also tested the relationship of FTP strength to DG, "...the willingness to forego immediate gratification for the sake of future gain" (p. 13). This hypothesis was supported by results from one of the two manipulations conducted by Heimberg to test this relationship. Those with a greater FTP chose to engage in tasks that precluded more immediate reward but offered a future reward over tasks providing immediate rewards.

De Volder and Lens (1982) attempted to measure the relationship between FTP and the instrumentality and valence components of Vroom's VIE theory. The authors utilized Nuttin's (1964) notion that any desired goal or outcome has an attached time component, the future. To attain any non-immediately available goal, one must chose behaviors allowing movement through the future toward it.

The authors posit two components of this motivational influence. Individuals with a strong FTP are disposed to award higher valences to future-distant goals. Those with a strong FTP are also able to adjust perceived instrumentality

of the future situation. They understand, to a greater degree, the connection between their current behavior and the possible related outcomes waiting in the distant future. Therefore, a strong FTP prevents the futurity of any outcome from decreasing the respective strengths of the outcome's valence and instrumentality.

The findings of Heimberg, as well as of De Volder and Lens, tend to support FTP as influencing delay of gratification behavior. It may be that FTP is related to the strength of individuals' VIE beliefs, which in turn, influence individuals' decisions concerning deferment of reward. An increase in I and V scores of the delayed reward, influenced by FTP, may allow one to perceive the future outcome as being more attractive and also more likely to occur. This would decrease the influence of the immediate reward on behavior, and thereby increase the likelihood that the person would decide to choose the deferred reward.

Supporting this notion, De Volder and Lens (1982) tested the relationship between FTP and motivation of individuals for academic achievement. Results demonstrated the valence and instrumentality scores for outcomes occurring in the distant future of high-achieving students were significantly larger than those for low-achieving students. Also, the valence and instrumentality scores of those students demonstrating high persistence (including

those in the lower GPA group) toward distant future goals were significantly larger than those demonstrating low persistence.

Lessing (1968) also investigated the relationship of FTP to demographic, developmental, and personality factors in adolescents. An increase in subjects' age was positively related to an increase in future coherence. More importantly, in terms of the current study, the length of subjects' FTP was directly related to measures of subjects' ability to delay reward.

Much evidence supporting FTP as an influence on delay of gratification behavior has been indirect, as noted above. Research specifically conducted to assess the relationship between DG behavior and FTP has been sparse, although a few researchers have attempted to provide empirical support for such a relationship. As mentioned, Heimberg (1963) demonstrated a positive relationship between a measure of FTP and delay of gratification behavior. Klineberg (1967) hypothesized a direct, positive relationship between delay behavior and several components of FTP. Subjects able to forgo small immediate rewards in return for a larger, delayed reward were more preoccupied with future-occurring rather than past- or present-occurring events, and also had more realistic perspectives concerning events to occur in their own, personal future. Klineberg's explanation of these findings involved the relative power of the subject to

conceptualize the future in a concrete or substantive manner, which reduced the subjective amount of uncertainty related to receipt of the delayed reward. Here, the strength of FTP may again be positively related to one's instrumentality beliefs.

Klineberg (1967) also investigated socialization effects on FTP development. Adolescent socialization processes move focus away from concrete events in the present to the need for future planning. Socially maladjusted subjects had significantly attenuated future density and extension components of FTP when compared to a "normally" socialized cohort. In support of the cognitive development hypothesis, older subjects in the normal cohort had a significant increase in future orientation when compared to younger subjects in the "normal" cohort.

Attenuation of various components of FTP has been demonstrated to have adverse consequences for behavioral choices related to gratification of desires. Drug and alcohol abusers (Smart, 1968; Mangianello, 1978; Alvos, Gregson, & Ross, 1993) have shortened, incoherent or comparatively empty FTPs. Deficiencies in FTP have also been linked to deficiencies in behaviors such as "safe sex" practices (DiIorio, Parsons, Lehr, Adams, & Carlone, 1993), and "positive" health practices such as less substance abuse and proper nutrition (Mahon & Yarcheski, 1994). In each example, choices made by subjects involve delaying

gratification, in some respect, by choosing between outcomes with immediate, but certainly less desirable consequences, or abstinence from immediate reward for behavior with more socially desirable consequences.

Future Anxiety and FTP

Future anxiety, or FA, is an additional construct related to FTP (Zaleski, 1996) FA is a generalized negative affect toward the future, and as conceptualized, may affect operation of certain components of FTP. The personal futures, that is, all possible events which they may imagine occurring specifically to themselves, of individuals with high FA are colored in negative terms.

It should be noted that although future anxiety addresses a negative affect toward the future, it is not the same conceptually, nor does it have the same influence on behavior as the construct of negative affectivity (Watson & Clark, 1984; Watson, Pennebaker, & Folger, 1987). Negative affectivity is a disposition which influences a generalization of negative emotion to virtually all facets of a person's existence. It causes an individual's attitudes toward life to take on an overall negative cast, including past and present events. The effects of future anxiety, however, are limited only to future events. Dwelling on cognitions about the past, present or very immediate future allows one to avoid future negativity. The individual essentially takes refuge in time periods other

than the future in order to avoid the doom he or she believes his or her personal future holds. FA may influence delay behavior through its effect on individuals' valence and instrumentality perceptions regarding future reward.

No studies relating FA to VIE theory were discovered; however, the influences of FA on individuals' cognitions suggest that FA may influence certain VIE theory beliefs. As mentioned, those with heightened FA believe that the probability of experiencing a positive outcome in the future is marginal at best. Only "bad" things happen to these people. Therefore, the instrumentality belief concerning receipt of a positive outcome of an individual with heightened FA would be slight, if not completely non-existent. The individual with a significant level of FA would have little or no reason to believe he or she would receive a positive delayed outcome. In essence, to those with a significant level of FA, the probability of occurrence, or the instrumentality, of unwanted events increases, while the probability of occurrence of positive or desired outcomes recedes.

Although no studies have yet addressed such a relationship, it is possible that FA may also work in concert with the three components of FTP described above to affect individuals' valences concerning future outcomes. As mentioned, those with heightened FA have increased expectations of experiencing future outcomes which have only

negative valences. This may cause the overall future of these individuals to take on a negative valence. As a result, the future would consist only of outcomes undesirable to the individual. If this person's cognitions are influenced by any of the FTP components, his or her ideations concern the future to some degree. Combined with the influence of FA, these future ideations would concern outcomes which for the most part would have negative valences. The individual would therefore be likely to accept immediate reward due to his or her perception that any available future outcome would only be negative and undesirable.

Future Anxiety and Locus of Control

This overwhelming sense of uncertainty may also be influenced by one's LOC belief, and may also affect DG behavior in this manner. Those with a strong internal LOC may have minimal FA. If they believe they are in control of events in their lives, they may feel that they can avoid unpleasantness lurking in the future through their own action. Conversely, those with an external LOC may tend to have a higher FA, and therefore view themselves as subject to the whims of fate. If the future is generally viewed as negative, high FA-external LOC individuals may tend to choose immediate over delayed rewards, having little or no belief in the occurrence of a desirable future outcome.

Locus of Control

Locus of control (LOC) (Rotter, 1966) is a well-known and robust concept with a lengthy history of empirical examination. Relationships with concepts such as achievement, helping behavior, delay of gratification, competence, and a host of others have been demonstrated (See Lefcourt, 1982, for a review).

Briefly, Rotter (1966) posits that individuals may differ in their perception as to the source of control of the outcomes they receive in life. At one end of the LOC continuum, receiving or experiencing any outcome is perceived as being either directly contingent upon actions or behavior of the individual. At the other end of the continuum, outcomes are perceived as being entirely dictated by some force, be it chance or some other individual or group, beyond the individual's influence. Those believing that outcomes are experienced directly as a result of one's own actions are referred to as having an internal locus of control; whatever happens to them, it is of their own doing. Those believing that no matter what action or behavior they may engage in, the final outcome to be experienced will be determined by some force other than themselves are referred to as having an external locus of control. Their lot in life is out of their hands and subject to the whims of chance or the desires of others.

The contribution of Levenson (1972, 1973) to LOC is also related to the current research. While maintaining Rotter's original internal-external dichotomy, Levenson posits that external sources of control may also be perceived as dichotomous. Outcomes may be perceived as due purely to fate, chance or luck, completely uncontrolled and unpredictable; or outcomes may be controlled by powerful others, out of the control of the individual, but perhaps somewhat predictable based on the behavior of the powerful other. A subsequent study (Levenson, 1973) supported this notion of two types of external control, using a revised version of Rotter's (1966) I-E Scale.

LOC may affect delay behavior by influencing the individual's perception of the degree of control, or more specifically in this instance, restraint, he or she has over his or her behavior. Those with a high internal LOC would perceive themselves as being in command of the situation, and therefore resistant to the temptation of the immediate reward. Those prone to believe they are more subject to outside influence rather than to internal fortitude would perceive themselves as being influenced by the reward, and would give in to this impulse or desire.

Similarly, Block's idea of ego control (Block & Block, 1980) addresses resistance to, or control over, impulses to behave, whether the impulses originate internally or externally. Those with a strong EC would have a great

degree of control over behavioral impulses generated by an immediate reward. Similarly, those with an internal LOC could control impulses triggered by some readily available and attractive external reward, rather than allowing the influence of the immediate reward to control their behavior. Therefore, the effects of LOC on individuals' expectancy judgments concerning behavior related to delayed reward may be similar to the effects of EC described above. Both provide the individual with a sense of control, or efficacy, related to delay situations.

Also in relation to VIE theory, those with an external LOC should, at the very least, have smaller instrumentality perceptions regarding the delayed reward or outcome than the outcome immediately available. As stated by Rotter, effects of a reward on behavior "...depend upon whether or not the person perceives a causal relationship between his own behavior and the reward" (1966, p. 1). Externals, therefore, would have a low instrumentality belief concerning receipt of a future outcome related to any of their behavior. When combined with the reduced certainty or probability of occurrence of any future event, this instrumentality score would be even more attenuated, and the individual would therefore be less likely to engage in the delay behavior, or more motivated to engage in immediate gratification. This proposed relationship of an internal LOC to instrumentality mirrors that proposed above between FTP

and instrumentality; the greater the presence of each trait, respectively, the greater one's instrumentality belief between behavior and subsequent outcomes.

Finally, LOC may also have some effect on the valence individuals have for delayed outcomes. As noted earlier, research has supported the notion that outcomes the individual perceives him- or herself as having "earned", or received due to effort on his or her part are more valued by the individual than those "given" to the individual, or controlled by an outside source. That earned through some type of personal effort may be perceived as more valuable to the individual than something given to him or her. The individual may believe that the delayed outcome is more valuable than the immediate outcome because the individual may have "earned" the delayed reward by maintaining control of the situation and subsequently experiencing some type of frustration, anxiety or similar emotional labor caused by the necessity to wait for the deferred outcome.

As with FTP, empirical investigations of direct links between delay of gratification behavior and LOC are sparse, but available studies have supported a relationship between the two. Bialer (1961), in a study using pre-adolescent subjects demonstrated a strong, positive relationship between subjects' level of internal LOC and delay behavior.

Although not directly comparing LOC to delay behavior, a study by Straits and Sechrest (1963) determined that non-

cigarette-smoking subjects had a significantly higher internal LOC than did smokers. Additionally, James, Woodruff, and Werner (1965) reported that subjects who were able to successfully terminate smoking behavior (not resume this activity after cessation) had a significantly greater internal LOC than did recidivists. Both studies may indicate forgoing immediate reward (smoking) in favor of a distant, more valuable outcome (good health).

Strickland (1972) provided support for the same LOC-DG relationship addressed by Bialer. Subjects with an internal LOC were significantly more likely to choose deferred rewards than those with an external LOC. A follow-up study (Strickland, 1973) supported results from the earlier study.

As part of a series of DG studies performed utilizing the Stanford University pre-school subject cohort, Mischel, et al., (1974) examined the relationship between delay behavior and LOC. Results indicated that internal LOC was positively related to DG when waiting was a necessary condition for obtaining a desired reward, or when waiting was necessary in order to avert a negative outcome, leading the researchers to conclude that individual differences in LOC were partially responsible for DG behavior aimed at achieving specific goals.

Several studies also suggest that levels of FTP may be positively related to the level of subjects' internal LOC belief. Heimberg (1963) hypothesized a direct relationship

between FTP and LOC. This hypothesis was supported; scores on a measure of FTP were positively correlated with scores on a measure of LOC. Lamm, Schmidt and Trommsdorff (1976) discovered that SES is positively related to both the level of subjects' FTP as well as to the strength of subjects' internal LOC. Rotter (1966, p. 4) notes that research addressing need for achievement (Atkinson, 1958; Crandall, 1963; McClelland, et. al., 1953) suggests that high achievers believe that their own abilities and skills are the primary force behind their success in reaching desired goals and outcomes. Those with a higher internal LOC tend to take responsibility for career outcomes. Additionally, McClelland and associates (McClelland, et. al., 1953) reported a direct, positive relationship between a measure of subjects' FTP and that of subjects' nACH. This finding suggests that there might possibly be a relationship between LOC and FTP, given that a positive relationship also exists between nACH and LOC.

Subjects in Stein, Sarbin and Kulik's study (1968) demonstrated a direct relationship between future extension and beliefs about their personal future which mirrored the influence of an external locus of control. Those with an attenuated FTP professed beliefs that the future largely contained events out of their personal control.

Finally, the concept of FA (Zaleski, 1996), influenced by FTP research, suggests a relationship between FTP and

LOC. Those with FA "fear" the future holds only those outcomes to which the individual assigns a negative valence, and has little or no probability of containing those outcomes to which the individual assigns positive valences. People with FA may tend to believe that the outcome of future events is beyond their control, as they would be unable to act in a manner to avoid unpleasantness. High FA may be indicative of an external LOC.

The relationships between the personality constructs, VIE theory components and delay of gratification behavior discussed above in the literature review are specified in a set of formal hypotheses in Chapter III.

CHAPTER III

HYPOTHESES

The reviewed literature supports a model containing four constructs, the presence of which make some contribution to a global DG trait that has historically demonstrated influences on delay of gratification behavior (Figure 2). The model indicates that postponement of reward is not influenced by one single factor, as often purported by other delay of gratification researchers. It must be noted, however, that this model is not all-inclusive; it does not contain all possible influences on delay of gratification or delay of gratification behavior. As noted in the literature review, the current study focuses on trait-related constructs demonstrating consistent relationships with delay of gratification behavior. Specifically, these constructs are future time perspective, ego control, ego resiliency, and locus of control.

In addition to the direct influence the traits have on behavior, these traits also influence delay behavior by influencing the decision-making processes of an individual as they relate to either an immediate or delayed reward. As noted, VIE theory posits that an individual's decision to engage in any behavior is determined by the configuration of

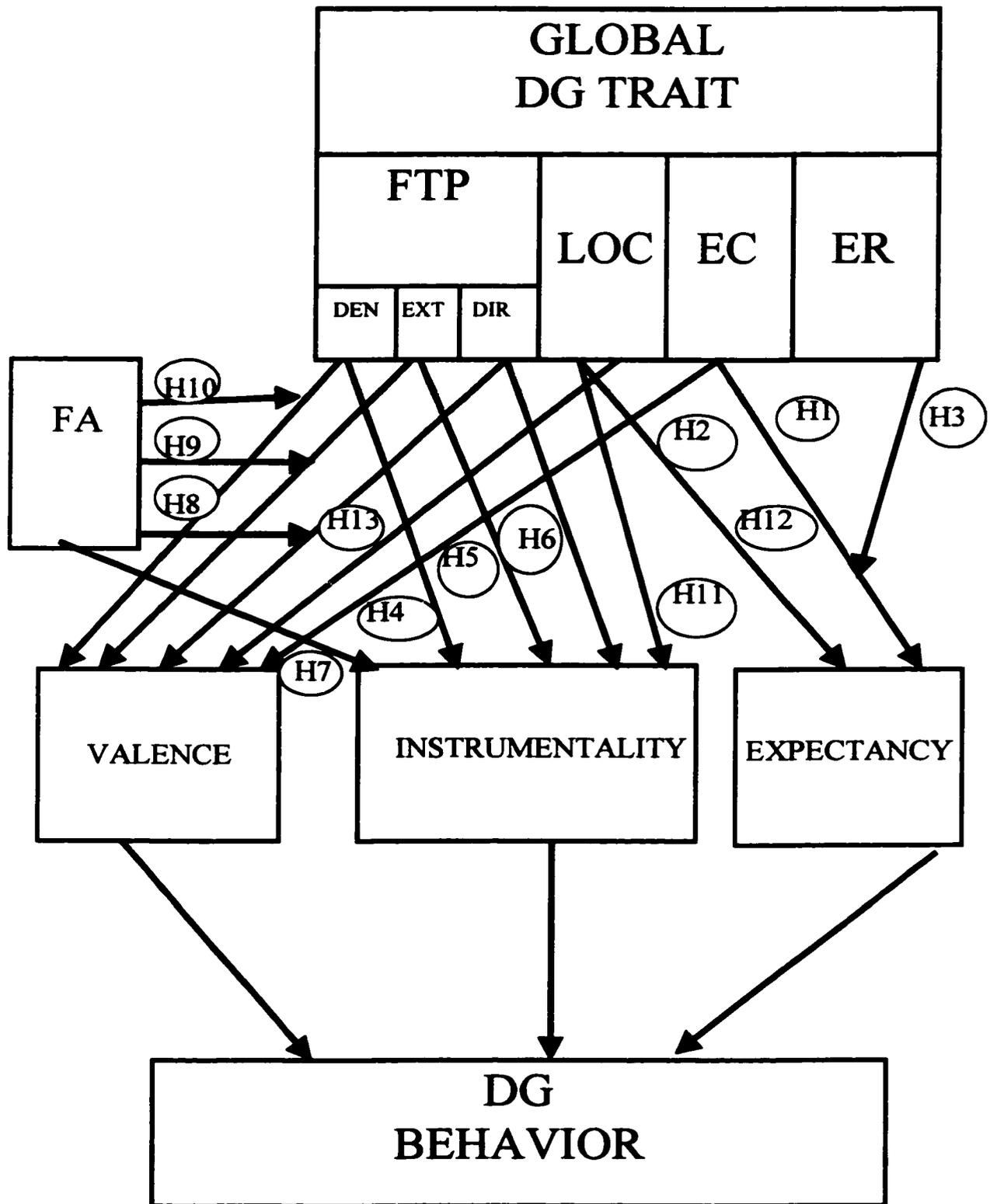


Figure 2.

the forces originating in the valence, instrumentality and expectancy components. The current model proposes that the four factors (EC, ER, LOC and FTP) have some role in the configuration of these VIE forces.

The current research implicitly recognizes that when deciding whether to defer reward, the choice one makes is not strictly that of an immediate versus a delayed outcome. Delay situations involve a simultaneous choice between two immediate outcomes and their related delayed outcomes. One may choose a smaller immediate reward over a larger deferred reward. Certain results occur because of this choice. One, of course, is receipt of the immediate reward. Another is the foregoing of another immediate outcome or the receipt of "nothing", which is required in order to obtain the delayed reward. By choosing immediate reward, the individual also selects the related long-term consequences or outcomes. The individual must forgo the deferred outcome's future consequences, and settle for the consequences attached to some less valuable second-level future outcome. This is often called "not being able to have your cake and eat it too."

Several of these components have some effect on one's instrumentality beliefs concerning the receipt of delayed rewards. As generally defined in VIE theory literature, instrumentality refers to the strength of one's belief that a certain outcome will follow a certain behavior (Porter &

Lawler, 1968). In other words, if I behave in a certain way, how likely is it that I will actually receive some desired outcome contingent upon this behavior? In essence, it is a probability judgment concerning the receipt of future outcomes.

Components of the global delay of gratification trait may affect one's instrumentality perception in several ways. Subcomponents of FTP may act to influence perception of future events. Instrumentality inherently assumes that the outcome, being contingent upon behavior, occurs some time in the future. If the contingent outcome is not relatively immediate, the individual may perceive a multitude of real or imagined factors that may arise to interfere with receipt of the outcome, making the outcome less than certain. Additionally, if the outcome is far enough into the future, the individual may not consider it at all. As noted in research addressing the hindsight bias (Slovic & Fischhoff, 1977) future events are often perceived as being less than certain in that they may be "fuzzy" or not well-defined, or they may not be perceived at all. Certain aspects of FTP may act to influence an individual's perceptions of any future events.

Instrumentality of an outcome may also be affected by the amount of control one perceives him- or herself as having over receipt of the outcome. As stated in VIE theory, if the individual has little reason to believe he or

she will actually receive the outcome contingent on behavior, impetus to engage in the behavior will be slight. Literature (Porter & Lawler, 1968; Schuster & Zingheim, 1992) addressing application of VIE theory in organizations advises managers to be certain they are able to deliver any promised contingent outcomes so that strong instrumentality links may be maintained between desired behavior and its related outcomes in order to promote such desired behavior.

