COMPONENTS OF DECISION-MAKING STRATEGIES FOR COLLEGE STUDENTS

by

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Introduction

This research is aimed at exploring college students' attitudes, intentions, and behaviors following exposure to components of decision-making utilizing decision description, decision mapping, multiple social perspective-taking, and incubation. The literature on college students' decision-making suggests their decisions are sometimes made with impulsivity, emotionalism, risk-taking, and sensation-seeking, without fully understanding the nuances of their decisions or having sensitivity to the consequences (Reyna & Farley, 2006). The following introductory section of this paper provides a review of the current literature pertinent to college students along with the literature on decision-making and the strategies including: Nature of College Student Decision-Making, Decision-Making Barriers and Errors, Decision-Making Research and Theories, Components of Strategic Decision-Making, Modified Components of Strategic Decision-Making Study, and Research Design and Questions. Additionally, this introduction includes a preliminary study implementing a brief decision-making intervention with a target population sample.

Nature of College Student Decision-Making

Career decisions. Some of the most critical life decisions made by young college students are those regarding a decision in choice of college, choice of major, and choice of occupation (Moreland, Harren, Krimsky-Montague, & Tinsley, 1979; Rubinton, 1980). Yet, most students do not possess the life experience or understand the multiple factors involved in decision-making that may affect career planning (O'Neil et al., 1980). Further, anxiety can be a hindrance to students' ability to cope effectively with vocational information, thereby affecting their ability to possess confidence and limiting progress in career decision-making (O'Hare & Tamburri, 1986). However, while it is true that decisions in a choice of college, choice of major,

and choice of occupation will greatly affect the future of college students, numerous other decisions leading to unwise behavioral responses also impact the life course trajectory of these vulnerable young adults.

Personal decisions. When college students move away from home for the first time and are free of parental restrictions, they sometimes decide to explore high risk behaviors. Drug use (Clayton, 1992), heavy drinking (Johnston, O'Malley, Bachman, & Schulenberg, 2006), binge drinking (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994), unprotected sex (Eaton, et al., 2006), and unsafe driving (National Center for Statistics and Analysis, 2005) are a sampling of some typical high risk college behaviors. Decisions to engage in risk-taking (sensation seeking over harm avoidance) can intentionally or unintentionally result in high morbidity and mortality rates (Grunbaum et al., 2004). Previous research for example, suggests a high risk for excessive drug consumption exists for college students including simultaneous drug use (multiple drugs) peaking from 18-25 years (Clayton, 1992). Approximately 40% of college students engage in heavy alcohol use (Johnston et al., 2006) and nearly half (44%) reported binge drinking (Wechsler et al., 1994). In fact, in a longitudinal study with college students on decision-making and binge drinking, psychologists at the University of Missouri-Columbia (2007) found decision-making ability impaired among binge drinkers. The leading cause of death among young people aged 15 to 20 years is due to motor vehicle crashes and 23% of young drivers killed in motor-vehicle crashes in 2005 had a blood alcohol concentration level of .08 g/dL or higher (National Center for Statistics and Analysis, 2005). Furthermore, an estimated 9.1 million cases of sexually transmitted diseases (STDs) among persons aged 15-24 years has been documented (Eaton et al., 2006) and more than half of all new cases of HIV infection occur in individuals under the age of 25. The seventh leading cause of death among 13

- 24-year olds is attributed to HIV (Grunbaum, et al., 2004). Controversies abound regarding the best solutions to these dilemmas, with solutions ranging from the provision of sexual abstinence education or to increasing the minimum drinking age (Reyna & Farley, 2006); to changing the college culture (Leppel, 2006). Indeed, the decisions made by college students can have lasting and far-reaching repercussions, some even horrific as seen by the link between decision-making and violent crime (i.e., Virginia Tech – April 16, 2007).

Decision-Making Barriers and Errors

Novelty and risk seeking. Novelty-seeking behaviors are also an earmark of this transition time in life. College students often exhibit a heightened attraction for novel stimuli and adventures that can positively motivate them towards greater learning and independence. However, novelty seeking can also be negative when accompanied by a sense of invincibility (Ernst & Paulus, 2005). Behaviors that contribute to novelty-seeking and decisions involving risk are closely linked to desirable goals; however, many of these immediate pleasures may carry adverse long-term outcomes (Herrnstein & Prelec, 1992).