As noted in the literature review, the greater one's internal LOC (ILOC), the greater the belief that the events and outcomes which occur in one's life are under one's personal control and not random acts or under the control of others. Therefore, one's LOC orientation may be another factor having some relation to one's instrumentality belief concerning waiting behavior and a contingent reward. If the individual believes that he or she controls his or her life and related outcomes, he or she would have a stronger belief that personal behavior would result in receipt of desired, contingent outcomes.

The current research also proposes that one's personality influences the perception and assessment of any behavior involved in the delay situation. One may have positive affect for the behavior and be attracted to it for its own sake, independent of any other influence. For some individuals, however, the need to wait for reward, which is unalterably enmeshed with the behavior and its outcome,

makes this behavior somewhat noxious. For example, to obtain reward, a sales representative will engage in activities such as meeting customers, performing product demonstrations, closing, or other job-related behaviors. Due to the longitudinal nature of these duties, any reward contingent upon their performance is normally deferred. The simple performance of any or a combination of these duties is not unpleasant to the individual. For those with a desire for immediate gratification, however, the activities become a barrier to certain contingent rewards, and therefore take on a negative valence, as waiting in itself is noxious for these individuals. This sentiment is then generalized to any behavior which may be required during the waiting period. Additionally, the activity may be assigned a negative valence by the individual due to its nature. Certain features of the behavior other than the wait involved may be deemed unpleasant.

Hypotheses related to Ego Control and Ego Resiliency

As noted earlier, ego control (EC) refers to the amount of control an individual has to either express or hold in check any behavioral impulse he or she may experience. This can range from overcontrol, where the expression of any impulse can readily be stymied or limited, to undercontrol, where impulses are expressed wantonly, with little or no regard for consequences. As noted earlier, empirical

support exists for a relationship between EC and delay of gratification behavior (Funder, et al., 1983; Funder & Block, 1989).

Although the attraction of an immediate reward may be powerful and one may truly desire it, those possessing some degree of EC may be successful to some extent in resisting the impulses generated by this reward. They can maintain behavior directed toward receipt of the delayed outcome.

As VIE theory notes, once an individual has successfully engaged in some behavior, his or her subsequent belief about his or her ability to carry out this behavior in the future increases (Lawler, 1971, 1973). Stated in VIE theory terms, the individual's effort-performance expectancy belief concerning his or her ability to engage in this behavior increases. As discussed, EC strength is hypothesized as being partially responsible for assisting individuals in resisting immediate reward. If EC strength is sufficient at some point to allow one to resist some immediate gratification, this would provide the person with a prior experience of successful behavior, and assist in strengthening the individual's subsequent belief that he or she "has what it takes" to resist in future instances. This relationship is addressed by Hypothesis 1.

H1: Effort-performance expectancy partially mediates the relationship of EC to delay behavior such that an increase in EC is related to an increase in effort-performance expectancy belief concerning delay behavior, which in turn is related to an increase in delay behavior.

Additionally, as noted by Block & Haan (1971), the level of one's EC, one's predisposition to be an under- or over-controller, is fixed largely by parental and other social influences. Parents and others "tell" the developing child, through injunction or example, that some course of behavior is "right or wrong". The child's environment, therefore, provides values for various behaviors, including deferment of reward. As mentioned earlier, many homilies such as "The best is yet to come", or "Good things come to those who wait" exist. Parents require that offspring learn to subdue impulses for immediate gratification of desire. These actions teach individuals that delayed outcomes or rewards should be valued over those immediately available, which in VIE terms, increase the positive valence of delayed outcomes. This relationship is expressed in Hypothesis 2.

H2: Valence partially mediates the relationship of EC to delay behavior such that an increase in EC is related to an increase in valence of the delayed reward, which in turn is related to an increase in delay behavior.

EC is not immalleable. As noted, one has a baseline EC, that is, some fairly constant level of EC strength. One can temporarily adjust resistance to or indulgence of behavioral impulses through temporary adjustment of the effects of EC on behavior. This adjustment is controlled by ego resiliency (ER). One's ER can be elastic, which allows the individual to make a large adjustment to behavior beyond the initial influence of EC. ER can also be brittle, with little or no capability for adjustment of behavior initially influenced by EC. ER affects behavior by increasing or decreasing the effect of one's base level of EC on behavior.

As noted in Chapter II, Block (Block & Block, 1980; Funder, et al., 1983; Funder & Block, 1989) states that effects of ER on behavior are contextually influenced. In certain contexts, foregoing immediate reward is necessary in order for maximization of individual outcomes to occur. In these contexts, one needs to have more control over one's behavior and resist situational demands which may result in counter-productive behavior. If one's EC is insufficient to address these demands, ER, if elastic, will enhance

individual resistance to such demands.

In other contexts, however, it does not benefit the individual to defer receipt of immediate outcomes. In essence, delay would not result in any noticeable increase in positive outcomes. He or she would needlessly forego some immediately available reward. In such instances, if one's EC would tend to needlessly stifle immediate behavior, an elastic ER would allow the individual to be less controlling or rigid, and act according to situational demands.

The current study, however, is focused only on those situations where it is beneficial for the individual to defer reward, and therefore examines only the effects of ER as they are related to assisting with delay behavior. In such situations, individuals require EC to be strong in order to stifle impulses for immediate reward. A resilient ER assists in strengthening the effects of EC in order to meet this demand. This relationship is hypothesized below.

H3: The relationship of EC to delay behavior is moderated by ER such that when ER is elastic, the relationship between EC and delay behavior is more strongly positive than when ER is inelastic.

Hypotheses related to FTP

The construct of FTP has several influences on an

individual's perception of his or her future. As does delay of gratification, FTP infers some orientation to and valuing of outcomes occurring in the future. Several components of FTP act to guide an individual's reward choice.

If the individual conceptualizes a "dense" future, that is, one can perceive many events and outcomes occurring in one's personal future, there is a greater probability a delayed reward may be included in an individual's ideation concerning his or her personal future. Additionally, the more dense one's future, the more one can imagine any future outcome in a concrete rather than an abstract representation, increasing the perceived instrumentality of the outcome's occurrence. The receipt of the outcome therefore, becomes more assured. The disparity between the instrumentality of receiving the immediate reward versus that of receiving the deferred reward is also reduced.

As noted in the literature review, the extension and directionality components of FTP may also play a role in determining an individual's ability to focus on future events and outcomes. Extension is related to the longitudinal distance, or temporal length into the future one focuses thoughts and attention. The greater one's extension, the farther into the future from the immediate present one can visualize the occurrence of events or outcomes. Deferring reward requires the individual to focus on an outcome occurring some distance in the future, in

other words, to make the connection between present behavior and future outcomes. In essence, extension is related to the strength of the instrumentality belief one has of current behavior leading to these future outcomes.

Directionality refers to the mental time period most often the focus of the individual's thoughts. Depending on FTP directionality, one's thoughts dwell, in large part, on either past, present or future events. One's behavior is then influenced by ideations concerning the respective time period dwelled on. Those with future directionality, who focus primarily on the future, would be concerned with future, rather than past or immediate events and their related outcomes. These future events or consequences would then influence behavior. As with extension, future directionality assists in strengthening the instrumentality belief between one's current behavior and outcomes which occur in the individual's future, specifically, delayed rewards. The influences of density, extension and future directionality on delay behavior are addressed by Hypotheses 4, 5 and 6.

H4: Instrumentality partially mediates the relationship of future density to delay behavior such that greater density is related to an increase in instrumentality of delay behavior for the deferred reward, which in turn is related to an increase in delay behavior.

H5: Instrumentality partially mediates the relationship of future extension to delay behavior such that greater extension is related to an increase in instrumentality of delay behavior for the deferred reward, which in turn is related to an increase in delay behavior.

H6: Instrumentality partially mediates the relationship of future directionality to delay behavior such that greater directionality is related to an increase in instrumentality of delay behavior for the deferred reward, which in turn is related to an increase in delay behavior.

As described in the literature review, the concept of Future Anxiety (FA), a generalized negative perspective of the future, is derived from FTP. Those influenced by FA view their futures pessimistically, and believe that negative rather than positive experiences lie ahead. Therefore, these individuals should perceive that there is a minuscule probability of a deferred outcome, or any outcome related to the deferred outcome, being positive in nature, or even actually forthcoming. This notion is stated in the following hypothesis.

H7: Instrumentality partially mediates the relationship of FA to delay behavior such that a greater level of FA is related to a decrease in the instrumentality of delay behavior for receipt of positive outcomes, which in turn is related to a decrease in delay behavior.

FA may also interact with the three main components of FTP, influencing one's decision to delay gratification through FA's effects on the general valence of an individual's future. As mentioned, an individual afflicted with FA will have heightened expectations of experiencing outcomes with negative valence scores, and low or perhaps nil expectations of receiving any outcomes with a positive valence. The future in general, therefore, may take on an overall negative valence. Any consideration of future outcomes will involve only those which are undesirable to the individual.

If the person has future directionality, extension, or density, he or she is future-oriented to some extent, and will focus on future outcomes. In turn, as stated previously in this section, these future outcomes will then act in some fashion to affect one's current behavior. If the person also has FA to a great degree, these imagined outcomes will only be those with negative valences. The individual would therefore be inclined to engage in immediate gratification and forgo deferred rewards due to

the perception that any future outcome available to him or her will be negative and undesirable. The relationships between the interaction of FA and the FTP components of density, directionality, and the subsequent effects on delay behavior are expressed in the following three hypotheses.

H8: The relationship of future directionality to delay behavior, which is partially mediated by valence of the reward, is moderated by FA such that when FA is high, future directionality will be negatively related to delay behavior and when FA is low, directionality will be positively related to delay behavior.

H9: The relationship of future extension to delay behavior, which is partially mediated by valence of the reward, is moderated by FA such that when FA is high, future extension will be negatively related to delay behavior and when FA is low, future extension will be positively related to delay behavior.

H10: The relationship of future density to delay behavior, which is partially mediated by valence of the reward, is moderated by FA such that when FA is high, future density will be negatively related to delay behavior, and when FA is low, future density will be positively related to delay behavior.

Hypotheses related to LOC

As stated above, LOC generally refers to the belief of individuals regarding the amount of personal influence they have over the events or outcomes of their lives, whether any type of action taken by them makes some difference to their life experiences. Those with an ILOC believe they control their lives. Those with an external locus (ELOC) feel that agents or events other than themselves hold control of their outcomes. The LOC orientation of an individual may influence that person's decision to defer reward based on the certainty the person's LOC orientation provides him or her concerning control over outcomes in the person's life.

As Rotter (1966) noted, the influence of a reward depends on whether the individual perceives a relationship between personal behavior and receipt of the reward, essentially a description very similar to that of instrumentality's role in VIE theory. An individual with an ILOC orientation believes that his or her actions bring about life's outcomes. Therefore, his or her instrumentality belief concerning receipt of outcomes contingent upon those actions or behavior would be fairly high. This notion is addressed in the following hypothesis.

H11: Instrumentality partially mediates the relationship of LOC to delay behavior such that an ILOC belief is related to an increase in instrumentality of delay behavior to the deferred reward, which in turn is related to an increase in delay behavior.

Related to the idea of control, individuals with an ILOC believe themselves to be master of, and therefore the primary influence on, their own behavior and related outcomes. Individuals with an ILOC would be more likely to delay gratification. They would perceive themselves as capable of forgoing immediate gratification by resisting influences from external sources such as the temptation of an immediately available reward.

As mentioned earlier, prior success in engaging in any behavior strengthens one's expectancy belief of being able to repeat such behavior (Lawler, 1971, 1973). Any prior success in resisting immediate rewards may strengthen the individual's expectancy belief that he or she would again be able to resist the attraction of immediate rewards and would therefore assist the individual in waiting for receipt of deferred rewards. Hypothesis 12 addresses this relationship.

H12: Effort-performance expectancy partially mediates the relationship of LOC to delay of gratification behavior such that an ILOC belief is related to an increase in the effort-performance expectancy belief one has concerning his or her ability to successfully engage in delay behavior, which in turn is related to an increase in delay behavior.

As mentioned above, research has supported the notion that outcomes perceived as having come to the individual as a result of his or her own effort are more valued by the individual than those outcomes that are perceived as being awarded the individual from an outside source. In essence, those outcomes gained through personal effort seem worth more than those that are merely given to the individual. For example, an individual may feel that any delayed reward may have been earned via the person's undergoing frustration or similar emotional labor caused by any waiting period necessary for the receipt of the reward. This relationship is stated more formally in the following hypothesis.

H13: Valence partially mediates the relationship of LOC to delay behavior such that an ILOC belief is related to an increase in the positive valence score for the delayed reward, which in turn is related to an increase in delay behavior.

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CHAPTER IV

RESEARCH METHODOLOGY

In this chapter, methods used to construct the self-report assessment of the trait of delay of gratification, and test hypotheses concerning those constructs purported to have a relationship with the DG trait, are detailed. The chapter includes a description of participants, the test construction procedure, the experimental procedure used to assess construct validity, and methods used for data analysis. The order of the letters of the alphabet used in reference to various appendices discussed in this chapter refer to the order of presentation of this material to subjects.

Subjects

The subjects of the study were students at a large 4-year public degree-granting university located in the southeast United States. 200 subjects participated in the first portion of the study, while 189 subjects participated in both sessions of the study, a return rate of 94.5%. 7 subjects who did not return for the second session actually appeared after the session had begun and had progressed to

the point where it would have been disruptive to allow the latecomers to participate. These subjects, when asked by the researcher, indicated that they had either forgotten about the second session, or that a more pressing issue requiring their attention arose between the first and second session, preventing their timely attendance at the second session. 4 subjects were unaccounted for.

Main demographic sample characteristics were as follows. Sex: male - 42%, female - 58%, Race: white - 62%, African-American - 28%, Hispanic-American - 2%, Asian-American - 3%, Other - 5%. Ages ranged from 18 to 31 years of age, however, 98% of the subjects were in the age range of 18 to 24.

PROCEDURE

Delay of gratification

The study was conducted in two sessions. To avoid sensitizing subjects to the purpose of the study, the first session consisted of administering the FTP, LOC, and FA measures, as well as the measure of EC and ER.

The second phase of the study included completion of a detailed demographic questionnaire, and completion of the VIE measure. A period of two days elapsed between completion of the first session measures and the completion of the second session measures. During the second phase, subjects were presented with a choice of rewards in order to

assess delay of gratification behavior. Delay was operationalized by allowing subjects to choose between receiving the promised monetary reward provided for study participation at that time, and an ostensibly increased reward for delaying receipt of the reward to some later time.

This operationalization of delay followed a general format utilized by a number of delay researchers; a choice between receiving some immediate outcome, or waiting some length of time to receive a deferred future outcome, both connected to the individual's current behavior. Delay of gratification studies have been conducted using reward choices involving preference between levels of rewards such as monetary remuneration, some amount of money now or a larger sum in the future (Bandura & Mischel, 1965; Mischel, 1958; Stumphauzer, 1972), a desirable comestible, such as one piece of candy or pretzel immediately or several pieces in the future ([Bandura & Mischel, 1965; Klineberg, 1968; Mischel, Ebbesen & Zeiss, 1972), or magnitude of immediate or deferred playthings received, a small toy now or a larger same-type toy later (Bandura & Mischel, 1965; Mischel, 1966).

Additionally, the manner in which the need for the choice between immediate or delayed reward was presented to subjects had also been previously utilized in delay of gratification research (Klineberg, 1968). Subjects in the

current study were told by the facilitator that an additional payment of funds had been authorized by the office of the agency ostensibly funding the study to all those who chose to wait to receive payment. No such agency existed, however, this was done as a method of rationalizing the delay manipulation to subjects without raising suspicion or sensitizing them to its true goal.

Individuals choosing the delayed payment would receive a payment of \$7 rather than the initial \$5 to be paid immediately at the conclusion of the study. The same monetary reward, \$5, was provided to both those subjects who chose immediate reward as well as to those choosing delayed reward. Subjects who chose immediate reward were debriefed and paid directly after making their choice, as were those subjects who chose delayed reward. The final payoff amount was the same, as subjects choosing delayed reward were not required to actually engage in any additional activity in comparison to those choosing immediate reward.

General Regulation of Subjects

Prior to distribution of each measure, subjects were instructed that upon completion of each measure, they were to retain the instrument and remain quietly seated until all group members were finished. These instructions were also provided on the cover sheet for the booklet of measures (Appendix A) as well as in each measure's respective

"Directions" components. When all group members had completed the measure, instruments for each phase were collected *en masse*. Based on anecdotal information, use of this procedure discourages subjects from rushing through the instrument in order to minimize the amount of time involved in participation and hasten individual dismissal.

In order to match subjects' responses to parts I and II of the study, subjects were initially provided an index card containing a control/ID code number. Subjects were instructed to bring this card with them for all phases of the study. A master file cross referencing control numbers with subject names was kept during both phases of the study in the event a subject forgot to bring his or her card to the second session. This master file was destroyed immediately after the completion of the second phase of the study to preserve anonymity of the subjects. During each phase of the study, subjects were instructed to record this ID number in spaces provided on each document. Participation was monitored on separate sheets for each session by subject name and SSN.

Session 1

200 subjects participated in session 1. Subjects were provided the measures of the personality constructs (independent variables), specifically: the Stanford FTP measure, Levenson's locus of control (LOC) measure, the measure of future anxiety (FA), and the EC-ER measure(See

appendices B, C, D & E, respectively, for items and instructions to subjects). Subjects were seated in such a manner to prevent viewing of other subjects' choices and to minimize possibilities of conversational information exchanges. Upon completion of these instruments, and prior to their collection, subjects were reminded that in order to receive both the extra credit and monetary portions of the participation incentive, it would be necessary for them to participate in the second phase of the study. To enhance compliance, this injunction was noted on the sign-up sheet for groups for the first session, and was announced in class by the respective instructors of the participants.

Session 2

Session 2 used the same procedure and the same set of instructions to subjects used in session 1. The demographic questionnaire was distributed to each subject (Appendix F). After completion and collection of this measure, the subjects, who had been spaced in the same manner as in session 1, were asked to remain seated. The facilitator again strongly cautioned subjects to remain silent and not speak with any of the other subjects until the administrator indicated it was acceptable to do so. At this time, the measure of VIE components derived from Matsui, et. al., (1977) was administered (Appendix J).

During session 2, the subjects also were given the choice of the immediately available \$5 and the delayed

payment of \$7. This portion of the study was split into two conditions, the general difference between the conditions involved the order of presentation of the VIE measure and the subject's choice of immediate or delayed payment. This counterbalance of the choice of the reward and the completion of the VIE measure was initiated to measure differences, if any, in subjects' choice of immediate versus delayed payment which may have occurred due to possible sensitization of subjects to the purpose of the study caused by statements addressing the actual choice of the immediate \$5 versus the delayed \$7 contained in the VIE measure. For this purpose, the subject pool was randomly split into two groups for the purpose of control, and each different procedure was conducted in a separate facility. Neither group of subjects were aware of these differences before the completion of the study.

Subjects assigned to the first condition were presented with the choice between the expected \$5 to be paid immediately, or an ostensible payment, increased in magnitude to \$7, to be received in five days. After being informed of the parameters of the choice by the facilitator (Appendix G), subjects chose between immediate and deferred payment, then completed the VIE measure.

Subjects assigned to the second condition were presented with the identical parameters of the choice between immediate and deferred payment as subjects in the

first condition. In the second condition, however, subjects first completed the VIE measure, then made the choice between the immediate payment and the deferred payment (Appendix H).

To reduce peer presence and conformity effects, no visible form of consent (hand raising, verbal agreement, etc.) was solicited at any time during the period when subjects were choosing between payment types. Instead, subjects were told to indicate their payment preference on a payment tracking form (Appendix I). Since the addition of the extra \$2 by the researcher was ostensibly spontaneous, subjects were verbally instructed to clearly print their choice on this form, "\$5 now", or "\$7 five days from now".

When all subjects had completed either the payment tracking form or the VIE measure, depending on condition, the respective forms were collected, the group was debriefed, and the \$5 monetary reward was immediately paid to all who remained. Several subjects, although completing all portions of the study, were not paid. General frustration with waiting seemed to have occurred with some subjects. These subjects abruptly left the study after debriefing without waiting to be paid, never to be seen by the researchers again. This anomaly is addressed in detail in Chapter VI. Subjects were then dismissed.

MEASURES

Future time perspective The dimensions of density, extension and directionality were measured using items from the Stanford Time Perspective Inventory (Gonzalez & Zimbardo, 1985; Zimbardo, 1990), containing twenty-six Likert-type items addressing subjects' perceptions of their personal present and future (Appendix B).

Locus of control Subjects' locus of control was assessed using Levenson's Multi-Dimensional Locus of Control scale (Levenson, 1972, 1973). As discussed in the review of relevant literature, this scale recognizes 3 sources of locus of control: an internal control dimension as well as two external control dimensions; one coming from what is termed "powerful others", the second consisting of chance, luck or fate. Subjects responded to the 23 items on a seven-point Likert-type response format (Appendix C).

Future anxiety Subjects' perceptions of the future as being fraught with uncertainty, unfavorable change, negative outcomes and other events were measured using the Future Attitude Scale (Zaleski, 1996). Subjects answered twenty-nine 7-point Likert-type items (Appendix D).

EC and ER scale (Appendix E) Using Block's CQS (Block, 1971) as its basis, a pool of items was generated to represent the constructs of ER and EC. Scores from the CQS are indicative of the level of subjects' EC and ER. As noted in the literature review, subjects' scores on certain

items representing either EC or ER on the CQS have demonstrated a significant, positive relationship with delay of gratification behavior (Funder, Block & Block, 1983; Funder and Block, 1989; Mischel, et. al., 1988; Mischel, et. al., 1990)

The CQS is configured in a forced-choice format containing 100 descriptions of possible behaviors, each description contained on an individual index card. Using the CQS, an observer, intimately familiar with the behavior of the person of interest, is instructed to place each of these index cards into one of nine numbered groups, group numbers ranging from a low of "1" to a high of "9". An increase in the value of the number of each group is indicative of an increase in the degree to which the observer believes behavior on the card matches behavior of the subject. The number "1" indicates that any statement in that group represents the weakest representation of the subject's behavior. The number "9" indicates that any statement in that group represents the strongest representation of the subject's behavior. The number of behavioral statements placed in each group is predetermined, eight of the groups must contain eleven statements, and one group twelve statements.

Much of the prior research in this area (Funder, et al., 1983; Funder & Block, 1989; Mischel, et al., 1988; Shoda, et al., 1990) asked parents (as well as other

observers familiar with the childrens' behavior) who had participated in the respective delay of gratification studies to assess the behavior of their child or children using the CQS. In both of the Funder and Block studies, the CQS was administered in its original format. After initially using the CQS in its original format (Mischel, et al., 1988), Mischel and associates (Shoda, et al., 1990) subsequently subjected the format of the CQS to successful transformations in methods of both administration and scoring. Instead of each statement being contained on its own index card, all CQS statements were formatted into a standard survey instrument, with multiple statements appearing on each page. Additionally, the method of scoring was altered. Instead of a forced choice format, a 9-point Likert-type scale was provided, each number indicating the degree to which the statement was representative of the child's behavior.

Given these available measurement techniques, it was necessary to develop a self-report measure which could be used to predict delay of gratification behavior. As noted above, several reliable, valid self-report measures of the subtraits believed to contribute to the global DG trait were used to assess the traits of LOC and FTP. No self-report measures of EC or ER, however, were available. The only known measure of these constructs is the CQS, which is not self-administered in its original format. Therefore, for

this study, Mischel's successful transformation of the CQS from a forced choice format into a survey format using a Likert-type scale was extended to a self-report, Likert-type scale survey version of the CQS, utilizing behavioral statements from the CQS found to be strongly and significantly correlated with delay behavior in the four studies conducted by Block and Mischel and their associates (Funder, et al., 1983; Funder & Block, 1989; Mischel, et al., 1988; Shoda, et al., 1990).

Development of the Self-Report COS

As part of the transformation of the CQS to a self-report Likert-type measure, 179 self-report items were initially generated from the CQS statements representing the constructs of EC and ER. All behavioral descriptions from the CQS demonstrating significant correlations with the delay behavior assessed in both the Block and Mischel studies were used to construct items representing ego control and ego resiliency. Several items were generated to represent each CQS description.

Ultimate determination of any item's representativeness is a matter of judgment (Kerlinger, 1986). According to Haynes, Richard and Kubany (1995), multiple judges, those considered to have expertise in and familiarity with the construct of interest, should be instructed to assess the representativeness of any and each proposed scale item using

a 5- to 7- point numerical scaling procedure. The judges should also be solicited for any additional comments pertaining to the clarity, representativeness, possible rewording and specificity of any item to facilitate elimination or revision of any item.

Therefore, the generated items were given to a panel of five independent judges familiar with the constructs of EC and ER. Each judge was terminally degreed in some aspect of the behavioral sciences; areas of concentration included organizational behavior, experimental and social psychology, clinical psychology, and educational psychology. Judges were asked to rate each item in terms of its representativeness of the construct using the criteria provided by Haynes, et. al. (1995) above. Suggestions were considered, changes made, and the corrected items returned to the panel for final rating.

An analysis of rater agreement concerning the items was performed. Items chosen to be retained met two selection criteria: 1. High mean scores, indicating the average level of agreement among raters of the item's representativeness of the respective statement from the original CQS (mean score range: 5.75 to 6.5 on a 7 point scoring system). The cutoff value of this range (5.75) was the lowest value of all these high mean scores. High mean scores of items were indicative of the judges' collective determination that the item was highly representative of the original CQS

statement. A score of 5.75, then, meant that the judges agreed that any item with this score was at the very least a good to very good representation of the original CQS statement. 2. Low standard deviations (1.25 or less) among judges' scores of each item, indicating a high level of agreement among judges of the item score. The high cutoff value for standard deviation (1.25) was chosen in the same manner used in determining the low cutoff value for item mean scores. A total of 40 self-report items representing the original behavioral statements from the CQS was retained.

In the studies conducted by Funder and the Blocks, subjects' scores on a delay of gratification statement from the CQS demonstrated the largest significant positive correlation with subjects' actual delay behavior. Therefore, several items addressing individual preferences for immediate or delayed rewards were generated and retained as part of the EC segment of the measure, whereas all other statements were represented by no more than one item. Subjects responded to all 40 items using a 7-point Likert type scale (Appendix E).

VIE Measure Pilot Study. Prior to finalization of the format of the VIE measure, a pilot test to ascertain a delayed payment size potent enough to affect subject's choice of this reward over an immediately available but lesser payment was conducted. A convenience sample of 78

undergraduate students enrolled in various business administration courses at a small, public southeastern university was used.

Subjects read and responded in writing to a survey containing several scenarios addressing immediate versus deferred payment, as well as various forms with which the deferred payment could be distributed. Subjects also generated possible positive and negative outcomes they believed would occur as a result of engaging in the various behaviors addressed in the pilot. Finally, subjects were asked to generate possible positive and negative outcomes they believed would occur if the subjects were asked to participate in several variations of the study protocol. Results obtained from the pilot were used as the basis for statements and outcomes used in the final VIE instrument as described below.

VIE Measure

In the VIE measure itself (Appendix J), subjects' expectancy and instrumentality beliefs, as well as valence scores, were measured using the general format of the within-subjects VIE assessment procedure used by Matsui (Matsui, et al., 1977). Using 10 7-point Likert-type items, the first section asked subjects to make several assessments which indicated the probability that if they exerted their highest level of effort, they would be able to successfully engage in various behaviors.

The second section of the measure instructed subjects to assess the probability of the occurrence of positive and negative outcomes which could possibly result from engaging in each of these behaviors. The choices of positive and negative outcomes were obtained in the pilot study mentioned above. To obtain subjective valences of these outcomes, the third section of the VIE measure had subjects use a 7-point Likert-style format to rate the desirability of the occurrence of each of the outcomes listed in the second section.

Only the 2 items addressing the relationship of the strength of the respective VIE component scores to the subjects' choice of immediate versus delayed rewards were of interest to the current study. The remaining 8 items were inserted as camouflage in order to prevent subjects from guessing the true interest of this section of the study.

Other Measures

Demographic and Experience Data Information concerning the subjects' sex, age, race, ethnicity nationality, education, work experience, religious affiliation, income and birth order was also collected. This measure also acted as a distractor in session 2 of the current study (Appendix F).

Overview of Data Analysis

To examine both the effects of the four proposed

constructs (LOC, FTP, EC and ER) to DG behavior, as well as the mediating roles of expectancy theory components (valence, instrumentality, and expectancy), a series of mediated regressions was chosen as the method of data analysis. A detailed description of this procedure is presented in the beginning of Chapter V. Additionally, zero-order correlations, as well as means and standard deviations of all variables included in the study were generated. The Cronbach's Alpha statistic for each measure used in the study is available in Table 1 at the end of this chapter.

Before undergoing regression analysis, measures underwent rudimentary assessment to ascertain general performance characteristics. Results of this assessment required restructuring the analysis of the proposed mediators, the three major components of VIE theory. The VIE measure utilized the format of the VIE measure used by Matsui, et al. (1977). The measure required subjects to make expectancy judgments for both the immediate and the delayed reward, the judgments representing the three major VIE components. Examination of this measure using Cronbach's alpha (1951) determined that several of the VIE components were, in fact, two distinct measures. Initially, each of these measures was differentiated only by its relationship to a specific outcome (immediate reward versus delayed reward) as with Matsui, et al. (1977) After use of

the alpha test, however, both instrumentality and valence measures were further split according to whether the outcomes related to choice of the respective reward were positive or negative. As a result, the relationship of the mediator to reward choice, as well as the relationship of the dispositional trait to the respective mediator, were assessed using several forms of the mediator described in the following paragraph.

The effects of expectancy were tested using **immediate reward behavior expectancy scores**, those related to the subject's perceptions of the probability as to whether he or she could successfully engage in behaviors related to immediate reward. **Delayed reward behavior expectancy scores** were those related to the subject's perceptions of the probability as to whether he or she could successfully engage in behaviors related to delayed reward. Both expectancy assessments were single item measures, therefore, no alpha for either measure is provided in Table 2.

Instrumentality perceptions were tested using four types of instrumentality scores. The first, **immediate reward positive instrumentalities**, were those subjective judgments made by individuals of the probability that choosing immediate reward would result in the subject experiencing certain positive outcomes. **Immediate reward negative instrumentalities** were those subjective judgments

made by individuals of the probability that choosing immediate reward would result in the subject experiencing certain negative outcomes. **Delayed reward positive instrumentalities** were those subjective judgments made by individuals of the probability that choosing delayed reward would result in the subject experiencing certain positive outcomes. Finally, **delayed reward negative instrumentalities** were those subjective judgments made by individuals of the probability that choosing delayed reward would result in the subject experiencing certain negative outcomes. Both types of negative instrumentality were assessed using single item measures, therefore, no alpha score is available in Table 1 for either of these items.

Valence scores were split into types in the same general fashion as instrumentality perceptions. First, **immediate reward positive outcome** scores were those judgments made by individuals of the value of each positive outcome related to the choice of immediate reward. **Immediate reward negative outcome** scores were those judgments made by individuals of the value of each negative outcome related to the choice of immediate reward. **Delayed reward positive outcome** scores were those judgments made by individuals of the value of each positive outcome related to the choice of delayed reward. Finally, **delayed reward negative outcome** scores were those judgments made by

individuals of the value of each negative outcome related to the choice of delayed reward. Again, as with negative instrumentality scores, both types of negative valences were measured using single item scores, therefore, alpha scores for these measures are not available.

The effects of the various personality variables (I.V.s) hypothesized to influence delay behavior were assessed individually. Although each variable was conceptualized for the current study as contributing to an overall delay of gratification trait, which in turn would then affect delay of gratification, the role of each of these variables in delay behavior, as well as each variable's effect on VIE judgments was unclear or unknown. The researcher believed it was more important to clarify these relationships at this time than it was to maximize the amount of variance explained by simultaneously assessing the effects of all the independent variables on the proposed mediators and the dependent variables. It should be recognized that increasing the number of statistical tests increases the probability of occurrence of Type I error, however, as described in Chapter V, this issue was of minor concern, given the results of hypothesis testing.

Table 1

Internal Consistency Reliability (Cronbach Alpha) of Measures.

Measure	No. of Items	Cronbach Alpha
Self-Report CQS (Combined)	40	.77
Self-Report CQS (Ego Control)	21	.62
Self-Report CQS (Ego Resiliency)	19	.68
Locus of Control	23	.79
Future Anxiety	29	.93
Future Time Perspective	26	.72
Immediate Positive Rewards	3	.83
Delayed Positive Rewards	3	.90
Immediate Positive Instrumentalities	3	.82
Delayed Positive Instrumentalities	3	.80

CHAPTER V

RESULTS

In this chapter, results of the tests of the hypotheses described in Chapter III are presented. Simple statistics, including means and standard deviations of all independent, dependent, and mediating variables, as well as correlations among independent, dependent and mediating variables, are presented in Table 2. The results of analyses of non-hypothesized relationships found to exist among some of the variables in the study during data analysis are also reported. The chapter concludes with a summary of the results.

Examination of Mediation

The majority of hypotheses in this study (see Chapter II) addressed expected mediation effects of expectancy theory components on the relationships of the independent (personality) variables to the dependent variable, the subject's choice of immediate or delayed reward (readers are referred to Baron and Kenny (1986) for a thorough review of mediation and moderation effects). Generally, statistical tests of mediation must meet all criteria contained in four

Table 2
 Means, Standard Deviations and Correlations of Principal Variables

Variable	Mean (S.D.)	1	2	3	4	5	6	7	8	9
1. Reward Choice ¹	1.15 (.36)									
2. Condition ²	1.52 (.50)	.09 (189)								
3. Ego Control	94.04 (10.91)	.06 (189)	-.08 (189)							
4. Ego Resiliency	95.40 (9.82)	-.13 (189)	-.02 (189)	.50 (200)						
5. Density	44.20 (8.92)	.01 (189)	-.03 (189)	.23 (200)	.41 (200)					
6. Extension	39.57 (6.35)	.13 (189)	-.08 (189)	.37 (200)	.35 (200)	.47 (200)				

$r > .17$ significant at $p < .01$ $r > .13$ significant at $p < .05$
 $r > .11$ significant at $.10$

¹ indicates choice of immediate reward; 2 indicates choice of delayed reward

² indicates reward chosen, VIE measures completed; 2 indicates VIE measures completed, reward chosen

table continues

Variable	Mean (S.D.)	1	2	3	4	5	6	7	8	9
7. Directionality	52.53 (6.90)	.07 (189)	-.03 (189)	.46 (200)	.58 (200)	.60 (200)	.45 (200)			
8. Future Anxiety	83.21 (25.75)	.04 (189)	.06 (189)	-.32 (200)	-.52 (200)	-.45 (200)	-.28 (200)	-.61 (200)		
9. Locus of Control	115.13 (13.26)	.02 (189)	-.03 (189)	.41 (200)	.53 (200)	.41 (200)	.43 (200)	.61 (200)	-.62 (200)	
10. Immediate Expectancy	5.66 (1.56)	-.67 (189)	-.11 (189)	-.11 (189)	-.02 (189)	-.02 (189)	-.15 (189)	-.16 (189)	.00 (189)	-.04 (189)
11. Delayed Expectancy	3.06 (1.85)	.65 (189)	.26 (189)	.11 (189)	-.01 (189)	.02 (189)	.14 (189)	.11 (189)	.05 (189)	.07 (189)
12. Pos. Immediate Valence	18.71 (2.26)	-.39 (189)	-.11 (189)	-.01 (189)	-.02 (189)	-.04 (189)	-.11 (189)	-.12 (189)	.02 (189)	-.07 (189)
13. Neg. Immediate Valence	5.06 (1.21)	.27 (189)	-.03 (189)	.12 (189)	.11 (189)	-.05 (189)	-.01 (189)	.15 (189)	-.03 (189)	.03 (189)

r > .17 significant at p < .01
 r > .11 significant at .10

r > .13 significant at p < .05

table continues

Variable	Mean (S.D.)	1	2	3	4	5	6	7	8	9
14. Pos. Delayed Valence	16.51 (3.71)	.27 (189)	.13 (189)	.11 (188)	-.03 (188)	.02 (188)	.16 (188)	.07 (188)	.06 (188)	.05 (188)
15. Neg. Delayed Valence	5.39 (1.39)	-.17 (189)	-.04 (189)	-.11 (189)	-.02 (189)	.03 (189)	.05 (189)	-.07 (189)	-.04 (189)	-.02 (189)
16. Pos. Immediate Instrumentalities	21.68 (2.85)	-.29 (189)	-.02 (189)	.03 (189)	.01 (189)	-.08 (189)	-.05 (189)	-.02 (189)	.06 (189)	.06 (189)
17. Neg. Immediate Instrumentalities	5.51 (2.40)	.11 (189)	-.02 (189)	-.14 (189)	-.10 (189)	-.10 (189)	-.08 (189)	-.09 (189)	.00 (189)	.01 (189)
18. Pos. Delayed Instrumentalities	18.35 (4.87)	.25 (189)	.06 (189)	.02 (189)	-.07 (189)	-.08 (189)	.14 (189)	.01 (189)	.05 (189)	.01 (189)
19. Neg. Delayed Instrumentalities	5.81 (2.21)	-.16 (189)	-.02 (189)	-.03 (189)	-.05 (189)	-.01 (189)	.05 (189)	-.05 (189)	-.03 (189)	.08 (189)

r > .17 significant at p < .01
r > .11 significant at .10

r > .13 significant at p < .05

table continues

Variable	Mean (S.D.)	10	11	12	13	14	15	16	17	18
9. Locus of Control										
10. Immediate Expectancy										
11. Delayed Expectancy	-.74 (189)									
12. Pos. Immediate Valence	.41 (189)	-.43 (189)								
13. Neg. Immediate Valence	-.35 (189)	.31 (189)	.04 (189)							
14. Pos. Delayed Valence	-.28 (189)	.39 (189)	.03 (189)	.20 (189)						
15. Neg. Delayed Valence	.12 (188)	-.09 (189)	.24 (189)	-.12 (189)	.19 (189)					

r > .17 significant at p < .01

r > .13 significant at p < .05

r > .11 significant at .10

table continues

Variable	Mean (S.D.)	10	11	12	13	14	15	16	17	18
16. Pos. Immediate Instrumentalities	.24 (189)	-.19 (189)	.39 (189)	.01 (189)	.05 (189)	.11 (189)				
17. Neg. Immediate Instrumentalities	-.07 (189)	.12 (189)	-.01 (189)	.05 (189)	.18 (189)	.05 (189)	.21 (189)			
18. Pos. Delayed Instrumentalities	-.27 (189)	.34 (189)	-.14 (189)	.09 (189)	.59 (189)	-.02 (189)	.14 (189)	.36 (189)		
19. Neg. Delayed Instrumentalities	.16 (189)	-.13 (189)	.21 (189)	-.04 (189)	-.09 (189)	.05 (189)	.43 (189)	.29 (189)	.07 (189)	

r > .17 significant at p < .01

r > .13 significant at p < .05

r > .11 significant at .10

assessment steps before a mediation relationship can be supported (Baron & Kenney, 1986; Judd & Kenney, 1981). In the current study, all variables involved in the proposed mediation model are measured, and no latent constructs are assumed; therefore, some form of regression analysis is the correct statistical technique to use in examination of hypothesized relationships. In certain analyses, specifically those addressing the relationships of the independent variables to the dependent variable, as well as the relationships of the mediators to the dependent variables, were done using the logistic regression analysis procedure, as the dependent variable, reward choice, was dichotomous (Cody & Smith, 1997). For tests of the relationships of the independent variables to the mediator, OLS regression was used, as the mediator (the dependent variable in these equations) was multi-level. Because of the use of both linear and logistic regression in each analysis, the χ^2 value is reported for tests with dichotomous dependent variables, and the F-statistic for tests involving other dependent variables, in the analysis tables for each hypothesis. Additionally, the reported R^2 for logistic regression analyses is actually a pseudo- R^2 (Tabachnick & Fidell, 1989).

The first step in testing for a significant relationship assesses the relationship between the independent and the dependent variables in order to

establish whether there is some relationship which can be mediated. The second step tests for a relationship between the independent variable and the mediator. In this step, the mediator is treated as a dependent variable in the regression equation. Step three assesses the relationship of the mediator to the dependent variable. In this step, the mediator assumes the role of the independent variable in the regression equation. Step four assesses the effect of the mediator on the relationship of the independent to the dependent variable by treating both the mediator and the independent variable as independent variables. No mediation effect is indicated if there is no noticeable reduction in the strength of any independent-dependent variable relationship found in step one when compared to the strength of this same relationship found in step four. Complete mediation occurs if the results of step four do not support a relationship between the independent variable and the dependent variable, but such a relationship existed in step one. Partial mediation is indicated if comparison of statistical tests between step one and step four show a partial reduction of the effect of the independent variable on the dependent variable in step four. All mediation hypotheses in the current study were tested using the criteria of these four steps as guidelines.

Effects of Condition on Subjects' Reward Choice.

As mentioned in the methodology section of this study, found at the end of Chapter III, the sequence in which subjects chose either immediate or delayed reward and completed the measure of VIE components was alternated. Subjects were split into two groups or presentation conditions. Those in the first condition were instructed to choose between the immediate or delayed reward, and then subsequently completed the VIE instrument after making their choice. Subjects in the second condition were told they would be allowed to choose between the two rewards, but first were required to complete the VIE instrument before being instructed to choose immediate or delayed reward. Statistical analysis was performed to ascertain what effect, if any, differences in order of reward choice may have had on reward choice.

Regression analysis failed to support any direct effect of condition on subjects' choice of reward, however, two significant relationships involving the effect of condition on certain VIE components were discovered. A main effect of condition on both delayed reward expectancy and delayed reward positive valences occurred. These effects, however, were relatively small in magnitude, therefore, their impact on the study results were most likely minimal. These effects are noted in discussion of the statistical analyses of hypotheses demonstrating these relationships. A discussion of these effects occurs in the section

immediately following the discussion of statistical analyses of all hypotheses.