Risk perceptions may also play an important role in decision-making. Many students view their own risks as less than their peers and perceive those same risks as benefits outweighing the perception of risks (Halpern-Felsher, Biehl, Kropp, & Rubinstein, 2004). Nevertheless, risk perceptions and risk-taking decisions may persist if adverse outcomes are not experienced, or those that are experienced are not quickly forth-coming or devastating (Reyna & Farley, 2006). Further, students' risky decisions are, more often than not, made when young people are in a group. For example, Gardner and Steinberg (2005) found that compared with adults, youths 18-22 years of age made riskier decisions in the presence of peers than when they made decisions alone. Reyna and Farley (2006) additionally found that it was not uncommon for

risky adolescent decisions to be made in the heat of passion, on the spur of the moment, in unfamiliar situations, and/or to avoid negative future consequences.

College students having crossed the gateway into adulthood sometimes make decisions or continue in decisions begun in adolescence, which have the potential to affect their entire lives. Frequently, college students do not fully understand the consequences involved in their decisions until some point in the future (Reyna & Farley, 2006). Without a value system for decisions that involve delayed outcomes, students cannot factor the value into their decision-making process to better evaluate future positive and negative consequences (Stevenson, 1993). Therefore, addictions, often begun as many small voluntary decisions during younger years without consideration of future consequences, can erupt into full-blown established patterns contributing to life-long negative outcomes (Herrnstein & Prelec, 1992; Slovic, 2000). These addictions can occur because students may be more focused on the immediate rewarding effects of illicit drugs (as witnessed by skyrocketing statistics revealing young peoples' abuse of substances) and less focused of the negative long-term ramifications (Clayton, 1992; Johnston et al., 2005; Wechsler et al., 1994).

At times, lacking understanding is the result of not having received instruction in how to make effective decisions, yet with some individuals, decision-making barriers exist which permanently hinder the ability to make effective decisions. For example, chronic exposure to alcohol and drugs can erode the ability to make sound decisions. Additionally, permanent loss of brain functioning can also be the result of accidental damage to the brain as a result of risk-taking behaviors such as drunk driving accidents or from taking a fall from a motorcycle without the benefit of wearing a helmet.

Capacity deficits. The brain's prefrontal cortex is critical in decision-making (Reyna & Farley, 2006). When individuals with frontal lobe damage make decisions, the effectiveness of those decisions may be affected by the damage. For patients with neurological and/or psychiatric disorders that affect the frontal lobes, an ability to make rational, well thought through decisions may not be possible (Queen's University, 2002). Specifically, individuals with ventromedial prefrontal cortex and/or dorsolateral prefrontal cortex damage have been found to make impaired decisions (Fellows & Farah, 2005). Ventromedial damage also impairs the ability to compare the value of options thereby reflecting a tendency to make decisions based on options that are "good enough" in contrast to "seeking the best" (Fellows, 2006). Additionally, these individuals do not show an ability to learn from prior mistakes (Naqvi, Shiv, & Bechara, 2006). This impaired decision-making was found even when uncertainty existed, under conditions of risk, or when potential future consequences needed to be considered (Fellows, 2006). Further, individuals with lesions in the ventromedial cortex were found to make decisions based on only immediate gain prospects, regardless of future consequences (Bechara, Damasio, Tranel, & Anderson, 1998). However, ventromedial damage is not the only factor that can affect brain functioning – so can chronic alcohol and drug use.

As noted earlier, alcohol and drug use can affect proper brain functioning. In fact, those who abuse drugs and alcohol have been shown to have decision-making impairments much like those possessed by patients with ventromedial prefrontal cortex damage (Naqvi et al., 2006). Also, the pathways in the frontal lobes, which connect to other parts of the brain to send information, have been found not to be as well defined in individuals who were exposed to cocaine prior to birth. Therefore their decision-making and behavior may be affected (University of Florida Health Science Center, 2006). Moreover, risky decision-making has also long been

linked with addiction (Fellows & Farah, 2005; Joe, Knezek, Watson, & Simpson, 1991). Still, there is another element that creates a barrier to decision-making – brain development.

Neural circuitry is not completely developed in many individuals until they are in their early 20's (Brownlee, Hotinski, Pailthorp, Ragan, & Wong, 1999). Although, risk taking, thrill seeking, and impulsive behavior that is seen in adolescents and young adults is therefore considered normal, it is not necessarily safe and can lead to immature decisions. Yet, given that brain damage, alcohol and drugs, and development issues all can play a role in effective decision-making, it is also true that impaired decision-making may simply be a result of individuals lacking appropriate strategies to think through choices well.