Tests of Hypotheses

Hypothesis 1. Hypothesis 1 predicted a relationship between ego control (EC), the independent variable, and reward choice, the dependent variable, mediated by one's expectancy judgment of being able to engage in the respective behavior required to obtain either reward. (Tables 3 & 4). Regression analysis did not demonstrate a significant direct effect between EC and subjects' choice of reward, therefore this hypothesis was not supported. Additionally, EC failed to demonstrate a significant relationship to subjects' expectancy judgments of being able to engage in behavior associated with either immediate or delayed reward. A significant and inverse relationship, in the expected direction, of subjects' immediate reward behavior expectancy to subjects' choice of reward was discovered. Here, choice of immediate reward was indicated by "1" and choice of delayed reward was indicated by a score of "2" ($\chi^2_{2,186} = 40.25, p < .01$). As subjects' expectancy beliefs concerning immediate reward behavior increased, choice of delayed reward decreased.

A significant, direct relationship of subjects' delayed reward expectancy to reward choice was also evident, in the expected direction ($\chi^2_{2,186} = 31.78, p < .01$). As

subjects' perceptions of being able to engage in delayed reward behavior strengthened, choice of delayed reward increased.

One non-hypothesized significant relationship was observed as well. The condition, or order of presentation of the VIE measure, was significantly related to subjects' expectancy scores for delayed reward ($F_{2, 186} = 3.80, p < .01$). This relationship is discussed at the end of this chapter along with other non-hypothesized significant relationships noted during data analysis. Statistical information concerning this relationship is presented with data concerning the hypothesized relationships (Table 4).

Table 3

Summary of Mediated Regression Analysis
Ego Control's Effect on Reward Choice as Mediated by
Immediate Reward Behavior Expectancy

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EC	.10		.004		.69
Eq. 2						
E	EC	-.11	.008		2.43	
Eq. 3						
Choice	E	-.99				40.25***
	EC	-.07		.317		.24

* = p < .10

** = p < .05

*** = p < .01

Table 4
 Summary of Mediated Regression Analysis
 Ego Control's Effect on Reward Choice as Mediated by
 Delayed Reward Behavior Expectancy

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	EC	.10		.004		.69
Eq. 2						
E	Cond.	.27			3.80***	
	EC	.13	.074		1.87	
Eq.3						
Choice	E	1.36				31.78***
	EC	-.08		.353		.26

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 2. Hypothesis 2 predicted a relationship between EC and reward choice, with subjects' valence scores for either immediate or delayed reward mediating the EC-outcome relationship. As reported above, no significant relationship existed between EC and reward choice (Tables 5-8), therefore this hypothesis was not supported. A marginally significant direct effect of EC on immediate reward negative valences in the predicted direction was apparent ($F_{1,187} = 2.59$, $P < .10$; Table 6). There were no significant relationships between EC and immediate reward positive valences, or delayed reward positive valences (Tables 5 & 7, respectively). Immediate reward positive valences ($\chi^2_{2,186} = 21.49$, $p < .01$; Table 5), and

delayed reward negative valences ($\chi^2_{2,186} = 4.90, p < .05$; Table 8), were significantly and inversely related to reward choice, both in the predicted direction. Immediate reward negative valences ($\chi^2_{2,186} = 12.21, p < .01$; Table 6), and delayed reward positive valences ($\chi^2_{2,186} = 12.73, p < .01$; Table 7) were significantly and positively related to reward choice, both in the predicted direction.

One non-hypothesized relationship was observed. Condition was significantly related to delayed reward positive valences ($F_{2,186} = 3.41, p < .01$; Table 7). This relationship is discussed later in this chapter.

Table 5

Summary of Mediated Regression Analysis
Ego Control's Effect on Reward Choice as Mediated by
Immediate Reward Positive Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ^2
Eq. 1						
Choice	EC	.10		.004		.69
Eq. 2						
V	EC	-.01	-.005		.04	
Eq. 3						
Choice	V	-.56				21.49***
	EC	.07		.131		.32

* = $p < .10$ ** = $p < .05$ *** = $p < .01$

Table 6
 Summary of Mediated Regression Analysis
 Ego Control's Effect on Reward Choice as Mediated by
 Immediate Reward Negative Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EC	.10		.004		.69
Eq. 2						
V	EC	.12	.008		2.59*	
Eq. 3						
Choice	V	.47				12.21***
	EC	.04		.073		1.00

* = p < .10 ** = p < .05 *** = p < .01

Table 7
 Summary of Mediated Regression Analysis
 Ego Control's Effect on Reward Choice as Mediated by
 Delayed Reward Positive Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EC	.10		.004		.69
Eq. 2						
V	Cond.	.14			3.41***	
	EC	.11	.022		1.70	
Eq. 3						
Choice	V	.63				12.73***
	EC	.02		.092		.03

* = p < .10 ** = p < .05 *** = p < .01

Table 8
 Summary of Mediated Regression Analysis
 Ego Control's Effect on Reward Choice as Mediated by
 Delayed Reward Negative Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	EC	.10		.004		.69
Eq. 2						
V	EC	-.11	.021		2.34	
Eq.3						
Choice	V	-.24				4.90**
	EC	.07		.029		.33

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 3.

Hypothesis 3 posited a moderating effect of ego resiliency (ER) on the strength of EC's effect on choice of reward. The effect of this interaction on choice of outcome was hypothesized to be mediated by expectancy beliefs of subjects concerning behavior related to both types of reward. Regression analysis failed to provide support for this hypothesis. No significant interaction effect of EC and ER on the dependent variable was evident (Table 9). Additionally, the interaction term was not significantly related to the proposed mediator, subjects' expectancy judgments concerning behavior related to reward choice (Tables 9 & 10).

Table 9
 Summary of Mediated Regression Analysis
 Ego Control's Effect on Reward Choice as Moderated by Ego
 Resiliency, Mediated by Immediate Reward Behavior Expectancy

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EC	.01				.00
	ER	-.58				.38
	ECxER	.45		.038		.07
Eq. 2						
E	EC	.32			.49	
	ER	-.58			.80	
	ECxER	-.77	.002		-.71	
Eq. 3						
Choice	E	-1.13				34.85***
	EC	1.64				1.20
	ER	.74				.29
	ECxER	-2.42		.353		.91

* = p < .10 ** = p < .05 *** = p < .01

Table 10
 Summary of Mediated Regression Analysis
 Ego Control's Effect on Reward Choice as Moderated by Ego
 Resiliency, Mediated by Delayed Reward Behavior Expectancy

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EC	.01				.00
	ER	-.58				.38
	ECxER	.45		.023		.07
Eq. 2						
E	Cond.	.27			3.78***	
	EC	.09			.14	
	ER	-.19			-.32	
	ECxER	.16	.071		.15	
Eq. 3						
Choice	E	.89				31.94***
	EC	1.14				.56
	ER	.51				.13
	ECxER	-1.70		.374		.45

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 4.

Hypothesis 4 predicted a relationship between the density component of future time perspective (FTP) and reward choice, with subjects' instrumentality judgments concerning receipt of the immediate and delayed rewards mediating the density-reward choice relationship.

Regression analysis did not demonstrate a significant direct effect of density on reward choice (Table 11).

Additionally, no statistical evidence of a link between density and instrumentality, the proposed mediator, existed

(Tables 11-14). Results demonstrated partial support for a relationship between instrumentality and reward choice. Immediate positive outcome instrumentalities ($\chi^2_{2,186} = 13.34$, $p < .01$; Table 11), and delayed negative outcome instrumentalities ($\chi^2_{2,186} = 4.44$, $p < .05$; Table 14), demonstrated significant inverse relationships in the predicted direction with the subjects' choice of outcome. Delayed positive outcome instrumentalities were significantly and positively related to reward choice as predicted ($\chi^2_{2,186} = 10.95$, $p < .01$; Table 13).

Table 11
 Summary of Mediated Regression Analysis
 FTP Density's (DN) Effect on Reward Choice as Mediated by
 Immediate Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ^2
Eq. 1						
Choice	DN	.01		.000		.01
Eq. 2						
I	DN	-.08	.001		1.14	
Eq. 3						
Choice	I	-.38				13.34***
	DN	-.04		.029		.13

* = $p < .10$ ** = $p < .05$ *** = $p < .01$

Table 12
 Summary of Three-Step Mediated Regression Analysis
 FTP Density's (DN) Effect on Reward Choice as Mediated by
 Immediate Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	DN	.01		.000		.01
Eq. 2						
I	DN	-.10	.004		1.74	
Eq.3						
Choice	I	.19				2.37
	DN	.03		.013		.81

* = p < .10 ** = p < .05 *** = p < .01

Table 13
 Summary of Mediated Regression Analysis
 FTP Density's (DN) Effect on Reward Choice as Mediated by
 Delayed Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	DN	.01		.000		.01
Eq. 2						
I	DN	-.08	.001		1.21	
Eq.3						
Choice	I	.57				10.95***
	DN	.03		.077		.06

* = p < .10 ** = p < .05 *** = p < .01

Table 14
 Summary of Mediated Regression Analysis
 FTP Density's Effect on Reward Choice as Mediated by
 Delayed Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DN	.01		.000		.01
Eq. 2						
I	DN	-.01	-.005		.02	
Eq. 3						
Choice	I	-.22				4.44**
	DN	.01		.023		.01

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 5.

Hypothesis 5 predicted a relationship between the extension component of FTP and reward choice, with subjects' instrumentality judgments concerning receipt of both immediate and delayed rewards mediating the relationship between extension and reward choice. Regression analysis provided partial support for this hypothesis. A marginally significant, positive relationship existed between subjects' extension scores and their choices of either immediate or delayed reward ($\chi^2_{1,187} = 3.01, p < .10$), indicating that those with greater future extension were more likely to choose the delayed reward (Table 15).

The relationship of extension to instrumentality, the proposed mediator, was partially supported. Only delayed

positive outcome instrumentalities ($F_{2,186} = 3.68, p < .05$) demonstrated a significant, positive relationship with subjects' extension scores (Table 17). The relationships of extension to the other instrumentality components were not significant (Tables 15, 16 & 18).

Finally, analysis only provided partial support for mediation effects of instrumentality on the relationship of extension to reward choice. As noted above, the only relationship of the mediator to the independent variable which demonstrated significance was that of delayed positive outcome instrumentalities to extension. Therefore, the mediation effect of this instrumentality component on the relationship of extension to reward choice was assessed. When the mediator was entered into the regression equation as an independent variable as outlined in step four of the mediation test, complete mediation occurred. The extension-reward relationship, which had been marginally significant ($\chi^2_{1,187} = 3.01, P < .10$) became non-significant ($\chi^2_{2,185} = 1.32, p < .22$). The *B* value of extension was attenuated, from .20 (Table 15) to .14 (Table 17). The effect of extension on reward choice was completely occluded, demonstrating that this particular type of instrumentality did mediate the independent-dependent variable relationship, albeit with an overall change in *B* value that was relatively small (Table 17).

Table 15
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Mediated by
 Immediate Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	EX	.20		.016		3.01*
Eq. 2						
I	EX	.05	.003		.43	
Eq.3						
Choice	I	-.37				12.34
	EX	.18		.082		.81

* = p < .10 ** = p < .05 *** = p < .01

Table 16
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Mediated by
 Immediate Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	EX	.20		.016		3.01*
Eq. 2						
I	EX	-.08	.001		1.19	
Eq.3						
Choice	I	.19				2.60
	EX	.21		.031		3.28*

* = p < .10 ** = p < .05 *** = p < .01

Table 17
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Mediated by
 Delayed Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EX	.20		.016		3.01*
Eq. 2						
I	EX	.14	.014		3.68**	
Eq. 3						
Choice	I	.55				9.95***
	EX	.14		.084		1.49

* = p < .10 ** = p < .05 *** = p < .01

Table 18
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Mediated by
 Delayed Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EX	.20		.016		3.01*
Eq. 2						
I	EX	.05	-.003		.51	
Eq. 3						
Choice	I	-.24				4.97***
	EX	.22		.042		3.51*

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 6.

Hypothesis 6 proposed a relationship between the directionality component of FTP and subjects' choice of reward, with subjects' instrumentality judgments concerning receipt of both the immediate and delayed reward mediating the directionality-reward relationship. Regression analysis failed to support this hypothesis (Tables 19-22). No significant direct relationship existed between directionality and choice of reward (Table 19). Additionally, no statistical support was evident regarding the relationship between directionality and instrumentality, the proposed mediator.

Table 19
Summary of Mediated Regression Analysis
FTP Directionality's (DR) Effect on Reward Choice as
Mediated by Immediate Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DR	.11		.005		.83
Eq. 2						
I	DR	-.02	-.005		.12	
Eq. 3						
Choice	I	-.38				12.82***
	DR	.09		.074		.49

* = p < .10 ** = p < .05 *** = p < .01

Table 20
 Summary of Mediated Regression Analysis
 FTP Directionality's (DR) Effect on Reward Choice as
 Mediated by Immediate Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DR	.11		.005		.83
Eq. 2						
I	DR	-.09	.003		1.45	
Eq. 3						
Choice	I	.19				2.52
	DR	.11		.019		1.04

* = p < .10 ** = p < .05 *** = p < .01

Table 21
 Summary of Mediated Regression Analysis
 FTP Directionality's (DR) Effect on Reward Choice as
 Mediated by Delayed Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DR	.11		.005		.83
Eq. 2						
I	DR	.02	-.005		.04	
Eq. 3						
Choice	I	.56				12.82
	DR	.08		.078		.44

* = p < .10 ** = p < .05 *** = p < .01

Table 22
 Summary of Mediated Regression Analysis
 FTP Directionality's (DR) Effect on Reward Choice as
 Mediated by
 Delayed Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	DR	.11		.005		.83
Eq. 2						
I	DR	-.05	-.003		.45	
Eq.3						
Choice	I	.10				4.29**
	DR	.10		.027		.69

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 7.

Hypothesis 7 predicted a relationship between future anxiety (FA) and reward choice, with subjects' instrumentality judgments concerning choice of reward mediating the FA-outcome relationship. Regression analysis did not demonstrate a direct effect between FA and reward choice (Table 23), therefore, this hypothesis was not supported. No statistical evidence of a link between FA and instrumentality existed either (Tables 23-26).

Table 23
 Summary of Mediated Regression Analysis
 Future Anxiety's Effect on Reward Choice as Mediated by
 Immediate Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	FA	.06		.002		.28
Eq. 2						
I	FA	-.09	.004		1.68	
Eq. 3						
Choice	I	-.38				13.15***
	FA	.04		.072		.09

* = p < .10 ** = p < .05 *** = p < .01

Table 24
 Summary of Mediated Regression Analysis
 Future Anxiety's Effect on Reward Choice as Mediated by
 Immediate Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	FA	.06		.002		.28
Eq. 2						
I	FA	.00	.000		.01	
Eq. 3						
Choice	I	.19				2.34
	FA	.06		.015		.30

* = p < .10 ** = p < .05 *** = p < .01

Table 25
 Summary of Mediated Regression Analysis
 Future Anxiety's Effect on Reward Choice as Mediated by
 Delayed Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	FA	.06		.002		.28
Eq. 2						
I	FA	.05	-.002		.55	
Eq. 3						
Choice	I	.58				10.98***
	FA	.07		.078		.35

* = p < .10 ** = p < .05 *** = p < .01

Table 26
 Summary of Mediated Regression Analysis
 Future Anxiety's Effect on Reward Choice as Mediated by
 Delayed Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	FA	.06		.002		.28
Eq. 2						
I	FA	-.03	-.004		.19	
Eq. 3						
Choice	I	-.23				4.42**
	FA	.06		.024		.27

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 8.

Hypothesis 8 proposed a moderating effect of FA on the relationship between directionality strength and subjects' reward choice, with subjects' valence scores of outcomes associated with choice of reward mediating this relationship. As reported earlier, no evidence of a direct effect of either directionality or FA on reward choice existed, nor did regression analysis provide any evidence of a direct effect of the proposed interaction on subjects' choice of reward, therefore, this hypothesis was not supported (Table 27). No effects of directionality, FA, or the proposed directionality-FA relationship on valence were apparent either. As reported previously, valence was related to choice of reward. Additionally, the non-hypothesized effect of condition on delayed reward positive valences was apparent (Table 29).

Table 27
 Summary of Three-Step Mediated Regression Analysis
 FTP Directionality's (DR) Effect on Reward Choice as
 Moderated by Future Anxiety, then Mediated by Immediate
 Positive Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DR	-.25				.27
	FA	-.85				.70
	DRxFA	.84		.022		1.09
Eq. 2						
V	DR	-.04			-.16	
	FA	.20			.45	
	DRxFA	-.24	.006		-.67	
Eq. 3						
Choice	V	.55				20.33***
	DR	-.42				.68
	FA	-1.04				.85
	DRxFA	.95		.139		1.15
* = p < .10 ** = p < .05 *** = p < .01						

Table 28
 Summary of Mediated Regression Analysis
 FTP Directionality's (DR) Effect on Reward Choice as
 Moderated by Future Anxiety, then Mediated by Immediate
 Negative Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DR	-.25				.27
	FA	-.85				.70
	DRxFA	.84		.022		1.09
Eq. 2						
V	DR	-.02			-.09	
	FA	-.39			-.89	
	DRxFA	.41	.023		1.17	
Eq. 3						
Choice	V	.42				10.70***
	DR	-.23				.22
	FA	-.59				.33
	DRxFA	.60		.139		.56
* = p < .10 ** = p < .05 *** = p < .01						

Table 29
 Summary of Mediated Regression Analysis
 FTP Directionality's (DR) Effect on Reward Choice as
 Moderated by Future Anxiety, then Mediated by Delayed
 Positive Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DR	-.25				.27
	FA	-.85				.70
	DRxFA	.84		.022		1.09
Eq. 2						
V	Cond.	.13			1.72*	
	DR	.16			.69	
	FA	.12			.28	
	DRxFA	.03	.017		.08	
Eq. 3						
Choice	V	.61				11.93***
	DR	-.36				.57
	FA	-.94				.85
	DRxFA	.87		.103		1.17
* = p < .10 ** = p < .05 *** = p < .01						

Table 30
 Summary of Mediated Regression Analysis
 FTP Directionality's (DR) Effect on Reward Choice as
 Moderated by Future Anxiety, then Mediated by Delayed
 Negative Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DR	-.25				.27
	FA	-.85				.70
	DRxFA	.84		.022		1.09
Eq. 2						
V	DR	-.02			-.08	
	FA	.15			.34	
	DRxFA	-.23	.003		-.65	
Eq. 3						
Choice	V	-.22				3.93***
	DR	-.20				.19
	FA	-.69				.48
	DRxFA	.68		.042		.38

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 9.

Hypothesis 9 proposed a moderating effect of FA on the relationship between extension strength and subjects' reward choice, with subjects' valence scores of outcomes associated with choice of reward mediating this relationship.

Regression analysis did not support this hypothesis. The relationship between extension and reward choice discussed above in Hypothesis 5 did not materialize in this analysis when FA and the extension-FA components were added to the regression model. In analysis of Hypothesis 5, extension

was only marginally related to choice of reward ($\chi^2_{1,187} = 3.01, p < .10$). Additionally, there were no direct effects of either FA or the proposed extension-FA interaction on reward choice as hypothesized (Table 31). A marginally significant relationship existed between delayed reward positive outcomes and extension ($F_{4,184} = 1.79, p < .10$; Table 33). No other valence score was significantly related to extension.

Table 31
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Moderated by
 Future Anxiety, then Mediated by Immediate Positive Reward
 Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ^2
Eq. 1						
Choice	EX	.56				2.54
	FA	.74				1.34
	EXxFA	-.59		.027		.94
Eq. 2						
V	EX	-.46			-2.11	
	FA	-.70			-1.70	
	EXxFA	.70	.012		1.69	
Eq. 3						
Choice	V	-.55				20.52***
	EX	.29				.49
	FA	.32				.69
	EXxFA	-.14		.144		.86

* = p < .10 ** = p < .05 *** = p < .01

Table 32
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Moderated by
 Future Anxiety, then Mediated by Immediate Negative Reward
 Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	EX	.56				2.54
	FA	.74				1.34
	EXxFA	-.59		.027		.94
Eq. 2						
V	EX	-.01			-.04	
	FA	-.02			-.05	
	EXxFA	-.01	-.015		.15	
Eq.3						
Choice	V	.49				13.69***
	EX	.73				3.54*
	FA	.13				2.29
	EXxFA	-.87		.144		1.64
* = p < .10 ** = p < .05 *** = p < .01						

Table 33
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Moderated by
 Future Anxiety, then Mediated by Delayed Positive Reward
 Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EX	.56				2.54
	FA	.74				1.34
	EXxFA	-.59		.027		.94
Eq. 2						
V	Cond.	.14			1.93**	
	EX	.39			1.79*	
	FA	.47			1.15	
	EXxFA	-.37	.041		-.91	
Eq. 3						
Choice	V	.64				12.14***
	EX	.47				1.68
	FA	.68				1.05
	EXxFA	-.53		.107		.71
* = p < .10 ** = p < .05 *** = p < .01						

Table 34
 Summary of Mediated Regression Analysis
 FTP Extension's (EX) Effect on Reward Choice as Moderated by
 Future Anxiety, then Mediated by Delayed Negative Reward
 Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	EX	.56				2.54
	FA	.74				1.34
	EXxFA	-.59		.027		.94
Eq. 2						
V	EX	.33			1.49	
	FA	.53			1.27	
	EXxFA	-.56	.003		-1.36	
Eq. 3						
Choice	V	-.28				6.30*
	EX	.67				3.44*
	FA	.93				1.93
	EXxFA	-.78		.144		1.49

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 10.