Lack of experience and strategies. Previous research has shown the effectiveness of teaching decision-making strategies, which results in increasing students' vocational maturity and choice certainty (Mau & Jepsen, 1992; Rubinton, 1980). In classic career development research performed over four decades ago, Hilton (1962) supports the notion that career development is a chain of decisions where a reduction in dissonance regarding an individual's beliefs about himself and his environment work together to improve motivation in career decision-making. He asserts, therefore, that the ability to make effective decisions is fundamentally important. Phillips, Pazienza and Ferrin (1984), found that students who utilized systematic and logical decision-making strategies tended to actively seek out solutions and insights from prior problem solving. By contrast, students who did not utilize such strategies were likely to report avoidance of the present problems and not learn from prior poor decisions. Moreover, college students have been found to simplify the decision-making process by rejecting choices with only a scant amount of information as a result of the task complexity exceeding their processing capacity. That is, they use a process of elimination whereby the decision-

making process is over when all but one alternative has been rejected (Onken, Hastie, & Revelle, 1985).

Improving at decision-making involves enhancing the ability to view unclear decisions in a different light. This clarity can be achieved by examining the steps or stages in decision-making. With new insight into a difficult decision, the act of deciding has the potential of becoming less overwhelming and more manageable.

Decision-Making Research and Theories

Within the decision-making literature, five stages are commonly found: 1) Define the Situation, 2) Generate Alternatives, 3) Information Gathering, 4) Selection, and 5) Action.

Stages of decision-making. There are five broad stages in decision-making (Stages in Decision Making, 2007; Levin, Huneke, & Jasper, 2000; Slovic, Fischoff, & Lichtenstein, 1977). The first and most significant stage is to *Define the Situation.* This is critical to understanding the situation and being clear about what is hoped to be achieved. It is in essence, a description of the decision.

The second stage is to *Generate Alternatives*. By considering alternatives and the positive and negative consequences of each, a more rational choice can be made (Halpern, 1996). For example the Decision Map (Dansereau, 2005) is a pre-structured map that guides individuals to visually represent all of the possible choices and the positives and negatives of each choice by using a "fill-in-the-space" format.

Information Gathering is the third stage. This can be accomplished by considering others' recommendations for the best course of action. Utilizing this strategy of multiple social perspective-taking may serve to provide options that were previously not given serious consideration.

The fourth stage is *Selection*. In this stage individuals select from among their choices to make a tentative decision after giving careful consideration to their options and to the opinions offered by others. However, it might be prudent to allow a time of waiting (also called incubation) before making a final decision, as will be discussed later in this introduction.

The fifth and final stage is *Action*. It is important to include action as a final step in decision-making because if the decision is not acted upon, then the time invested in making the decision is wasted. Each of these stages are reflected in the decision-making strategies chosen for this intervention.

Understanding the Decision. One way to better understand a pending decision is to think through key aspects of the decision. One of the first aspects is through the use of decision analysis – to consider the reason the decision is needed. Next, describe the decision, stating its importance, identify any timing or deadline issues, and note any other related decisions. Last, recognize potential supporters and/or opponents of your decision-making. To avoid confusion with other approaches, the remainder of the manuscript will refer to decision analysis as *decision description*. Decision description is most effective when used in a worksheet format because it provides a systematic method of preparing for decision-making (Halpern, 1996).

Like decision description, mapping also aids in understanding a decision (Dansereau, 2005). Maps work by shifting the usual thinking processes to a concentration that requires a graphic idea organization and an application of spatial relationships. Over the years they have been used for dealing with a variety of issues. In 1989, maps were first studied as personal management tools for college students in substance abuse prevention research (Tools for Improving Drug and Alcohol Education and Prevention, D. F. Dansereau, Principal Investigator) sponsored by the National Institute on Drug Abuse (NIDA). Maps are also useful in academic

settings to organize and present facts in an easy-to-remember format. In 1993, mapping research was studied with college students who could remember more main ideas from maps than from comparable texts (Dees & Dansereau, 1993). Later maps were used as a unique cognitive-based technique designed to visually portray ideas, feelings, facts, and experiences (Dansereau & Dees, 2002). In problem solving, the most important aspects of a personal issue were captured by maps making alternatives more salient thereby making the problem appear more manageable (Knight, Dansereau, Joe, & Simpson, 1994).

In the decision-making process, once thoughts are organized through the use of mapping, effective decision-making is made easier. This is because all the choices and the possible consequences (positive and negative) can be easily observed. Additionally, the Decision Map calls for individuals to think carefully about the impact of those choices and allows for an incubation time before making a final decision. Another decision-making strategy that provides the evaluation of various choices is Social Perspective Taking (SPT). It is based on the Judge Advisor System (JAS) model.

Evaluating options. The JAS model is used by decision-makers who seek assistance from one or more advisors for the purpose of evaluating options. Developed by Sniezek and Buckley (1995), it fosters insight into the decision-making process. It stems from the notion that a decision-maker (Judge) seeks and/or receives information and recommendations from others (Advisors: Sniezek, 1999). In many of life's domains an individual who is responsible for a decision receives input from other people prior to making that decision. For example, patients secure medical opinions before consenting to surgery, graduate students consult with their committees before writing dissertations, homeowners seek the advice of insurance professionals, and even the President of the United States has his Cabinet and team of advisors. In practice, the

JAS is used in education, medicine, public affairs, the military, business, finance, and private life where an immense and exceeding number of decision-making situations are needed (Sniezek, 1999).

This paradigm is dissimilar to individual research models and to models of group decision-making where a majority rules or a consensus must be reached. Rather, it is targeted at decision-makers that are seeking to make important decisions that involve uncertainty and whose motivation is based in a desire to improve the quality of their decisions (Harvey & Fisher, 1997). Furthermore, only the judges possess the power to determine the final decision and they alone are held accountable for those decisions. Advisors involved may all contribute with recommendations or suggestions with each serving to act in unique roles (Sniezek, 1999). One final JAS component is the qualifications of the advisors. Judges have been found to discriminate to varying degrees in their choice of advisors but consistently advisors are sought out for their high degree of confidence (a cue for expertise) and for the level of trust they bring (Wilkins et al., 1999). With an understanding of the JAS model as a foundation, the utilization of Social Perspective Taking (SPT) is important as a social and cognitive skill whereby an individual takes into account the point of view of other persons by imagining their perspectives (Underwood & Moore, 1982; Bernstein & Davis, 1982).

Seeking out the advice of others or even having the ability to discern others' advice is prudent in a society characterized by the need for an ever-increasing amount of information and an ability to sift through the complexities of knowledge (Jonas, Schulz-Hardt, & Frey, 2005). Furthermore, SPT has been associated with the ability to understand history from multiple perspectives (Foster, 2001), promoting moral reasoning and development (Hoffman, 2000), reducing prejudice (Rokeach, 1960), and resolving conflict resolution (Deutsch, 1993).

According to Galinsky, Ku, and Wang (2005), perspective-taking is beneficial because it stimulates an increase in the process of *self-other overlap*. This self-other overlap is actually the sum of two different processes: the first is the self is applied to the other, resulting in the other becoming more "self-like"; in the second process, the other is included in the self, resulting in the self becoming more "other like." Their research further suggests that one of the main benefits of perspective-taking is the overlapping of self and other, which promotes social cooperation and strengthens social bonds. This overlap is advantageous given that strong social bonds with others whose opinions are sought in decision-making are desirable.

The ability to take the perspective of others is a social and cognitive skill that develops gradually as individuals are able to recognize dimensions of interpersonal experiences; it is not, however, an ability possessed by everyone. Individuals demonstrating developmental delays have been found to misread social cues and expectations, to misinterpret actions and intentions, and to behave in a manner that may be viewed as thoughtless and/or unkind (Chandler, 1973). For instance, delinquent boys were found less likely than others better socialized to positively assume the SPT role (Chandler, 1973). Similarly, maltreated individuals exhibit poor SPT skills and have difficulties maintaining successful social relations (Burack et al., 2006). Therefore, knowledge and understanding of developmental delays, lack of social skills, and prior mistreatment is imperative in working with individuals expected to implement SPT. However, it is interesting to note that in a field experiment on perspective-taking, helping, and self awareness, college control subjects with a mean age of 24 showed a strong predisposition toward egocentrism indicating that age and intellect are not always a clear indicator of development and an ability to implement SPT (Abbate, Isgrò, Wicklund, & Boca, 2006).

Other research looking at the strategies used in SPT found that how individuals approach SPT could impact their results. Strategies can vary in effectiveness (depending on the situation) with some highly successful and easy to implement whereas others may be ineffective and difficult (Gehlbach, 2004). Some strategies employed include imagining how the other person feels or thinks, imagining what they might say to one regarding a given situation, or even imagining how one would feel if one were in a given situation. Typically, those who implement more effective strategies are likely to find their SPT ability increased (Galinsky & Moskowitz, 2000), although no definitive SPT strategy has been identified as the most accurate (Gehlbach, 2004). The current research will address the Thought Team strategy, a schema drawn from SPT.

Good decisions can often be made by taking the time to consider carefully what has been learned from others. This careful consideration of other people's approaches to handling decisions creates a Thought Team. The Thought Team is a team of imagined advisors consisting of trusted and respected individuals known well enough (either by experience or by knowledge about them) to the perspective taker so that he or she is able to *anticipate* how team individuals would advise in making decisions. For instance, by asking oneself "How would mom or dad handle this decision?" individuals are tapping in to the powerful resource of using what they know about the opinions of others to guide them in making effective decisions. Michael Useem (2006, p. 150) in his decision-making book, *The GO Point*, advises decision-makers "to test their thinking against an outer circle," and such an outer circle is represented in the Thought Team.