Hypothesis 10 proposed a moderating effect of FA on the relationship between density strength and subjects' reward choice, with valences of the outcomes associated with reward choice mediating this relationship. Regression analysis failed to support this hypothesis. The effect of the density-FA interaction on reward choice was not significant (Table 35). Only partial support existed for a relationship between the proposed interaction of density and FA, and valence. Subjects' immediate negative reward valences were

significantly related to density ($F_{3,185} = -2.36, p < .05$), FA ($F_{3,185} = -2.27, p < .05$), and the density-FA interaction ($F_{3,185} = 2.14, p < .05$; Table 36). No significant relationships existed between density and valence (Tables 35-38).

Table 35
Summary of Mediated Regression Analysis
FTP Density's (DN) Effect on Reward Choice as Moderated by
Future Anxiety, then Mediated by Immediate Positive Reward
Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DN	-.52				1.58
	FA	-.75				1.58
	DNxFA	.77		.014		2.05
Eq. 2						
V	DN	.10			.44	
	FA	.21			.67	
	DNxFA	-.20	-.012		-.66	
Eq. 3						
Choice	V	-.57				21.77***
	DN	-.67				1.89
	FA	-.91				1.63
	DNxFA	.90		.142		2.08

* = p < .10 ** = p < .05 *** = p < .01

Table 36
 Summary of Mediated Regression Analysis
 FTP Density's (DN) Effect on Reward Choice as Moderated by
 Future Anxiety, then Mediated by Immediate Negative Reward
 Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	DN	-.52				1.58
	FA	-.75				1.58
	DN×FA	.77		.014		2.05
Eq. 2						
V	DN	-.55			-2.36**	
	FA	-.74			-2.27**	
	DN×FA	.03	.014		2.14**	
Eq. 3						
Choice	V	.44				11.85***
	DN	-.29				.44
	FA	-.42				.42
	DN×FA	.50		.142		.75
* = p < .10 ** = p < .05 *** = p < .01						

Table 37
 Summary of Mediated Regression Analysis
 FTP Density's (DN) Effect on Reward Choice as Moderated by
 Future Anxiety, then Mediated by Delayed Positive Reward
 Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	DN	-.52				1.58
	FA	-.75				1.58
	DN×FA	.77		.014		2.05
Eq. 2						
V	Cond.	.13			1.80*	
	DN	.18			.74	
	FA	.25			.75	
	DN×FA	-.16	.003		-.53	
Eq.3						
Choice	V	.63				12.93***
	DN	-.57				1.68
	FA	-.80				1.56
	DN×FA	.81		.104		1.98

* = p < .10 ** = p < .05 *** = p < .01

Table 38
 Summary of Mediated Regression Analysis
 FTP Density's (DN) Effect on Reward Choice as Moderated by
 Future Anxiety, then Mediated by Delayed Negative Reward
 Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	DN	-.52				1.58
	FA	-.75				1.58
	DNxFA	.77		.014		2.05
Eq. 2						
V	DN	.40			1.71	
	FA	.53			1.28	
	DNxFA	-.53	.002		-1.75	
Eq.3						
Choice	V	-.23				4.55**
	DN	-.41				1.00
	FA	-.61				1.03
	DNxFA	.63		.142		1.40

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 11.

Hypothesis 11 proposed a relationship between LOC and subjects' reward choice, this relationship being mediated by subjects' instrumentality perceptions regarding receipt of both immediate and delayed rewards. Regression analysis did not demonstrate a significant direct effect of LOC on reward choice, therefore, this hypothesis was not supported (Table 39). Additionally, no significant relationship existed between LOC and instrumentality scores, the proposed mediator (Tables 39-42).

Table 39
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Immediate
 Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
I	LOC	.06	-.002		.71	
Eq. 3						
Choice	I	-.38				13.35***
	LOC	.01		.072		.21

* = p < .10 ** = p < .05 *** = p < .01

Table 40
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Immediate
 Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
I	LOC	.01	-.005		.01	
Eq. 3						
Choice	I	.18				2.30
	LOC	.03		.013		.07

* = p < .10 ** = p < .05 *** = p < .01

Table 41
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Delayed
 Positive Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
I	LOC	.05	-.003		.42	
Eq. 3						
Choice	I	.57				10.83***
	LOC	-.01		.076		.00

* = p < .10 ** = p < .05 *** = p < .01

Table 42
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Delayed
 Negative Reward Instrumentalities

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
I	LOC	.08	.000		1.06	
Eq. 3						
Choice	I	-.23				4.56**
	LOC	.01		.024		.21

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 12.

Hypothesis 12 predicted a relationship between LOC and subjects' choice of reward, mediated by subjects' expectancy judgments concerning their ability to engage in behavior required to obtain either type reward. As mentioned previously, regression analysis did not demonstrate a significant direct effect between LOC and outcome, therefore, this hypothesis was not supported (Table 43). Additionally, no significant relationship was found to exist between LOC and subjects' expectancy scores (Tables 43 & 44).

Table 43
Summary of Mediated Regression Analysis
LOC's Effect on Reward Choice as Mediated by Immediate
Reward Behavior Expectancies

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
E	LOC	-.04	-.004		.35	
Eq. 3						
Choice	E	-.99				39.74***
	LOC	-.04		.316		.07

* = p < .10 ** = p < .05 *** = p < .01

Table 44
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Delayed Reward
 Behavior Expectancies

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
E	Cond.	.26			3.67***	
	LOC	.08	-.001		1.07	
Eq. 3						
Choice	E	1.36				32.18***
	LOC	-.11		.353		.41

* = p < .10 ** = p < .05 *** = p < .01

Hypothesis 13.

Hypothesis 13 predicted a relationship between LOC and reward choice, subjects' valence scores for reward choice proposed as mediating the LOC-outcome relationship. As noted earlier, regression analysis did not demonstrate a significant direct effect of LOC on choice of reward (Tables 45-48). Additionally, there was no significant relationship between LOC and valence of the reward choices.

Table 45
 Summary of Three-Step Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Immediate
 Positive Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	LOC	.03		.001		.09
Eq. 2						
V	LOC	-.07	-.001		.80	
Eq.3						
Choice	V	-.56				21.89***
	LOC	-.01		.129		.01

* = p < .10 ** = p < .05 *** = p < .01

Table 46
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Immediate
 Negative Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq.1						
Choice	LOC	.03		.001		.09
Eq. 2						
V	LOC	.03	-.005		.13	
Eq.3						
Choice	V	.44				12.71***
	LOC	.02		.073		.02

* = p < .10 ** = p < .05 *** = p < .01

Table 47
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Delayed
 Positive Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
V	Cond.	.13			4.63*	
	LOC	.06	.010		.80	
Eq. 3						
Choice	V	.65				12.87***
	LOC	-.04		.092		.12

* = p < .10 ** = p < .05 *** = p < .01

Table 48
 Summary of Mediated Regression Analysis
 LOC's Effect on Reward Choice as Mediated by Delayed
 Negative Reward Valences

D.V.	I.V.	B	Adj. R ²	Pseudo R ²	F	χ ²
Eq. 1						
Choice	LOC	.03		.001		.09
Eq. 2						
V	LOC	-.07	-.001		.80	
Eq. 3						
Choice	V	-.24				5.25**
	LOC	.03		.028		.01

* = p < .10 ** = p < .05 *** = p < .01

Analyses of Significant Non-Hypothesized Relationships

VIE Measurement Presentation Order Effect on Delayed Reward Behavior Expectancy Scores

The condition representing the presentation order of the VIE measure had a significant main effect on delayed reward behavior expectancy scores. In condition 1, subjects were allowed to choose either the delayed or the immediate reward before completing the VIE measure. In condition 2, subjects were required to wait to choose reward, first completing the VIE measure. Subsequently, subjects' delayed reward behavior expectancy scores in condition 2, where it was necessary to wait to choose reward, were significantly higher than those scores of subjects in condition 1. It is not clear why this effect may have occurred.

This shift in scores, however, may have been an effect of the subjects' required waiting behavior. Subjects may have made statements concerning their willingness to delay in order to rationalize this behavior. In essence, subjects may have felt that "If I am waiting, then I must be good at waiting behavior". Additionally, the differences in these expectancy scores between the two groups cannot have been driven by differences in choice of reward, because there were no significant differences in reward choice between groups.

VIE Measurement Presentation Order Effect on Delayed Positive Reward Valences

Waiting to choose reward also had a main effect on subjects' valence scores concerning delayed reward. Subjects' delayed positive reward valences in condition 2 were significantly higher than those of subjects in condition 1, an effect similar to that noted with expectancy judgments of subjects concerning choice of immediate reward. Again, a rationalization for waiting may be a possible explanation for this increase in scores. If subjects were going to wait to choose reward, obviously those rewards would certainly be more valuable to them than immediately available rewards.

The order of VIE measure presentation-reward choice affected a small number of VIE components. The general effect of waiting to choose reward type seemed to be similar. Those required to wait to choose reward adjusted their perception concerning the VIE components addressing elements of delay in order to rationalize a required waiting period.

The effects of condition on certain expectancy scores did not, however, destroy the validity of the study. As noted, the general direction of the relationship of the affected VIE components to reward choice remained as originally predicted. The pattern of the relationship was the same, however, the scores of the components changed

across condition. Within either condition, high scores for those VIE components related to delayed reward resulted in an increased choice of delayed reward, and low scores for the same components were related to a decrease in choice of delayed reward. This was also the case within condition for immediate reward choice. High scores for VIE components related to immediate reward were related to an increase in immediate reward choice. Low scores for these VIE components were related to a decrease in immediate reward choice.

Summary of Results

In the following section, the results of the tests of the various hypotheses are summarized. A more detailed discussion of the findings and their implications is presented in Chapter VI.

Hypothesis 1. No support was received for this hypothesis. There was no direct effect of EC on reward choice. Additionally, EC did not have a significant effect on the proposed mediator, subjects' expectancy beliefs concerning behavior related to reward choice. As predicted by VIE theory, subjects' expectancy beliefs were related to their reward choice decision. A direct effect of condition on delayed expectancy judgments was observed.

Hypothesis 2. This hypothesis concerning EC was not supported either, as again, no direct effect of EC on reward

choice was present. EC was significantly related to one facet of valence, subjects' valence scores of negative outcomes connected to choice of immediate reward. Valence scores of outcomes related to reward choice did demonstrate a significant relationship to subjects' choice of reward. Finally, a main effect of condition on delayed reward positive valences was discovered.

Hypothesis 3. No support for this hypothesis was evident. There was no direct effect of EC, as moderated by ER, on reward choice. As reported above, there was also no support for direct effects of either EC or ER on reward choice.

Hypothesis 4. There was no direct effect of the density component of FTP on choice of reward, therefore, this hypothesis was not supported. In addition, there was no support demonstrated for a relationship between density and instrumentality. Only partial support existed for the influence of instrumentality on choice of reward.

Hypothesis 5. A marginally significant direct effect of FTP extension on subjects' choice of reward existed. Greater future extension was related to choice of delayed reward. Only partial support existed for a link between extension and the proposed instrumentality mediator, as not all facets of instrumentality were significantly related to extension. Additionally, not all facets of instrumentality were significantly related to reward choice. When tested

using the variation of the mediator which was significantly related to both extension and reward, complete mediation of the effect of extension on reward choice was evident, therefore, this hypothesis was partially supported. It must be noted, however, that the change in strength of extension's relationship to reward choice, with the addition of the mediator to the regression equation may not actually represent a mediating relationship, but may merely reflect a lack of power to detect a significant relationship.

Hypothesis 6. The proposed relationship between FTP directionality and subjects' reward choice was not supported. Neither a significant direct effect of directionality on reward choice, nor a significant effect of directionality on instrumentality existed.

Hypothesis 7. No statistical evidence existed to support the proposed relationship of future anxiety (FA) to reward choice, therefore, this hypothesis was not supported. Additionally, there was no statistical evidence of a relationship between FA and instrumentality, the proposed mediator.

Hypothesis 8. The proposed moderating effect of FA on FTP directionality, and this interaction's subsequent relationship to reward choice, was not supported. A significant relationship did exist between directionality and the proposed mediator, valence scores of outcomes related to choice of rewards, however, this was not a

hypothesized relationship. No support existed for a relationship between the directionality-FA interaction and valence scores, therefore, the proposed relationship of the interaction to valence was not supported.

Hypothesis 9. As reported above, FTP extension demonstrated a marginally significant relationship with reward choice, however, with the addition of FA and the proposed extension-FA interaction to the regression model, this relationship did not materialize. This hypothesis was not supported, as no significant relationships between the extension-FA interaction were evident. Significant relationships did exist between the FA-extension interaction and some segments of valence.

Hypothesis 10. This hypothesis was not supported, as the proposed moderating effect of FA on FTP density, and its subsequent relation to reward choice, was not significant. The relationship of this interaction to valence received partial support, affecting certain segments of subjects' valence scores in the predicted direction.

Hypothesis 11. No statistical support was evident for this hypothesis. No significant relationship existed between LOC and reward choice, nor was there any significant relationship evident between LOC and subjects' instrumentality perceptions concerning reward choice.

Hypothesis 12. As outlined in Hypothesis 11, no significant relationship between LOC and reward choice was

established, therefore, this hypothesis was unsupported. Again, as in Hypothesis 11, no support was evident for a relationship of LOC to subjects' expectancy scores concerning behavior related to reward choice.

Hypothesis 13. In addition to failing to demonstrate a significant link between LOC and reward choice, no significant relationship materialized between LOC and the valence scores of outcomes related to reward choice, therefore, this hypothesis was not supported.

CHAPTER VI

DISCUSSION

In this chapter, findings of the study are presented. Conclusions drawn from these findings are discussed, as are implications for practice and for future research in this area.

This study was inspired by significant differences in individual behavior that occur in identical contexts, caused by traits or dispositions which vary among individuals, that may impact organizational operation. This study investigated the effects of lasting dispositions on delay of gratification behavior exhibited by individuals faced with the identical opportunity to either immediately accept or defer reward. In the interest of person-job fit, it would benefit organizational functioning to select employees on the basis of the presence of these dispositional traits which influence delay of gratification. Subsequent placement of these employees in contexts where individuals are required to delay reward until longer-term goals have been met may significantly contribute to organizational success.

Expectancy theory states that decisions made by

individuals are subjectively rational, guided by one's beliefs concerning both internal facets of him- or herself, as well as by features of the environment. Therefore, the study also investigated the relationship one's disposition may have with various expectancy components, as they in turn are related to one's delay of gratification behavior.

Examination of these various relationships occurred through specification and testing of a conceptual model that measured the presence of several key dispositions of subjects, and subjects' beliefs concerning VIE components, in an attempt to discern the effects of their relationship to subjects' delay of gratification behavior. A number of hypotheses concerning relationships between variables specified in the model were tested.

Unfortunately, the major premise of the model, that certain dispositions are related to delay behavior, was not supported. One central premise did, however, receive partial support. That is, dispositional traits do seem to be related to the level of subjects' expectancy beliefs. Additionally, somewhat stronger support existed for the relationship of VIE components to individuals' delay of gratification behavior.

The lack of results regarding the hypotheses may have been due to inherent weaknesses in methodology used to test each hypothesis, specifically the manner in which delay of gratification behavior was operationalized, as well as other

methodological shortcomings. Certain results of the statistical tests of the hypothesized relationships discussed in Chapter V may have also indicated that certain measures used to assess traits thought to have bearing on subjects' delay behavior, as well as certain measures of VIE theory components, may not have functioned in an efficacious manner. Again, problems experienced in any of these areas would affect the results of all hypotheses. If so, it would be possible that the hypothesized relationships failed to materialize due to improper testing mechanisms rather than from a lack of theoretical foundation. Discussion of these difficulties immediately follows discussion of the results of the study's hypotheses.

Ego Control and Ego Resiliency Hypotheses

Hypotheses 1 through 3 conceptualized EC and ER as being linked to delay of gratification behavior through a mediating relationship with the expectancy and valence components of VIE theory. In Hypothesis 1, EC was thought to be related to reward choice through mediation by subjects' expectancy beliefs concerning behavior related to choice of either delayed or immediate reward. In Hypothesis 2, the same relationship of EC to reward choice was expected, the mediator in this case, however, being the valences related to either of the reward choices. Hypothesis 3 proposed ER as a moderator of the main effect

of EC on delay behavior, the effect of this interaction on reward choice then being mediated by expectancies related to reward choice.

Tests of the three hypotheses addressing these relationships between EC and ER and their effects on delay of gratification failed to provide any support for a relationship of EC to delay behavior, a requirement of mediation. In addition, there was no evidence of a significant moderating effect of ER on EC's relationship to delay behavior, and there was only partial fulfillment of other mediation requirements. EC was related to some, but not all, of the expectancy and valence components. ER and the proposed interaction of EC and ER had no significant relationship to any of the mediators. All expectancy judgments were significantly related to reward choice, however, only certain valence judgments were significantly related to reward choice.

In contrast, prior research conducted by Block, Mischel, and their associates concerning the effects of EC and ER on delay of gratification behavior provided more than ample empirical evidence to support both main effects for EC and ER on delay behavior, however, these researchers did not find interaction effects either. It would seem, therefore, that the presence of measurement error rather than a lack of theoretical foundation may have been responsible for the failure of the current study to support the main effects of

these two constructs on delay behavior. Block's proposed interaction of EC and ER may require further consideration from a theoretical standpoint. Block originally conceptualized ER as moderating the effect of EC on behavior. In the two Block and associates DG studies (Funder et al., 1983; Funder & Block, 1989) as well as in the later Mischel studies (Mischel, et al., 1988; Shoda, et al., 1990) ER was observed as having a main effect on DG behavior, not the moderating effect originally proposed by Block (Block & Block, 1980). It must be noted, however, that Mischel specifically set out to test ER as a separate effect on delay behavior. No interaction of EC and ER was observed in any of these studies. Block's original conceptualization of ER's role has received no empirical support, and therefore should be reconsidered. This may be partly responsible for the failure to find support for Hypothesis 3, as the current study tested ER in the moderating role originally proposed by Block.

The original version of the CQS involved assessment of subjects by long-term observers (see Chapter II for a detailed discussion on the specifics of the CQS) who were intimately and longitudinally familiar with the behavior of the subjects. Block used the CQS in its original format throughout the entire sequence of his delay of gratification studies. Mischel initially used the CQS in its original format; however, when logistical problems with the forced-

choice feature occurred, caused by increasing geographic dispersal of subjects and observers, and eventually researchers, from the original study site, Mischel transformed the CQS from its original forced choice format into an instrument scored using Likert-type items, but one still to be scored by observers.

To meet one of the goals of the current study, the creation of a self-report measure of delay of gratification, Mischel's transformation of the CQS was taken one step further by converting it to a self-report format rather than one to be observer-scored. To accomplish this, the Likert-type scaling was retained, however, many of the behavioral statements were re-written from their original form in a such a way as to reduce the potential influence of social desirability on subject response and to provide more personal relevance to respondents. A panel of judges was used in an attempt to maintain content validity in the meaning of transformed statements, as suggested by measurement theory (Haynes, et al., 1995).

The new format, however, failed the test of predictive validity, as no support was apparent for a link between the EC-ER self-report scale and the criterion, delay behavior. Therefore, this scale may not tap the EC and ER constructs proposed by Block. Unfortunately, it may be that the primary goal of supporting the conceptual model of this study was partly undermined by the focus placed on

development of the self-report delay of gratification measure.

As mentioned in the review of the literature found in Chapter II, most prior delay of gratification research used only pre-adolescents as subjects. The subjects used in the current study range in age from the late teens to early adulthood. It is possible that the differences in development existing between the two stages of maturity may have affected efficacy of the CQS as a predictor of delay behavior, or that the findings on delay of gratification are limited to children for the most part.

Mediated Effects of FTP without Moderation

In this study, FTP was conceptualized to be related to delay of gratification in two general fashions, one which will be discussed in this section, the other in a section following the discussion of Future Anxiety (FA), as several hypotheses addressed a proposed interaction between FA and FTP. In Hypotheses 4, 5, and 6, the individual relationships of three components of FTP, extension, density and directionality, to reward choice were hypothesized to be mediated by the instrumentality component of expectancy theory. A difference in the strength of any of these components would be related to a difference in subjects' instrumentality perceptions concerning receipt of the delayed reward, which, in turn, would be related to reward

choice.

Hypotheses 4 and 6, addressing directionality and density, respectively, were not supported, as there was no relationship of either directionality or density to reward choice. Hypothesis 5, which addressed extension's relationship to delay behavior, was partially supported. A marginally significant relationship of extension to reward choice was apparent, however, not all facets of the proposed mediator, instrumentality, met the required steps for mediation (see Chapter IV above for a discussion of mediation criteria). In the role of dependent variable, only the instrumentality scores of delayed reward positive outcomes were significantly related to extension. As an independent variable, this type of instrumentality was also significantly related to reward choice. Regression analysis revealed that this instrumentality component completely mediated the relationship of extension to reward choice. Those subjects with extended FTPs perceived stronger instrumentality probabilities regarding delayed rewards than subjects with shorter FTPs, and were more inclined to choose the delayed reward.