Intentionally adopting the subjective perspective of other persons by imagining what they think and/or feel is an ability accessed through the domain of emotional processing and empathic understanding. This skill is achieved by mentally envisioning other persons' perspective through the use of one's own cognitive ability (Decety & Jackson, 2006). For example, participants were

given real-life situations and asked to imagine how they and how their mothers would feel in the same situations. Results suggested that the "imaginative transposing of oneself into the subjective world of another person taps neural circuits shared between people. Thus, whether one witnesses another individual's emotional state or consciously adopts that person's psychological view, similar neural circuits are activated in the self" (Decety & Jackson, 2006, p. 56).

Gehlbach (2004) suggests that individuals are more likely to target those with whom they are familiar (i.e., family and friends) and others in whom they have regular contact for the SPT task. This familiarity permits the perspective taker to take into account the advisor's habits, background, and personality presumably resulting in a more accurate inference of their input. For example, when deciding whether or not to study for a test, the student may try to imagine what his or her teacher would advise. Bernstein and Davis (1982) concur with this notion of using what is known about the opinions of others. Their findings suggest that perspective-taking is most accurate when it is learned from observing the behavior of the one whose opinion is imagined and conversely less accurate without an adequate knowledge of their behavior.

In particular, teaching undergraduate college students to consider multiple perspectives by imagining what other respected individuals would do if faced with a similar decision has been shown to be a simple, portable, and powerful method for making effective decisions (Atha-Weldon & Dansereau, 2006). The Thought Team was initially introduced as a means for learning to use multiple perspectives during therapeutic writing sessions (Czuchry & Sia, 1998). Since that time the Thought Team has been found to enhance the writing process, improve problem-solving skills (Galinsky & Moskowitz, 2000), increase creativity, promote insight, assist in recall, provide a positive impact, contribute to one's self-efficacy and self-confidence,

and stimulate enjoyment (Atha-Weldon & Dansereau, 2006). Further, it serves as a catalyst for the process of disinhibition by providing a method for individuals to seek the advice of others about topics that may be too embarrassing or risky to otherwise discuss. Specifically, the use of the Thought Team in decision-making could: 1) assist in better decision-making, 2) increase self-confidence in decision-making, 3) lead the perspective taker to examine different potential outcomes that could occur from different decisions, 4) develop creativity, 5) hinder one-way thinking, 6) potentially provide "positive peer pressure", and 7) guide behavior toward future success.

The training for the development of one's Thought Team illustrates how to select team members as exemplars from a wide range of categories such as family members, friends, spiritual leaders, famous personalities, historical figures, etc. Members are chosen because of their character qualities (i.e., wisdom, knowledge, morality, etc.) and the respect that has been earned in the eyes of the perspective taker. However, perspective takers are also encouraged to include into their Thought Team individuals who are nontraditional in their views or who may be part of the problem. By doing so, the perspective takers might explore possibilities beyond their own limits of experience thereby challenging their decision-making process. Thus, each Thought Team member is used to represent a unique perspective to the decision-making process by contributing similar or different recommendations. When the team has been assembled, participants are shown how to integrate all the recommendations. The integration procedure promotes the synthesizing of all potential courses of action. An additional feature of the Thought Team is its transferability; with practice it soon becomes accessible and portable enough to use anywhere and at anytime that a decision needs to be made.

Deciding. In addition to the JAS model and evaluating options through the Thought Team, there is another useful concept of the decision process – the act of deciding. However, before a final decision is made, a time of mentally moving away from the decision-making process, also called *incubation*, might be needed. The theory underlying incubation is the Unconscious-Thought Theory (UTT) which embraces the counterintuitive notion that *unconscious* thought is superior to *conscious* thought in complex decision-making (Dijksterhuis & Nordgren, 2006). The UTT differentiates conscious from unconscious thought by comparing some general characteristics of each as used in the decision-making process. In the work of Dijksterhuis and Nordgren (2006), six principles associated with UTT are explained. The first is the *Unconscious-Thought Principle*, which uses attention as the key distinguishing factor between the two modes of thought. Essentially, "conscious thought is thought with attention, unlike unconscious thought which is thought without attention (or with attention directed elsewhere)" (Dijksterhuis & Nordgren, 2006, p. 96). According to the second, *The Capacity Principle,* conscious thought is limited by its low capacity of consciousness in that it cannot take in more than one or two things at a time. This results in poorer decisions because conscious thinkers cannot see various other attributes of a decision that may lead to a broader viewpoint. Unconscious thinking, on the other hand, is not stifled by low capacity, therefore, holistic judgments and more effective decision-making is possible. *The Bottom-Up-Versus-Top-Down Principle* is the third where conscious thought is guided more by stereotyping and schemas working top-down. This is unlike unconscious thought that works bottom-up with judgments that are more neutral and organized. Fourth, is *The Weighting Principle*, which has found conscious thinkers to weigh the importance of decisional attributes with greater inconsistency and poorer outcomes. Strikingly different is unconscious thinking where quick "gut" decisions