It should be noted, however, that the change in strength of extension's relationship to reward choice with the addition of instrumentality to the regression model may not be due to a mediation effect of instrumentality. The change from marginally significant to non-significant may

merely reflect a lack of power to detect a significant effect.

Two methodological issues must be considered concerning the measurement of FTP. As mentioned in the review of literature in Chapter II of the current study, several researchers have linked FTP influences to individual behavior. When measuring FTP as a single entity, or in the form of the three subcomponents addressed in the current study, however, statistical support for the link of FTP to behavior has occurred using measures other than Likert-type self-reports (Kastenbaum, 1961; Klineberg, 1967). In demonstrating a significant relationship between FTP and delay of gratification, Klineberg used a TAT format, in-depth interviewing, and a forced-choice measure to determine the FTP strength of subjects. When developing the constructs of extension, directionality, and density, Kastenbaum used measurement techniques such as story completion, subjects' personal estimations of the type and number of events which they may experience in the future, and temporal sequence arrangement tasks to assess the degree to which subjects held these three components.

As a pragmatic concern for organizations, use of the above methods as part of the employee selection process may be considered to be impractical due to expenses and logistical difficulties which would occur with administration of such devices to a large number of

prospective members. Most organizations do not have the time, funds or personnel to use the techniques originally developed to assess FTP. Therefore, to help achieve the stated goal of development of a self-report measure of delay of gratification, a self-report format was used to assess FTP in the current study, wherein may lie the problem with non-significant relationships of FTP to reward choice in the current study.

The self-report Likert-type format may not have tapped the FTP construct in the same manner as did Klineberg and Kastenbaum's measures. There does seem to be a difference between measuring one's future density by asking an individual to list all events he or she could foresee as existing in his or her personal future, versus asking the level of agreement or disagreement with a statement such as "It seems to me my career path is fairly well laid out." (Zimbardo, 1990). It is not clear how many events constitute "well laid-out". Additionally, the boundaries between extension, directionality and density do not seem as well-defined when operationalized in the Likert-style fashion, as opposed to the alternative measurement techniques mentioned above. It is difficult to conceptualize the difference between merely thinking about the future (directionality) and thinking about the future in regards to some specific period (extension). The three components seem to be inter-related. Thinking about the

present (directionality) precludes thinking about the past to any degree, and at the same time, consideration of any number of future events. The differences may not be easily separable with Likert-type items.

Future Anxiety

Future anxiety was conceptualized to affect delay of gratification behavior in two general ways, as a single independent variable, and also as a moderator of the relationship of the three components of FTP to reward choice. Hypothesis 7 proposed FA acting in the first manner, as a single independent variable related to delay of gratification behavior through a relationship mediated by instrumentality. An increase in FA would be related to a reduction of the strength of subjects' instrumentality perceptions concerning the receipt of delayed reward, which, in turn, would be related to subjects' choice of delayed reward. This hypothesis was not supported, as there was no relationship of FA to reward choice. Additionally, there were no significant relationships discovered between FA and instrumentality, the mediator.

As mentioned above, FA was also posited as moderating the relationship of each of the three components of FTP, discussed earlier in this chapter, to reward choice. The interaction of each component with FA, and the interaction's relationship to delay behavior would be mediated by

instrumentality. Statistical examination did not support any of these relationships. No significant link was apparent between any of the hypothesized interaction terms and reward choice. These interactions will be discussed below.

FA is a relatively new concept (Zaleski, 1996) and has no discernable history of being utilized as an independent variable in behavioral research other than a small amount of validity work done by Zaleski when he initially developed this measure. Therefore, at present, the magnitude of the relationship of FA to individual behavior is only conjectured at the conceptual level, not realized on the empirical level. No other studies were found which attempted to link FA to some behavior.

As conceptualized, the presence of FA is described in terms similar to those of some mental illness, a type of "paranoia", or extreme pessimism, concerning only future phenomena. If FA is similar to mental illness, then it is reasonable to believe that it may significantly affect only a small portion of the entire population, as does mental illness. Since the sample used in the current study is not representative of the entire population, the portion of the sample "afflicted" with FA may be smaller still. Two reasonable explanations for the failure of statistical examination to reveal any relationship of FA to behavior are available. First, the actual relationship of FA to behavior

may not be of the magnitude suggested by Zaleski (1996), or may be mitigated by the presence of other, undetermined factors.

More germane, perhaps, to the outcome of the current study, the percentage of those in the general population with FA at a magnitude great enough to affect behavior is unknown, and this trait may be relatively rare in the general population. Consequently those with strong FA may be rare in the study sample. There simply may have not been enough subjects in the sample with FA levels "potent" enough to affect delay behavior. The frequency distribution of FA scores in the sample reveals that 78% of the participants scored at or below the midpoint of the FA scale. The highest possible score on the scale is 203. The highest score in the sample was 169, therefore, the entire possible range of FA was not represented in the study sample.

Finally, most subjects in the current study chose not to delay for some reason, but not because of FA effects, as demonstrated by statistical analysis. If the effects of FA on individual behavior are not as strong as conceptualized by Zaleski, this, coupled with the restricted range of FA scores in the study sample, may have translated into a weak effect of FA on overall behavior. Its effects may not have been sufficient to affect behavior, or not strong enough to be readily discernible through the "noise" of error, or other effects on reward choice. Finally, there is no

indication by Zaleski what objective time period the "future" may occupy. The five day waiting period of the current study may not fall within a time frame which is influenced by the effects of FA.

FA's Effects as a Moderator of FTP

Hypotheses 8, 9 and 10 conceptualized FA as moderating the individual relationships of directionality, extension, and density to reward choice, this effect being mediated by valences related to reward choice. Essentially, those subjects with a strong FTP component would be focused on the future. Simultaneously having a high level of FA, however, would cause elements of this future to be aversive, not attractive, in nature. As a result, reward choice would be affected, as individuals with this combination would choose immediate positive rewards, the future holding only negative outcomes. None of these hypotheses was supported, as none of the interaction terms was significantly related to choice of reward. Additionally, the proposed interaction was not significantly related to valence, the mediator.

Shortcomings addressed in the discussion of FA and the FTP components would also be applicable to failure to find support for the hypothesized relationships of their interaction to reward choice. Additionally, as mentioned earlier, FA is a fairly new construct, and its effects on one's cognitions and behaviors are unclear, at best. Zaleski

(1996) acknowledges the roots of FA lie in FTP, however, he does not address the relationship of specific components of FTP to FA.

Throughout the discussion of FA, constant references are made to effects of FA on cognitions concerning the future, implying that despite the presence of FA, one still considers his or her possible futures. Considering the supposed effect of FA on one's view of the future, it is reasonable to assume that FA may, in fact, act as a "suppressor" of FTP. In terms of extension, density and directionality, FA may be inversely related to these components. If one believed that the future held nothing but negative experiences, even contemplation of these possibilities would be unpleasant to the individual. As a result, one would avoid future-oriented thoughts, and cognitions would be directed to either the past, or focused on the present. One would avoid a "mental" future. Support for this supposition is apparent upon examination of the zero order correlations provided in Chapter V, Table 2. Moderate to marked significant inverse correlations exist between FA and density, extension and directionality. The higher the FA score, the more attenuated the score of the FTP components. This relationship warrants further investigation.

Locus of Control

The final three hypotheses of the current study conceptualized LOC being related to delay of gratification through three separate mediated relationships with the three components of VIE theory, expectancy, instrumentality and valence. Hypothesis 11 proposed that an increase in internal LOC would be related to an increase in the perceived instrumentalities of delayed reward, and a subsequent increase in subjects' choice of deferred reward. Hypothesis 12 stated that an increase in internal LOC would be related to an increase in subjects' perceived expectancy of being able to engage in delayed behavior, and subsequently to an increase in subjects' choice of delayed reward. Finally, Hypothesis 13 proposed that increases in internal LOC would be related to an increase in the subjective valence scores of delayed rewards, which, in turn, would be related to an increase in subjects' choice of delayed reward. None of these hypotheses received statistical support, as no significant relationship existed between LOC and reward choice. There were also no significant relationships between LOC and any of the three valence components.

As with other constructs in the current study, LOC has a substantial history of demonstrating significant relationships with delay of gratification (Bialer, 1961; Mischel, Zeiss & Zeiss, 1974; Strickland, 1972; 1973; Walls

& Smith, 1970). Therefore, the likelihood that failure to find significant relationships in this study was due to lack of theoretical foundation is minimal, at best.

Additionally, the measure of LOC used in the study (Levenson, 1973) was a modification of Rotter's I-E scale (1966), one of the most widely used and efficacious self-report measures of LOC available. A confirmatory factor analysis of Levenson's scale was performed using the data from the current study. Results were more encouraging than those obtained in Levenson's original study. Factor loadings scores for most items increased, and one item that did not load on any factor in Levenson's study did load, as predicted by Levenson, with the current data. Therefore, the probability that defects in construct operationalization were responsible for the failure of the LOC hypotheses to be supported is also minimal.

Difficulties with study execution, specifically operationalization of the rewards, discussed in the following section, are the most likely reasons for lack of statistical support for LOC's relationship with delay. As outlined above, and detailed in chapter II, past research demonstrates most of the constructs used in the current study have consistently demonstrated significant relationships with delay of gratification, although the subjects used in the EC and ER studies were children. The almost complete absence of such relationships in the current

research increases the likelihood that a serious flaw existed in the execution of the study, or operationalization of the reward choices for the current study. If so, it may be reasonable to believe that difficulties with the outcome measure may have been responsible for the failure of statistical support to materialize for the other hypotheses.

It is quite possible, therefore, that the measures of all the independent variables may have, in fact, functioned properly. As noted in Chapter IV, Table 2, reliabilities for all measures were within acceptable ranges, some above .90. At the least, all measures of the independent variables were measuring something in a consistent fashion. In this light, it may also be plausible that the traits the current study proposed as contributing to the DG trait and delay behavior may, in fact, not be related to delay of gratification as conceptualized. Theoretically, the proposed relationships seemed plausible, however, they were not supported empirically.

Operationalization of Delay of Reward

Every hypothesis in the current study incorporated subjects' choice of reward as the dependent variable; therefore, support for each hypothesis, or lack thereof, would be influenced by any failure or shortcoming found in the operationalization of delay behavior. Because of this

dependency, possible methodological pitfalls inherent in this operationalization are discussed as a significant, separate issue.

Pilot testing at another location using a cohort similar to that used in the final study indicated that most subjects would be willing to delay reward for a period of at least one week for payment of an extra \$2 in addition to the \$5 initially promised for their participation. In retrospect, several factors that were not considered in the final study design may have had some bearing on subjects' final choice of reward.

1. A difference in familiarity of the researcher to respondents in the pilot study and the actual study existed. The author of the current study was a faculty member of the institution at which the pilot study was conducted, and was personally known by the majority of participants, most of whom had been members of several of his classes. Therefore, pilot study participants could be reasonably assured of being able to easily locate the author to obtain any delayed reward they might have chosen. Additionally, those participating in the pilot study had multiple prior opportunities to assess the behavior, specifically the "trustworthiness", of the author. This familiarity may have been responsible for markedly different reactions of the pilot study cohort versus the main study cohort to the delay choice.

In contrast to the pilot study, the author and his assistants were unknown to participants in the final study. This disparity in familiarity of the author to the respective subjects may have affected the assessment of each cohort as to whether they would actually receive the delayed reward. In essence, the level of trust placed in the research team by the cohorts differed due to the level of each's familiarity with the author. Participants in the final study may have had much less confidence concerning receipt of the delayed reward based on their unfamiliarity with the research team, and therefore chose immediate reward. In the pilot study, many subjects indicated they were willing to wait for a period of up to two weeks to receive the promised delayed reward. In the final study, only 14% of the 189 subjects participating in the second phase were willing to wait even five days. Some other factor influenced the choice of the large majority of participants not to defer reward.

2. A disparity in the rewards offered existed between each cohort. Pilot group participants made a judgment for either immediate or delayed reward considering only an additional \$2 extra offered for waiting to receive the final reward, versus \$5 for immediate reward. Participants in the final study, however, were all members of a large (300+) introductory management class. Through the generosity of the faculty member whose regular teaching responsibilities

included this class, participants from the class were also given a fairly substantial amount of extra credit in addition to the initial \$5 in order to ensure an adequate number of subjects participated in the study. Anecdotal evidence exists to support the notion that due to the rigor of this course, former students from this class who had participated in past studies did so specifically to gain this extra credit to help boost their overall grade enough to avoid re-taking the class at some future period. Many students, therefore, may have participated primarily to receive the extra credit, not the monetary remuneration. The valence of the immediate receipt of the \$5 coupled with the extra credit may have been sufficient for most participants. The incremental valence of the additional \$2 may not have been strong enough, in this instance, to influence the subjects to wait. The pilot subjects were not considering reward identical to the subjects in the final study when choosing between reward types, nor were they confronted with the actual choice of receiving the \$5 immediately, what Mischel would term a "hot" cognition (Rodriguez, et. al, 1989).

3. Logistical confounds from the environment may have influenced subjects' choice behavior. The current study was conducted during the final throes of the Spring semester, less than one week before the beginning of the final examination period. To obtain the extra \$2, it would have

been necessary for participants to make an effort to come to the ostensible "study office" to pick up their additional reward. Two confounds, both involving expectancy theory perceptions, may have occurred.

First, concerning valence issues, the subjects may not have perceived it worth the extra effort required to obtain the additional \$2. Due to impending exams, time available to students was at a premium. To make the effort to obtain the additional \$2 may have required the students to forgo necessary study time during this period. During the pilot study, questions asked concerning the length of the delay period as well as aspects addressing VIE judgments assumed a somewhat "generic" or "ordinary" future on the part of the respondents, rather than the trade-off of \$2 versus time and effort taken away from a very demanding examination period in which the final study was conducted. Under the altered circumstances, the additional reward may have simply not been worth the trade-off.

Secondly, concerning expectancy issues, externalities, such as other activities related to the final examination period may have precluded the participants from behaving in the manner required to obtain the additional funds. Participants who were not permanent residents of the local area may have already made arrangements to return home before the additional funds became available, making it virtually impossible to obtain the additional sum even if

they would have truly desired to delay. Again, these specific environmental contingencies were not addressed as part of the pilot study. Thus, participants were not choosing between immediate or delayed reward using identical delayed reward scenarios.

4. The final weakness in the operationalization of delay may have been the waiting period scheduled between the administration of the first and second parts of the study. As mentioned in Chapter III, in order to minimize sensitizing subjects to both expectancy measures and choice of reward, a period of several days was allowed to elapse between administration of the personality measures, and administration of the expectancy measures and subsequent choice of reward. When it came time to choose rewards, subjects had, in effect, already waited several days for receipt of reward and may have not been willing to wait yet another extended period, despite the ostensible increase in reward. As noted by Mischel in early delay of gratification studies (Mischel, 1958), as well as by Heimberg (1963) in FTP studies, future rewards are subject to discounting. This may have affected the valence of the additional reward so that it did not outweigh feelings of frustration caused by the rest period between administrations of measures.

Anecdotal evidence from the administration of the second phase of the study provides some support for this notion. Despite continued admonitions from researchers,

subjects became increasingly restless and interactive as the length of the administration period grew, attempting to converse with others, or trying to study for final examinations between segments of the second session. At the end of the study, when all documents had been collected and subjects were waiting for the disbursement of the \$5 payment, some subjects, verbally expressing frustration, abruptly left the study before they received the monetary reward. As rewards were being distributed, other participants began engaging in hoots, catcalls and applause, much the same type of behavior as demonstrated by television game show audiences when contestants are instructed to "Come on down!"

The relationships between the VIE measures and reward choice must also be addressed. If the operationalization of the outcome variable was flawed, why were scores of the VIE components predictive of subjects' reward choice behavior? Considered singly, these VIE judgments exist independently from the hypothesized dispositional influences. These judgments represent beliefs concerning the reward under the flawed condition of the final study. If the VIE judgments of the subjects of the final study had been similar to those of subjects in the pilot study, but the choice of outcome different, then cause for concern would have existed. Additionally, if the pilot study contextual demands had been identical to those of the current study, and the

relationships of VIE components to choice had been significantly different than those of the current study, only then could a fair comparison be made, and possible concerns raised about the effects of the manner in which the dependent variable (immediate versus delayed reward) was operationalized and its effects on subjects' choice of reward. Subjects participating in the pilot study were not confronted with the actual choice of immediate versus delayed reward however, therefore, the efficacy of VIE components as predictors of delay behavior remained untested in the pilot.

The portion of the VIE measure addressing expectancy components may be suspect, as well. In retrospect, as worded, the statements in the VIE measure addressing subjects' expectancies concerning their probability of success with behavior related to immediate or delayed reward may have actually captured subjects' intentions regarding their choice of reward. As operationalized, the subjects probably did not have problems waiting for reward, but were influenced by other factors to choose immediate reward. Also, given the design of the study, once subjects chose to defer reward, they had no alternative other than to wait the five days until the additional reward would be distributed. A truer test would have been to permit subjects to claim the immediate reward value at any time until the five day wait required to receive the larger reward had fully elapsed. As

operationalized in the study, it was the structure of the intervention which would drive subjects' waiting behavior, not any dispositional influences, as the subjects had no freedom to act in any other way once the choice to delay was made. Here, the researcher, not the subjects, had control over subjects' behavior.

The critique of the use of the "college sophomore" as subjects is somewhat applicable to this study. On the surface, use of this cohort is interesting in terms of organizational functioning. Many of the subjects share demographic characteristics with entry-level employees in many organizations recruiting recent college graduates. Therefore, use of any significant findings of this study would be generalizable to organizational settings for use in prediction of their long-term behavior. In terms of a true assessment of the construct of delay of gratification, however, a broader age range of subjects may be required. As noted by one of the advisors of the researcher of the current study when commenting on the lack of subjects who chose delay reward: "Maybe five days is a long time to these people". In essence, there may be a generational effect on delay of gratification behavior not represented in the current study.

Demographic characteristics of the sample may have affected the study results in another manner. As outlined in Chapter II, the delay of gratification trait and related

behavior have been studied using primarily populations of subjects ranging in age from pre-school to initial adolescence. A review of delay of gratification literature failed to discover any studies of DG using adults as subjects. Therefore, there is no evidence of the extent of the distribution of this trait in the general adult population. It may be that through the course of normal development, the vast majority of individuals learn to delay. At the onset of adulthood, the distribution of "non-delayers" may be relatively rare in the general population. If this is true, delay of gratification may not be relevant to behavior in the work environment. In regards to the current study, the use of college students as subjects may have further attenuated the representation of "non-delayers" in the sample. If it is true that non-delayers are relatively rare, then behavior in the study or elsewhere is not driven by the trait, but rather by the demands of the situation. Anecdotally, however, it appears that there are differences between adults in their propensity to set and then work toward long term goals with outcomes contingent on attainment of these goals. This evidence would suggest that DG is, in fact, a fruitful area of organizational research.

Implications

Unfortunately, only limited implications, at best, can

be drawn from a study which has failed to support its hypotheses on a large scale. Due to the lack of support for the hypothesized relationships of the personality constructs to delay of gratification behavior, despite such evidence available in a number of prior studies, few implications should be drawn concerning the role of these constructs in delay behavior, including implications concerning the non-existence of such relationships.

The results of the current study may have one important implication. Hypothesis 5 did support a partial relationship of FTP extension to both choice of reward as well as to the mediator, instrumentality perceptions related to delayed positive rewards. Although no other extension-instrumentality relationship was significant, the extension-delayed positive reward instrumentality link is the most important of this type because of the different effects of negative versus positive outcomes.

Strong instrumentality links to immediate reward negative outcomes would be of some importance to behavior, but not as important as links to positive outcomes. Instrumentality links to negative outcomes would assure the subject that if the immediate reward is taken, these negative outcomes will certainly happen. This may be one force which prevents the individual from engaging in that particular course of action, however, there is no motivating potential generated by this relationship to impel the

individual to engage in organizationally appropriate behavior, that with the long-term payoff. Links to delayed positive rewards would provide this type motivation.

This particular relationship supports the notion that individuals who have an "extended" future, one that reaches well beyond either the present, or beyond the immediate future, can perceive the connection between current behavior and "good" things not readily available. They are more "sure" that the "two in the bush" are a distinct possibility, and as a result, their behavior is not as easily influenced by the "bird in the hand", or the more immediate reward. Extension may allow individuals to "see" these rewards, and therefore consider them, versus those without extension who look only for temporally close outcomes and are not influenced by distant outcomes.

Most importantly, as opposed to other FTP components, extension provides a means of estimating the temporal span of individuals, the distance into the future (minutes, days, months, years) one considers when thinking about consequences of behavior. Directionality does not address a specific time span, but rather a general temporal focus on the future. This can range anywhere from the next several minutes to infinity, and does not allow one to gauge how long individuals may be willing to wait. Density, or future event clarity, seems to be ancillary to extension, in that it already assumes future orientation, but like

directionality, does not allow estimation of temporal span.

From the standpoint of practicing managers, when selecting candidates for positions requiring lengthy perseverance until completion, and the realization of related rewards, it would be advantageous to identify individuals able to see a strong relationship between behavior and related long term payoffs, especially with those projects less than totally certain. This would increase the likelihood that these employees would complete the desired behavior and not abandon it in order to obtain a more probable and immediate reward. Since extension addresses temporal span, those with greater extension would be more apt to persevere for extended assignments.

Caution should be used in interpretation of this relationship, however. As noted, the extension-reward choice relationship was only marginally significant, and the effect of the mediator on the IV-DV relationship relatively small. It is not clear why only one component of all IV's hypothesized to affect reward choice had such an effect, especially when considering the possible serious flaws of the study. Was it a matter of chance, a Type I error, or rather a matter of extension strength? Further investigation is required.

Additionally, as mentioned above, a substantial portion of the hypothesized links between mediators and reward choice received significant statistical support. Overall,

these relationships materialized as predicted and in the proper direction. It seems as if the VIE measures may be, in large part, functioning properly. However, the influence of condition on certain mediation components would suggest caution in interpretation of these relationships pending further examination.

Suggestions for Future Research

While the overall results of the study were dismaying and extremely limited in terms of support for the model of delay of gratification presented, the researcher believes a retest of the study's hypotheses may lead to support for the missing disposition-outcome relationships, once the identified methodological and logistical shortcomings have been corrected. Addressing these issues may also result in increasing the already existing support for the other relationships required for the tests of mediation.

Several actions, operational, methodological, and logistical, are recommended as corrections for the study's flaws. Discussion of these actions follow.

Operationalization Issues

As noted, several measures used in the current study were not comparable in form to those originally used in measuring the same personality construct. Further testing of these measures is warranted before they are used in

further studies of delay of gratification.

Measurement of EC and ER

Weaknesses in the transformation of the CQS observer report into the Likert-type self report must be addressed. Although proper psychometric technique was applied in the initial transformation of this measure (Haynes, et al, 1995), i.e., use of a panel of expert judges and other requirements, its lack of explanatory and predictive powers may require that the measure undergo additional refinement and testing before being used in its self-report form.

Before being used in the workplace, the self-report measure may further benefit from convergent validity testing (Campbell & Fiske, 1959), using the CQS in Mischel's (Mischel, et al., 1988) observer-scored format as the benchmark for comparison. Use of a cohort of subjects who have at least one intimate acquaintance (parent, spouse, sibling, long-term significant other) willing to cooperate would allow this to be readily accomplished. Comparison of scores of the self-report measure to the other-scored measure would allow further refinement of items, addition of new items if necessary, and elimination of weak items.

FTP Measurement

Although partially successful in establishing a relationship between extension and reward choice, measures

used to assess FTP components are subject to the same criticisms that characterize flaws in the EC-ER measure. During initial development of the Stanford Time Perspective Inventory (Zimbardo, 1990), Zimbardo and Gonzalez (1985) did not engage in either convergent or discriminate validity testing when constructing and refining the measure.

Briefly, an initial pool of 70 items were written based on the FTP construct. Factor analysis was used to reduce the item pool to 31. The items were then placed in questionnaire format and mailed to all subscribers of a popular layperson's psychology magazine, which eventually published the study results. The responses were factor-analyzed again, and the factors resulting from the analysis of responses were then considered to be the dimensions of FTP tapped by this instrument.

In addition to the limitations inherent in survey research (Kerlinger, 1986), it seems as if there was no designation of potential factors based on the underlying theoretical foundations of FTP prior to factor analysis (which ends up smelling suspiciously like a "fishing expedition", although the authors were candid enough to detail this procedure). Before being used again in delay of gratification research, the Stanford inventory may benefit from comparison of its results to those methods used by Kastenbaum (1961) and Kleinberg (1967) discussed above, to determine if the items truly do tap the extension, density

and directionality components of FTP.

Examination of the effects of FA on FTP components.

As discussed above, FA seemed to attenuate the strength of FTP components. Rather than influencing one's perspective of future occurrences as hypothesized, FA may act to suppress future cognitions entirely. If one believed the future held only dire personal consequences, one would avoid even thinking about the future. If so, the relationship of FA to FTP components and reward choice would differ from the manner originally hypothesized, and would indicate a theoretical, rather than measurement, problem.

It may be necessary to perform a more realistic assessment of the relationship of FA to behavior before including it in any new study of delay of gratification. If a only small portion of the general population actually holds FA to a degree detrimental to behavior, as speculated above, efforts to include more members of this cohort to any study of FA's effect on behavior or relationship to other constructs may be necessary, as the method of sampling used for this study failed to include these type subjects in any significant number. In summation, use of FA as a predictor of delay behavior should be shelved until its effects on behavior as well as other relevant constructs have been better delineated.

Design Flaws

As mentioned above, serious flaws in the study design may have been largely responsible for the lack of statistical support for the majority of the hypotheses of the current study. Several logistical changes in administration of the study aimed at eliminating or minimizing the effects of these flaws may assist in determining if this lack of support was caused by the absence of effects from the constructs, or simply due to the creation of excess environmental "noise" which may have negated the effects of the dispositional traits through strong situational demands. Some necessary changes are:

1. Substantially increasing the temporal distance between administration of the dispositional measures and the VIE portion of the study. This would address several weaknesses. First, it would reduce or eliminate the sensitizing of subjects to the study's purpose by the nature of the personality measures, possibly causing subsequent contamination of VIE measure scores, by dissociating the two sets of measures. Subjects' recall of details of the first measure would fade as the time period between measurements increased. To further enhance this dissociation, subjects should not be informed that each set of measures is only one part of an ongoing study.

Secondly, it would allow dissociation of rewards. For example, if conducted using college students as subjects,

extra class credit can be given for participation in one portion of the exercise, monetary remuneration for the second portion. The two rewards would not be bundled together. Subjects' reasons for participating in the second part of the study would be and should be solely to receive the cash payment.

This splitting of reward into two distinct portions would also eliminate the unintended initial waiting period for reward. Individuals would not wait several days to receive a reward, then be asked to wait several more days to receive a larger reward. Results from the pilot study addressing reward would also be more applicable.

2. Reversal of the order of measurement distribution may result in the elimination of the condition effects on several of the mediating components. Depending on condition, individuals either completed the VIE measure and then chose reward, or chose reward then completed the VIE measure. As mentioned above, this was done in order to monitor subjects' sensitization to items in the VIE measure which directly addressed subjects' perceptions of choosing between \$5 or \$7 dollars. If the order of measure completion is changed, the actual choice of reward would be dissociated from the VIE measure. To do this, the VIE measure would be completed first, and rewarded with extra credit. The dispositional measures would then be completed, and the choice of \$5 immediately or \$7 as a delayed reward

then be offered. There would then be no need to split the study into conditions, as the memory of the content of the VIE measure would have faded over time.

3. Use of smaller groups of subjects. This would reduce the deindividuation and sheer number effects (Diener, 1977, 1979; Latane, 1981) which occurred using the large group of subjects, as noted above. It would also allow more experimenter control over subjects to suppress such behavior.

4. Avoidance of "special events" time periods for administration of any portion of the study. It is important that the demands of the context of the study's delay period closely match the demands of the proposed delay scenarios of any pilot study. No heightened or altered demands for the subjects' time, effort or other factors should exist during any phase of the study. Subjects in the study should be weighing similar alternatives to immediate reward to those subjects participating in the pilot study. This was not the case in the current study.

Summary of Conclusions

This study examined the effects of dispositional traits on subjects' preference for either delayed or immediate reward. Unfortunately, the results supported only a very limited number of specific conclusions. However, a few potentially valuable contributions to future research may be

available.

First, attention to cognitions concerning one's future seems to link present behavior to positive events occurring in this future. The greater the distance into the future these cognitions reach, the stronger the link between future outcome and current behavior. Current theories of behavior, such as goal-setting, which imply some longitudinal component, may benefit from research involving the influence of extension on behavior.

Second, personality traits may influence individuals' perceptions concerning self-efficacy, the values of future outcomes linked to current behavior as well as the probability of experiencing these outcomes as a direct result of current behavior. In essence, one's personality characteristics seem to act as an influence on VIE judgments. Due to an influence of condition on the strength of certain VIE components, as well as the sporadic performance of the personality measures, caution should be taken in interpretation of these relationships until they have been more strongly supported by empirical inquiry.

In conclusion, the original intent of the study, to demonstrate influences of personality traits on delay of gratification behavior, was largely unsupported. Those relationships found to be significant, however, may provide fresh insights into, and stimulate research involving dispositional relationships to the operation of various

components of established theories of behavior.

APPENDIX A
GENERAL INSTRUCTIONS TO SUBJECT
COVER SHEET FOR ADMINISTRATION OF MEASURES

No. _____

This booklet has a number of different sections. Instructions are provided for each section. Please read the instructions carefully for each section. Do not start work on any section until the facilitator has given you the instruction to begin.

When you have completed a section, do not turn to the next section until you are told to do so by the facilitator. Do not go back and change any answers. Make sure you complete all pages and do not omit any questions.

This is not a test, there are no "right" or "wrong" answers, and no grades are given. Different people will answer in different ways, therefore, answer the way you may really feel or believe. The only "right" answers are the ones which are true for you.

Work carefully, but quickly. You should not spend much time on any one statement or answer. If a statement seems difficult to answer, give the best answer you can and move on.

DURING THE COURSE OF THIS PROCEDURE, IT IS VERY IMPORTANT TO OUR RESEARCH THAT YOU REFRAIN FROM SPEAKING WITH ANYONE OTHER THAN THE FACILITATOR. IF YOU HAVE ANY QUESTIONS AT ANY TIME DURING YOUR PARTICIPATION, PLEASE RAISE YOUR HAND TO SIGNAL THE FACILITATOR, WHO WILL ASSIST YOU AS REQUIRED.

When you are finished with the last section of this booklet, please lay the booklet face down on the surface in front of you. Again, remain quietly seated until you receive instructions from the facilitator.

DO NOT TURN THE PAGE UNTIL YOU HAVE BEEN INSTRUCTED TO DO SO BY THE FACILITATOR

APPENDIX B
STANFORD TIME PERSPECTIVE INVENTORY

Read the following statements carefully. Circle the number of the answer which is most characteristic of the statement as it describes your behavior or your beliefs. For example, if you think the statement is very characteristic of your behavior or your beliefs, circle "7", "strongly agree". If you think the statement is very uncharacteristic of your behavior or your beliefs, circle "1", "strongly disagree".

7=strongly agree
6=agree
5=slightly agree
4=uncertain

3=slightly disagree
2=disagree
1=strongly disagree

1. If things do not get done on time, I do not worry about it.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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2. I believe a person's day should be planned each morning.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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3. I believe that getting together with friends to celebrate is one of life's most important pleasures.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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4. I complete projects on time by making steady progress.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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5. Thinking about the future is pleasant to me

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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6. It upsets me to be late for appointments.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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7. I believe that "A stitch in time saves nine."

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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8. I make lists of things I must do.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
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PLEASE CONTINUE TO THE NEXT PAGE

9. I do things impulsively, making decisions on the spur of the moment.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
10. It seems to me my career path is fairly well laid out.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
11. It makes sense to invest a substantial part of my income in insurance premiums.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
12. I keep working at a difficult, uninteresting task if it will help me get ahead.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
13. It is fun to gamble.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
14. I live to make better what is, rather than to be concerned about what will be.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
15. When I want to achieve something, I set subgoals and consider specific means for reaching those goals.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
16. I meet my obligations to friends and authorities on time.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
17. I believe that "A bird in the hand is worth two in the bush".
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
18. I am able to resist temptation when I know there is work to be done.
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
19. I take risks to put excitement in my life
- | | | | | | | |
|----------------|-------|----------------|-----------|-------------------|----------|-------------------|
| strongly agree | agree | slightly agree | uncertain | slightly disagree | disagree | strongly disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |

PLEASE CONTINUE TO THE NEXT PAGE

20. I try to live one day at a time.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

21. I get irritated at those who keep me waiting when we have agreed to meet at a specific time.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

22. It seems to me that it does not make sense to worry about the future, since fate determines that whatever will be, will be.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

23. I believe it is important to save for a rainy day.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

24. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's good times.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

25. I get drunk at parties.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

26. I think that it is useless to plan too far ahead because things hardly ever come out the way you planned anyway.

strongly agree 7	agree 6	slightly agree 5	uncertain 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

WHEN YOU HAVE COMPLETED THIS SECTION, PLEASE TURN THE BOOKLET FACE DOWN IN FRONT OF YOU AND REMAIN QUIETLY SEATED UNTIL YOU HAVE RECEIVED FURTHER INSTRUCTIONS FROM THE FACILITATOR.

APPENDIX C
LOCUS OF CONTROL SCALE

Please read each of the following statements carefully. Circle the number corresponding to the description which most closely matches your level of agreement that the statement describes beliefs you have about yourself. For example, if you feel that the statement is very descriptive of beliefs you have about yourself, you would circle "7", "Strongly Agree". If, however, you feel that the statement does not describe beliefs you have about yourself, you would circle "1", "Strongly Disagree".

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

1. Whether or not I get to be a leader depends mostly on my ability.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

2. To a great extent my life is controlled by accidental happenings.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

3. I feel like what happens in my life is mostly determined by powerful people.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

4. My behavior will determine when I will change my present state of affairs.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

5. When I make plans, I am almost certain to make them work.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

6. Often there is no chance of protecting my personal interests from bad luck happenings.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

7. When I get what I want, it's usually because I'm lucky.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

8. Even if I were a good leader, I would not be made a leader unless I play up to those in positions of power.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

PLEASE CONTINUE TO THE NEXT PAGE

9. How many friends I have depends on how nice a person I am.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

10. I have often found that what is going to happen will happen.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

11. My life is chiefly controlled by powerful others.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

12. It is impossible for anyone to control their involvement in an automobile accident.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

13. People like myself have very little chance of protecting our personal interests when they conflict with those of powerful other people.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

15. Getting what I want means having to please those people above me.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

17. If important people were to decide they didn't like me, I probably wouldn't make many friends.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

18. I can pretty much determine what will happen in my life.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

19. I am usually able to protect my personal interests.

Strongly Agree 7	Agree 6	Slightly Agree 5	Uncertain 4	Slightly Disagree 3	Disagree 2	Strongly Disagree 1
------------------------	------------	------------------------	----------------	---------------------------	---------------	---------------------------

PLEASE CONTINUE TO THE NEXT PAGE

20. When I get what I want, it's usually because I worked hard for it.

Strongly Agree	Agree	Slightly Agree	Uncertain	Slightly Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1
21. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.						
Strongly Agree	Agree	Slightly Agree	Uncertain	Slightly Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1
22. My life is determined by my own actions.						
Strongly Agree	Agree	Slightly Agree	Uncertain	Slightly Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1
23. It's chiefly a matter of fate whether or not I have a few friends or many friends.						
Strongly Agree	Agree	Slightly Agree	Uncertain	Slightly Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

WHEN YOU HAVE COMPLETED THIS SECTION, PLEASE TURN THE BOOKLET FACE DOWN IN FRONT OF YOU AND REMAIN QUIETLY SEATED UNTIL YOU HAVE RECEIVED FURTHER INSTRUCTIONS FROM THE FACILITATOR

APPENDIX D
FUTURE ATTITUDE SCALE

Read the statements below carefully. Each statement may reflect your attitude to a different degree. For example, if a given statement accurately describes your attitude circle number "7" on the attached scale, "decidedly true". If the statement is not a true description of your attitude, circle "1", "decidedly false". Indicate the number which most accurately defines your point of view. There are no "right" or "wrong" answers. All answers are valuable, provided they are sincere.

7=decidedly true
6=true
5=somewhat true
4=hard to say

3=somewhat false
2=false
1=decidedly false

1. My future is uncertain.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

2. I am afraid that some catastrophe will soon occur.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

3. I tremble with fear at the thought of what the next day, month, year will bring.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

4. I am certain that in the future I will not be alone or rejected.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

5. I am afraid to plan for the future.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

6. I am uneasy about possible mishaps.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

7. I fear I will fail to overcome mounting difficulties.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

8. I worry about the failures which await me.

decidedly true 7	true 6	somewhat true 5	hard to say 4	somewhat false 3	false 2	decidedly false 1
------------------------	-----------	-----------------------	---------------------	------------------------	------------	-------------------------

PLEASE CONTINUE TO THE NEXT PAGE

9. I am terrified by the thought that I might sometimes face life's crises or difficulties.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
10. I fall into a state of tension or uneasiness when I think of my future affairs.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
11. I am sure that in the future I will realize the most important goals (values) in my life.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
12. I worry that I will not provide good material conditions for my family.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
13. I have the impression that the world tends toward collapse (apocalyptic end).
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
14. I fear the moment when I will have to account for the decisions and actions of my life.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
15. The closer I am to death the more I fear it.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
16. I believe that in the future I will be able to solve my problems by myself.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
17. I am afraid that changes in the economic-political situation will threaten my future.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
18. I am frightened by the thought that life is quickly passing away.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
19. I am disturbed by the thought that in the future I won't be able to realize my goals.
- | | | | | | | |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|
| decidedly
true
7 | true
6 | somewhat
true
5 | hard to
say
4 | somewhat
false
3 | false
2 | decidedly
false
1 |
|------------------------|-----------|-----------------------|---------------------|------------------------|------------|-------------------------|

PLEASE CONTINUE TO THE NEXT PAGE

20. I am afraid that the problems which trouble me now will continue for a long time.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
21. Even when things go well, fate will turn against me.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
22. I am disturbed by the possibility of a sudden accident or serious illness (e.g., AIDS, cancer).
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
23. Life is worth living in this beautiful, ever-developing world.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
24. I am not afraid that in the future people will be "wolves" to each other.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
25. I am afraid that in the future others will have a negative opinion of me.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
26. I am afraid that after several years I will evaluate my life as purposeless.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
27. I am afraid that in the future my life will change for the worse.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
28. I am afraid that I won't be appreciated in my profession.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
29. I worry that in my old age I will be a burden to someone.
- | | | | | | | |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|
| decidedly true
7 | true
6 | somewhat true
5 | hard to say
4 | somewhat false
3 | false
2 | decidedly false
1 |
|---------------------|-----------|--------------------|------------------|---------------------|------------|----------------------|

WHEN YOU HAVE COMPLETED THIS SECTION, PLEASE TURN THE BOOKLET FACE DOWN IN FRONT OF YOU AND REMAIN QUIETLY SEATED UNTIL YOU HAVE RECEIVED FURTHER INSTRUCTIONS FROM THE FACILITATOR

APPENDIX E
EGO CONTROL-EGO RESILIENCY SCALE

Please read each of the following enclosed statements carefully. You may need to think about your behavior, both past and present, in similar instances, or about beliefs you hold about similar situations or behaviors.

There are no correct or incorrect answers. Different people may have different answers for each statement. We are interested in **your** impressions, therefor, the "correct" answers are those which are most true concerning you. If you believe the statement is a very close description of your behavior or beliefs, you would circle number "7", "strongly agree". If you feel the statement is not at all descriptive of your behavior or beliefs, you would circle number "1", "strongly disagree". Remember, answer the way you may behave or believe, not the way you may think others wish you to behave or believe.

7=strongly agree	3=slightly disagree
6=agree	2=disagree
5=slightly agree	1=strongly disagree
4=neutral- neither agree nor disagree	

1. I often give in to temptation.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

2. I am productive and can get much accomplished.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

3. I have a large number of friends and acquaintances.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

4. To get what you want, you must sometimes lie and deceive.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

5. I cannot tolerate frustrating situations.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

6. I can be depended on to do as I promise.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

7. My values can best be described as conservative.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

8. Although it often means that I can't have what I want right now, I make myself save for my future.

strongly agree 7	agree 6	slightly agree 5	neutral 4	slightly disagree 3	disagree 2	strongly disagree 1
------------------------	------------	------------------------	--------------	---------------------------	---------------	---------------------------

PLEASE CONTINUE TO THE NEXT PAGE

9. I find intellectual pursuits to be very rewarding.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
10. Waiting to open a present makes it all the more enjoyable.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
11. When I have made up my mind, no power on earth can change it.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
12. I have not been able to give my life any personal meaning.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
13. I often have hostile feelings towards others.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
14. I take pride in being unpredictable.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
15. The proper use of facts and evidence will always overcome any emotional judgement.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
16. I often feel unprepared to deal with life's challenges.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
17. When I must meet a deadline, I can put other thoughts from my mind until the job is complete.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
18. When I am upset with someone, I hide my true feelings about them.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
19. I would rather pay full price for an item and get it now than wait for it to go on sale and get it later.
- | | | | | | | |
|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| strongly
agree | agree | slightly
agree | neutral | slightly
disagree | disagree | strongly
disagree |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |

PLEASE CONTINUE TO THE NEXT PAGE

20. I obstruct or sabotage the plans of others when it means success for me.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

21. In school, I was easily able to immediately begin work on after-class assignments and papers.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

22. I am a person who says what is on my mind.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

23. I only need to explain something once to be understood.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

24. The "good things" in life come to those who wait.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

25. Decisions should be made only after extensive review of all facts and figures.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

26. If I can afford it, I do not deny myself anything I would like to have.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

27. I have a strong drive to move to the top of my chosen profession.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

28. I tend to tell the truth, no matter what the consequences.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

29. People always ask my advice about many things.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

30. I enjoy receiving small rewards immediately more than waiting and receiving a larger one in the future.

strongly agree		slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	agree 6	5	4	3	2	1

PLEASE CONTINUE TO THE NEXT PAGE

31. It is often difficult to understand what my partner wants from me and our relationship.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

32. I try to offer help to those who may need it.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

33. To reach objectives, I set smaller, related goals first then plan how to reach them.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

34. I do not trust other people.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

35. I have been "cheated" by life.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

36. If you have the means to get something, there is really no need to wait for it.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

37. I am often rebellious and non-conforming.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

38. If given an "inch" I always try to take a "foot".

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

39. I remain clear-headed in times of danger.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

40. I am unable to delay gratification.

strongly agree	agree	slightly agree	neutral	slightly disagree	disagree	strongly disagree
7	6	5	4	3	2	1

WHEN YOU ARE FINISHED WITH THIS SECTION, PLEASE TURN THE BOOKLET FACE DOWN IN FRONT OF YOU AND REMAIN QUIETLY SEATED UNTIL YOU HAVE RECEIVED FURTHER INSTRUCTIONS FROM THE FACILITATOR

APPENDIX F

No. _____

**BIOGRAPHICAL AND DEMOGRAPHIC
INFORMATION**

Please take time to supply the following information. Remember, all responses and information provided by participants are held in strict confidence.