are likely more consistent than conscious thought. Additionally, unconscious thinkers tend to be happier and more satisfied with their decisions. *The Rule Principle* is next which states that conscious thought follows strict precise rules, in contrast to unconscious thought, which provides only rough estimates. Given that conscious thinking is better for logical mathematical decisions that call for precision, the unconscious thinker is better at appraising numerical information to discern high and low ranges. Lastly, according to *The Convergence-Versus-Divergence Principle*, conscious thought is focused and convergent. Unconscious thought is more creative and divergent. Thinking unconsciously is associated with the concept of incubation, where unconscious thoughts persist if conscious attention is shunted elsewhere (Dijksterhuis & Nordgren, 2006). In preparation for decision-making, incubation involves conscious thought exerted on a decision needing to be made, followed by a time where the individual mentally moves away from the decision process. This period of mentally moving away can be seen as providing a time for unconscious thought to exert its influence. The incubation time may vary from person to person given the between-subject variability in decision responses.

Individual differences. One fundamental truth is that people are different from one another. This truth raises a question concerning how differences affect decision-making. Parker and Fischhoff (2005) in their decision-making competence study found decision-making efficacy associated with differences in basic cognitive abilities and styles, developmental capacity, and risk taking conduct. Individual differences in decision-making can also be affected by motivation and/or the speed of mental processing ability, including reading time/ability (Onken, et al., 1985). Additionally, individuals with a high work value ethic were more likely to make stable decisions than those who did not possess one (Ravlin, Meglino, & Adkins, 1988). Researchers in 2006 at Duke University Medical Center (http://www.news-medical.net) found

within-subjects individual differences in brain activation related to decision-making. Specifically, their work suggests distinct regions of the brain activate when individuals are faced with ambiguous decisions as compared to decisions involving only risk. Through the use of functional magnetic resonance imaging (*f*MRI) findings reveal the lateral prefrontal cortex activates with ambiguous decisions, in contrast to the activation of the posterior parietal cortex with risky choices.

Components of Strategic Decision-Making

Brief targeted interventions. Targeted interventions are useful to increase skills, provide specific knowledge, and change attitudes (Joe & Simpson, 1995; Miller, Exner, Williams, & Ehrhardt, 2000). However, providing effective interventions can sometimes be challenging because of time restraints. The development of *brief* interventions answers the need to provide effective treatment in an efficient format. Ballesteros, González-Pinto, Querejeta, & Ariño (2004) found brief interventions to be effective for males and females who consume excessive amounts of alcohol and for those with at-risk drinking behaviors (Moyer, Finney, Swearingen, & Vergun, 2002). In studies where severely affected individuals were excluded, brief interventions compared favorably to control conditions (Moyer et al., 2002). Injured patients resulting from driving under the influence (DUI) who received a brief intervention during trauma center admission were less likely to be arrested for DUI within three years after discharge (Schermer, Moyers, Miller, & Bloomfield, 2006). Graham and Fleming (1998) have successfully used brief interventions effectively in two ways: (1) as self-guided strategies for changing behavior and (2) as referral strategies for stimulating individuals to pursue further problem-solving assistance.

The Institute of Behavioral Research (IBR) at Texas Christian University (TCU) has developed brief targeted interventions. These resources are manual-driven, user-friendly,

efficiently packaged interventions which provide a shorter and more effective coverage than traditional interventions and could be integrated into four-session applications aimed at transferring research into practice. They address areas such as Anger Management, HIV Prevention and Sexual Health, Criminal Thinking, Better Communication, Building Social Networks, and Motivation. These interventions are funded through NIDA and tested through a cooperative agreement project called Criminal Justice Drug Abuse Treatment Studies (CJ-DATS) Targeted Interventions for Corrections (TIC).

The popularity of the TIC brief interventions has served as the impetus for the current research leading to the combining of the Decision Map and the Thought Team. These joint strategies, called the Thought Team Advantage, give participants the advantage of maximizing their decision-making effectiveness by benefiting from the structure of mapping decision choices/consequences and from the powerful resource of using what they know about the opinions of others. The Thought Team Advantage simplifies and strengthens the decision-making process into three easy questions. What are my choices? What are the pros and cons of each choice? What would _____ (insert Thought Team members' names one at a time) suggest? Participants are shown how to effectively combine the three processes and incubation to improve decision-making outcomes.