1. Race/Ethnic Background: (check only one)

African-American (all persons having origin in any Black racial group)

Hispanic (all persons having Mexican, Cuban, Central or South American, Puerto Rican, or other Spanish culture or origin, regardless of race)

Pacific Islander (all persons having origins in the Pacific Islands)

Native American or Alaskan Native (all persons having origins in any of the native peoples of North America and who maintain cultural identification through tribal affiliation or community recognition)

Asian (all persons having origins in the peoples of the Far East, Southeast Asia, or the Indian sub-continent)

Filipino (all persons having origins in any of the natives of the Philippine Islands)

White (all persons having origins in any of the original peoples of Europe, (excluding Spain, North Africa or the Middle East)

Other (please specify)

2. Age: _____

3. Sex: F M

4. Are you a native-born U.S. citizen? Y N

If **Yes**, please answer question **5**. If **No**, please answer question **6**.

5. If you are a 1st or 2nd generation U.S. native, please enter 1 or 2, respectively. If not 1st or 2nd, enter 3. _____ Go to question 8.

6. What nation was your place of birth?

If you now consider yourself to permanently reside in the U.S.A., please answer question 7, else go to question 8.

7. Your age when you first began U.S. residency

8. What is your religious persuasion or affiliation?
(Please be as descriptive as you may feel necessary; Roman Catholic, Muslim, Southern Baptist, Orthodox Jewish, atheist, etc.)

9. Indicate the highest level of education attained.

___some high school	___undergraduate degree
___high school graduate	___other_____
___some college	(please specify)

10. Occupation:
(Please provide a very short description if necessary. If you are a full-time student, please indicate this.)

APPENDIX G
INTERVENTION 1
CHOICE OF PAYMENT THEN COMPLETION OF VIE MEASURE

This portion occurs immediately after collection of the demographic questionnaire.

We are now going to complete the next portion of this study, the questionnaire about study conditions. Before I distribute the final exercise, however, I would like to talk about the cash payment you will receive. As occasionally happens, the manager of the grants office funding this project has told us that we can offer an increase in the amount of the cash payment to be given to people who have participated in this study. Rather than the \$5 initially offered, we can pay an additional \$2, for a total of \$7. Unfortunately, since we were only told this an hour or so ago, we only have enough cash here right now to pay everyone here the original \$5, but no more. Therefore, I am going to ask you to make a choice. Immediately after you have completed the final portion of the study, we will pay the original sum of \$5 to those who would like it. Or, if you like, we can pay the \$7 to those of you who are willing to wait for five days and pick the payment up in the study office, Room 778 of the Management department, anytime between 9 a.m. and 5 p.m. on Tuesday, May 4th. This office is located here on the 7th floor of the Business Administration building. Because of the increased amount of record-keeping involved, these are the only two payment alternatives we can give you, no other ways are possible.

I am going to ask you to choose how you want to be paid now, before we proceed to the next portion of the exercise.

You are going to choose between the \$5 cash today, or \$7 to be picked up in five days at the study office. I am distributing a payment receipt form to everyone. This helps us to account for all grant funds we have spent. **PAYMENT**

FORM DISTRIBUTED Everyone should print the 4-digit control number from your file card, your name, and your SSN in the spaces provided on this form, and sign your name in the space marked "Signature". If you want the \$5 today, print "\$5 today" immediately underneath your signature. If you want the \$7, to be picked up in five days, print "\$7 in five days" immediately underneath your signature. **GIVE TIME FOR COMPLETION OF FORM.**

We will now collect the payment forms, and pass out the study conditions questionnaire. As I said at the beginning of this session, we will use the information you give us to help adjust procedures we may use in future studies like this to make it easier for people like you to participate. We are going to ask you what you think about times, location, length, rewards and other factors about

participating in experiments.

**VIE measure is now distributed, completed and collected.
Subjects return to Belk for payment and debriefing.**

APPENDIX H
INTERVENTION 2
COMPLETION OF VIE MEASURE THEN CHOICE OF PAYMENT

This portion occurs immediately after collection of the demographic questionnaire.

We are now going to complete the next portion of this study, the questionnaire about study conditions. Before I distribute this exercise, however, I would like to talk about the cash payment you will receive. As occasionally happens, the manager of the grants office funding this project has told us that we can offer an increase in the amount of the cash payment to be given to people who have participated in this study. Instead of the \$5 initially offered, we can pay all participants an additional \$2, for a total of \$7. Unfortunately, since we were only told this an hour or so ago, we only have enough cash here right now to pay everyone here the original \$5, but no more. Therefore, I am going to ask you to make a choice. Immediately after you have completed the final portion of the study, we will pay the original sum of \$5 to those who would like it. Or, if you like, we can pay the \$7 to those of you who are willing to wait for two days and pick the payment up in the study office, Room 778 of the Management Department, any time between 9 a.m. and 5 p.m. beginning Tuesday, May 4th. This office is located here on the 7th floor of the Business Administration building. Because of the increased amount of record-keeping involved, these are the only two payment alternatives we can give you, no other ways are possible.

You do not have to choose how you want to be paid at this time. First, I will give out the study conditions questionnaire.

As I said at the beginning of this session, we will use the information you give us to help adjust procedures we may use in future studies like this to make it easier for people like you to participate. We are going to ask you what you think about times, location, length, rewards and other factors about participating in experiments. After you have completed this, you can choose how you want to be paid

The VIE measure is now distributed, completed and collected.

As I mentioned earlier, you are going to have the opportunity to choose between the \$5 cash now, or \$7 to be picked up in five days at the study office. I am distributing a payment receipt form to everyone. This helps us to account for all grant funds we have spent. **PAYMENT FORM DISTRIBUTED** Everyone should print the 4-digit control number from your file card, your name and your SSN in the spaces provided on this form, and sign your name in the space marked "Signature". If you want the \$5 now, print "\$5 now" immediately underneath your signature. If you want \$7

in five days, print " \$7 in five days" immediately
underneath your signature. **Payment forms are now collected.**
Subjects return to Belk for payment and de-briefing.

APPENDIX I
CHOICE OF REWARD

**MANAGEMENT RESEARCH REIMBURSEMENT FUND
PAYMENT TRACKING FORM**

April 29, 1999

No.

My signature in the space below indicates that I have received the sum of \$5 (five dollars US) as payment for my participation in the research exercise conducted at the University of South Carolina, Columbia, initiated April 26, 1999, completed April 29, 1999.

**Name:
(Please print your name)**

**SSN:
(Please print your SSN)**

**Signature:
(Please sign your name as it appears above)**

APPENDIX J
VIE MEASURE

No. _____

This questionnaire consists of three separate sections concerning factors involved in experimental situations. As you go through each section, carefully read all directions for each section, as well as each statement contained in that section. If you need assistance with any portion of this questionnaire, please raise your hand and a facilitator will be glad to help you.

SECTION 1

Carefully read the following statements listed below. Think about how you might behave in these or similar situations. Using the scale provided, estimate how likely you are to be **able to do** what is described in each statement. In other words, **how likely is it that you COULD do what each statement describes?** For example, if you believe that it is very likely you **would be able to do** what is described in the statement, circle number "7". If you believe that it is very unlikely you **would be able to do** what is described in the statement, circle number "1". Remember, there are no "right" or "wrong" answers in this exercise. The correct answer is the one which most closely matches your own beliefs about your behavior.

1-very unlikely	5-somewhat likely
2-unlikely	6-likely
3-somewhat unlikely	7-very likely
4-neither likely or unlikely	

Again, imagine that you are being asked to participate in another study. If you decide to participate, the study may have you engage in some or all of the behaviors contained in the following statements. As directed in the instructions above, please indicate how likely it would be that **you would be able to do** each of the behaviors in the statements.

1. Participate in a study held on a Saturday rather than on a weekday.

very unlikely 1	unlikely 2	somewhat unlikely 3	neither 4	somewhat likely 5	likely 6	very likely 7
-----------------------	---------------	---------------------------	--------------	-------------------------	-------------	---------------------

2. Participate in a study held during a class lecture period instead of covering material for that course.

very unlikely 1	unlikely 2	somewhat unlikely 3	neither 4	somewhat likely 5	likely 6	very likely 7
-----------------------	---------------	---------------------------	--------------	-------------------------	-------------	---------------------

3. Travel to an off-campus meeting center to be in a study rather than use some University facility.

very unlikely 1	unlikely 2	somewhat unlikely 3	neither 4	somewhat likely 5	likely 6	very likely 7
-----------------------	---------------	---------------------------	--------------	-------------------------	-------------	---------------------

PLEASE CONTINUE TO THE NEXT PAGE

4. Choose an immediate cash payment of \$5 even though I know I would get \$7 if I waited.

very unlikely	unlikely	somewhat unlikely	neither	somewhat likely	likely	very likely
1	2	3	4	5	6	7

5. Choose an immediate \$5 payment to be given with a University check instead of receiving cash.

very unlikely	unlikely	somewhat unlikely	neither	somewhat likely	likely	very likely
1	2	3	4	5	6	7

6. Answer study questions orally as part of an individual interview with the study facilitator and not fill out questionnaires.

very unlikely	unlikely	somewhat unlikely	neither	somewhat likely	likely	very likely
1	2	3	4	5	6	7

7. Be present for a study which begins at 8 a.m.

very unlikely	unlikely	somewhat unlikely	neither	somewhat likely	likely	very likely
1	2	3	4	5	6	7

8. Wait five days to receive payment of \$7 even though I could get \$5 at once.

very unlikely	unlikely	somewhat unlikely	neither	somewhat likely	likely	very likely
1	2	3	4	5	6	7

9. Participate in a study with one two-hour session rather than two one-hour split sessions.

very unlikely	unlikely	somewhat unlikely	neither	somewhat likely	likely	very likely
1	2	3	4	5	6	7

10. Participate in the study individually, and not as a member of a group.

very unlikely	unlikely	somewhat unlikely	neither	somewhat likely	likely	very likely
1	2	3	4	5	6	7

DO NOT TURN TO PAGE 3 UNTIL THE FACILITATOR HAS INSTRUCTED YOU TO DO SO.

SECTION 2 INSTRUCTIONS

For each of the statements on pages 1 & 2, there may be several consequences related to you doing what is described in the statement. Some of these consequences may be positive (good), in that you would want them to be a result of the behavior, and would like them if they occurred. Some of these consequences may also be negative (bad), in that you would not want them to be a result of the behavior and would not like them if they occurred.

For example: If you bought a new car, you would have reliable transportation (positive), but you would not be able to afford a vacation (negative).

Following are lists of some positive and negative consequences which might happen if you did what is described in the statements of Section 1. Using the scale provided, for each of the consequences listed below, rate the **desirability** of each of these consequences to you. For example, if the consequence would be **highly desirable** to you, in other words **you would like the consequence** if it occurred, you would choose "7", highly desirable. If the consequence would be **highly undesirable to you**, in that **you would not like the consequence** if it occurred, you would choose "1", highly undesirable.

PLEASE PLACE YOUR CHOICE IN THE SPACE PROVIDED FOLLOWING EACH OUTCOME

Negative Consequences

- 1=highly undesirable
- 2=undesirable
- 3=slightly undesirable
- 4=indifferent

Positive Consequences

- 4=indifferent
- 5=slightly desirable
- 6=desirable
- 7=highly desirable

Statement 1: Participate in a study held on Saturday rather than on a weekday.

Positive consequences:

- A. It would not interfere with school or work_____.
- B. I would have something interesting to do on a Saturday_____.
- C. I would have the chance to make new friends and acquaintances_____.

Negative consequence:

- A. It would interfere with my personal plans_____.

Statement 2: Participate in a study held during a class lecture period instead of covering material for that course.

Positive consequences:

- A. I would be rewarded for going to class_____.
- B. I would not have to use any of my personal time_____.
- C. I would get a break from class time_____.

PLEASE CONTINUE TO THE NEXT PAGE

Negative Consequences

1=highly undesirable
2=undesirable
3=slightly undesirable
4=indifferent

Positive Consequences

4=indifferent
5=slightly desirable
6=desirable
7=highly desirable

Negative consequence:

A. Valuable course-related information would not be covered_____.

Statement 3: Travel to an off-campus meeting center to be in a study rather than use some University facility.

Positive consequences:

A. I would experience a pleasant change of scenery from campus_____.

B. I could socialize and meet people other than those I know on campus_____.

C. I would be more relaxed during the study_____.

Negative consequence:

A. I would have to go out of my way to participate_____.

Statement 4: Choose an immediate cash payment of \$5 even though I know I could get \$7 if I waited.

Positive consequences:

A. I would have \$5_____.

B. I would be able to use the money at once if I wanted_____.

C. I would be sure to receive payment_____.

Negative consequence:

A. I would lose the extra money offered_____.

Statement 5: Choose an immediate \$5 payment given with a University check instead of receiving cash.

Positive consequences:

A. I would have \$5_____.

B. I would not spend the money as quickly_____.

C. I can get a new check if I lose the original_____.

Negative consequence:

A. I would have to go to the bank just to cash a small check_____.

PLEASE CONTINUE TO THE NEXT PAGE

Negative Consequences

1=highly undesirable
2=undesirable
3=slightly undesirable
4=indifferent

Positive Consequences

4=indifferent
5=slightly desirable
6=desirable
7=highly desirable

Statement 6: Answer the study questions orally as part of an individual interview with the study facilitator and not fill out questionnaires.

Positive consequences:

- A. It would be faster and easier to complete_____.
 - B. I could get explanations for things I wish to know about_____.
 - C. I would be able to explain my answers more_____.
6. Negative consequence:
- A. I would be uncomfortable giving personal information to a stranger_____.

Statement 7: Be present for a study which begins at 8 a.m.

Positive consequences:

- A. It would be over early and not interrupt the rest of my day_____.
- B. I feel better and have more energy at this time of the day_____.
- C. It would not interfere with attending work or school_____.

Negative consequence:

- A. I would have to get up very early in order to get to the study_____.

Statement 8: Wait five days to receive a larger payment of \$7 even though I could get \$5 at once.

Positive consequences:

- A. I would have \$7_____.
- B. I would get more for the same effort as the immediate payment_____.
- C. I would be able to buy more things_____.

Negative consequence:

- A. I would not have the money if I needed it immediately_____.

Negative Consequences

1=highly undesirable
2=undesirable
3=slightly undesirable
4=indifferent

Positive Consequences

4=indifferent
5=slightly desirable
6=desirable
7=highly desirable

Statement 9: The study would occur in one two-hour session rather than two one-hour split sessions.

Positive consequences:

- A. I would only have to go to the study once_____.
- B. The entire study would be completed more quickly_____.
- C. I would have more time to think over my answers_____.

Negative consequence:

- A. One session would too long, and be very boring and tiring_____.

Statement 10: Participate in the study individually and not as a member of a group.

Positive consequences:

- A. I could do the study at my own pace_____.
- B. I could participate at a convenient time for myself_____.
- C. I would be less distracted and concentrate more_____.

Negative consequence:

- A. I would feel strange because my identity and answers would be known _____.

DO NOT TURN TO PAGE 7 UNTIL THE FACILITATOR HAS INSTRUCTED YOU TO DO SO

SECTION 3 INSTRUCTIONS

In this section, you will be asked again about the same behaviors contained in the two previous sections. This time, however, you will be asked **how likely you think that each of the consequences listed for each behavior would actually happen if you behaved in the way described in each statement.**

Using the scale provided below, indicate **how likely it would be** that if you chose to do what is described in each of the following statements, you would experience each of the positive and negative consequences listed for that statement. In other words, if you did what is described in the statement, **how sure are you that each of the consequences would actually happen?** For example, if you are absolutely sure the consequence would happen, you would choose "8", "definitely". If you are absolutely sure the consequence would not happen, you would circle "1", "definitely not". **Please place your choice in the space provided following each consequence.**

1=definitely not
2=highly unlikely
3=unlikely
4=somewhat unlikely

5=somewhat likely
6=likely
7=highly likely
8=definitely

Statement 1: Participate in a study held on Saturday.

Positive consequences:

- A. It would not interfere with school or work_____.
- B. I would have something interesting to do on a Saturday_____.
- C. I would have the chance to make new friends and acquaintances_____.

Negative consequence:

- A. It would interfere with my personal plans_____.

Statement 2: Participate in a study held during a class lecture period instead of covering material for that course.

Positive consequences:

- A. I would be rewarded for going to class_____.
- B. I would not have to use any of my personal time_____.
- C. I would get a break from class time_____.

Negative consequence:

- A. Valuable course-related information would not be covered_____.

Statement 3: Travel to an off-campus meeting center to be in a study rather than use some University facility.

Positive consequences:

- A. I would experience a pleasant change of scenery from campus_____.

1=definitely not
2=highly unlikely
3=unlikely
4=somewhat unlikely

5=somewhat likely
6=likely
7=highly likely
8=definitely

B. I could socialize and meet people other than those I know on campus ____.

C. I would be more relaxed during the study ____.

3. Negative consequence:

A. I would have to go out of my way to participate ____.

Statement 4: Choose an immediate cash payment of \$5 even though I know I could get \$7 if I waited.

Positive consequences:

A. I would have \$5 ____.

B. I would be able to use the money at once if I wanted ____.

C. I would be sure to receive payment ____.

Negative consequence:

A. I would lose the extra money offered ____.

Statement 5: Choose an immediate \$5 payment given with a University check instead of receiving cash.

Positive consequences:

A. I would have \$5 ____.

B. I would not spend the money as quickly ____.

C. I can get a new check if I lose the original ____.

Negative consequence:

A. I would have to go to the bank just to cash a small check ____.

Statement 6: Answer the study questions orally as part of an individual interview with the study facilitator and not fill out questionnaires.

Positive consequences:

A. It would be faster and easier to complete ____.

B. I could get explanations for things I wish to know about ____.

C. I would be able to explain my answers more ____.

PLEASE CONTINUE TO THE NEXT PAGE

1=definitely not
2=highly unlikely
3=unlikely
4=somewhat unlikely

5=somewhat likely
6=likely
7=highly likely
8=definitely

Negative consequence:

A. I would be uncomfortable giving personal information to a stranger____.

Statement 7: Be present for a study which begins at 8 a.m.

Positive consequences:

A. It would be over early and not interrupt the rest of my day_____.

B. I feel better and have more energy at this time of the day_____.

C. It would not interfere with attending work or school_____.

Negative consequence:

A. I would have to get up very early in order to get to the study_____.

Statement 8: Wait five days to receive a larger payment of \$7 even though I could get \$5 at once.

Positive consequences:

A. I would have \$7_____.

B. I would get more for the same effort as the immediate payment_____.

C. I would be able to buy more things_____.

Negative consequence:

A. I would not have the money if I needed it immediately_____.

Statement 9: The study would occur in one two-hour session rather than two one-hour split sessions.

Positive consequences:

A. I would only have to go to the study once_____.

B. The entire study would be completed more quickly_____.

C. I would have more time to think over my answers_____.

Negative consequence:

A. One session would too long, and be very boring and tiring_____.

1=definitely not
2=highly unlikely
3=unlikely
4=somewhat unlikely

5=somewhat likely
6=likely
7=highly likely
8=definitely

Statement 10: Participate in the study individually and not as a member of a group.

Positive consequences:

- A. I could do the study at my own pace_____.
- B. I could participate at a convenient time for myself_____.
- C. I would be less distracted and concentrate more_____.

Negative consequence:

- A. I would feel strange because my identity and answers would be known_____.

WHEN YOU HAVE FINISHED THIS PORTION OF THE EXERCISE, TURN THE MATERIAL FACE DOWN AND REMAIN QUIETLY SEATED.

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