A brief decision-making intervention such as that based on the Thought Team Advantage would fill a large gap in literature and potentially would move the field forward. This research is especially important with college students who are vulnerable to making emotionally influenced decisions based on risk-taking (Clayton, 1992), focusing on shortsighted goals (Halpern-Felsher, et al., 2004), having an incomplete understanding of decisions' ramifications (Reyna & Farley, 2006), and making decisions without sensitivity to the consequences of targeting only desirable

and immediate rewards (Herrnstein & Prelec, 1992). Decision-making carried out in this manner can have serious life-long repercussions and can affect not only the decision-maker but family and friends as well. However, by teaching college students to make decisions using the simple yet powerful strategies presented in this intervention, the effectiveness of their decision-making is hypothesized to increase. In response to this need, a preliminary study with undergraduate college students was conducted to investigate the effectiveness of a brief decision-making intervention that utilized the Thought Team Advantage.

Preliminary Study

In the fall of 2006, a study was conducted with undergraduate TCU psychology students (n = 35) to examine the effectiveness of a brief decision-making intervention entitled "*Thinking Through Decisions Using the Thought Team Advantage.*" Session one included obtaining informed consents, randomizing group assignments (experimental and comparison), implementation of the intervention, and data collection. Experimental participants were introduced to the four-part application process of decision-making. Identifying three of their own important life decisions was accomplished early in the intervention so that they could be used throughout the implementation. The first life decision was used to complete a Decision Map, the second to practice using their newly created Thought Team, and the third to incorporate the Thought Team Advantage strategy. Following the intervention, the six-item Feedback Form was administered. To insure the integrity of the administration of the intervention, experimenters read from a prepared script during administration. Further, to eliminate the potential of experimenter effects, experimenters counter-balanced the responsibilities of implementing the intervention and administering the assessments with both the experimental and comparison groups. The comparison students were asked to complete a series of individual

difference measures. Included in these are the *JTM/CEST Selected Scales*, the *Adult Nowicki-Strickland Internal-External Control Scale Items*, and the *Group Embedded Figures Test*.

Session two, held two days later was designed for post-test data collection. Both groups were administered the *Thinking Through Decisions Survey*, the *Multiple Perspective Inventory (MPI)*, and the *Session Evaluation Questionnaire (SEQ)* as dependent measures. Sessions lasted approximately one hour each and students were offered experimental credit for their participation.

The decision-making intervention served as the key independent measure for the experimental group. The Thinking Through Decisions Using the Thought Team Advantage intervention was a four-part application that guided participants through the process of decision-making. Part one, entitled *Making Decisions*, challenged participants to consider the decisions they were making that would shape their future. It asked "As you look back over the last ten years, were there times when a different decision would have made your life radically different today, either for the better or for the worse?" A reminder was offered to be aware that all decisions are followed by consequences. Additionally in part one, the intervention contrasted decisions that were very important, somewhat important, and not important with decisions that were urgent, somewhat urgent, and which have no time limit. Participants were also asked to identify and write down three important life decisions that were needed throughout the intervention. Lastly in this section, the Decision-Map was introduced complete with an example. Participants were then asked to use their first important life decision to complete their own Decision-Map.

In part two, entitled *Getting the Opinion of Others*, the importance of getting others' opinions was discussed. Participants used their knowledge of others as the foundation for their

Thought Team. Friends, family, heroes, and even good-hearted rascals were all candidates for one's Thought Team. Participants were guided through the process of developing their Thought Teams by examining the character qualities each team member contributed.

Part three, *Practicing With Your Thought Team*, provided an example of a decision made using a Thought Team, a practice exercise using participants' own Thought Team on a given decision, and lastly the opportunity to practice using participants' own Thought Team with the second of their important life decisions.

Part four, *Incorporating the Thought Team Advantage into Your Everyday Life*, focused on the strategy of combining the Decision Map with the Thought Team to further enhance the decision-making process. It was summed up into three simple yet powerful questions, 1) What are my choices? 2) What are the pros and cons of each choice? and 3) What would _____ suggest? (insert each Thought Team member's name individually). An example of a single decision using the Decision Map and the Thought Team together was given. Next, participants were given the opportunity to use their third important life decision to incorporate the Thought Team Advantage by using the combination of the Decision Map and their Thought Team before making their final decision. The intervention and part four concluded with practice ideas to assist participants in making the most of the Thought Team Advantage. These ideas were elaborated on in the intervention and included: providing incentives, telling others, focusing on the reward, picking a time and place wisely, using reminders, and using it "on the fly".

A three-prong analytic approach was taken in evaluating the intervention. In phase one, descriptive analyses were conducted. The experimental group contained 19 students, 11 of which were male (58%) and 8 of which were female (42%), while the comparison group consisted of 6 males (38%) and 10 females (62%). Principal components factor analyses were

conducted in phase two on the decision survey. A two-factor solution yielded the Confidence factor (11 items) and the Choice factor (5 items). Changes in decision factors were analyzed in phase three using a two-way analysis of variance (ANOVA) with group assignment (experimental and comparison) and gender as the independent variables.

The findings revealed that the experimental condition showed a statistically significant increase in Confidence, F (1, 35) = 4.88, p = .0346 when compared to the comparison participants. Further, gender for males was significant, F (1, 35) = 4.98, p = .0330, along with a significant interaction for condition (experimental) by gender (male), F (1, 35) 6.87, p = .0135. The results indicate that the experimental condition reported more confidence in decision-making following the decision-making intervention, with the experimental males showing the highest level of confidence. There were no significant main effects for Choice, however, the results revealed a significant interaction for condition (experimental) by gender (male), F (1, 35) = 4.74, p = .0373. This suggests that gender also influenced the participants' choice in decision-making with experimental males reportedly putting more thought into their choices than the experimental females or the comparison condition.

Modified Components of Strategic Decision-Making Study

Given the findings from this preliminary study, examining the effectiveness of decision-making components with a larger sample of undergraduate college students was warranted. The strategic components were manual guided and designed to achieve short-term objectives in decision-making in two sessions, each of which was 1-hour and 45 minute sessions with homework assigned after the first session. The strategies guided participants in: 1) creating a description of the decision, 2) mapping out a decision by examining choices and the pros and cons of each choice, 3) creating a Thought Team and practicing with the team on a decision, 4)

combining mapping and the Thought Team together to create the Thought Team Advantage, and 5) utilizing the strategy of incubation by mentally moving away from the decision for a time.

Research Design and Questions

This research utilized seven groups in two overlapping 2x2 designs (see Figure 1), with each participant using two of their own decisions to complete the decision strategies assigned to their condition and one decision to complete the assigned homework. In order to increase understanding, three examples of each strategy were given to each participant:

- The D Group (Decision) were asked to complete a systematic decision description worksheet, experienced incubation, and made their final decision.
- The DM Group (Decision Map) completed a systematic decision description worksheet, a decision map, experienced incubation, and made their final decision.
- The DTT Group (Decision Thought Team) created a Thought Team, completed a systematic decision description worksheet, consulted team members for their opinions, experienced incubation, and made a decision.
- The DMTT Group (Decision Map and Thought Team) developed their Thought Team, completed a systematic decision description worksheet, completed a combined worksheet that included the decision map and Thought Team input, experienced incubation, and made a final decision.
- DWOI Group (Decision without incubation) utilized the decision description worksheet, and then made a decision.
- The CWI Group (Comparison with incubation) was asked to make a decision, *after* they experienced incubation.

- The CWOI Group (Comparison without incubation) made a decision without engaging in any of the above activities.

2 (Thought Team vs. No Thought Team) X 2 (Mapping vs. No Mapping) Design
(Thought Team and Mapping groups included decision description and incubation)

	Mapping	**No Mapping**
Thought Team	DMTT group	DTT group
No Thought Team	DM group	D group (overlap)

2 (Decision Description vs. No Decision Description) X 2 (Incubation vs. No Incubation)

	Incubation	**No Incubation**
Decision Description	D group (overlap)	DWOI group
No Decision Description	CWI group	CWOI group

Figure 1. – Two Overlapping 2X2 Designs

The current research addressed the following questions:

1. Given decision description and incubation, does Mapping affect college students' attitudes, intentions, and behaviors concerning decision-making?

2. Given decision description and incubation, does the Thought Team affect college students' attitudes, intentions, and behaviors concerning decision-making?

3. Given decision description and incubation, does the combination of Mapping and the Thought Team affect college students' attitudes, intentions, and behaviors concerning decision-making?

4. Does decision description affect college students' attitudes, intentions, and behaviors concerning decision-making?

5. Does incubation affect college students' attitudes, intentions, and behaviors concerning decision-making?

6. Does the combination of decision description and incubation affect college students' attitudes, intentions, and behaviors concerning decision-making?

It was anticipated that the students in the Decision Map and Thought Team (DMTT) group would be the most effective at decision-making; students in the Decision Thought Team (DTT) group or the Decision Map (DM) group, depending on their learning styles or abilities, would also make good decisions; and students in the Comparison with Incubation (CWI) or Comparison without Incubation (CWOI) groups would benefit least from the intervention in terms of improving their decision-making.

Method

Participants

Study participants were TCU undergraduates who received 5 hours of experimental credit for their participation in *The Go Point Study* experiment. Students volunteered to participate in this experiment by signing up online through TCU's Psychology Department. The only criteria needed for participation was enrollment at TCU. However, in order to receive full credit for participation, they needed to participate in both sessions of the experiment, which were scheduled one week apart at the same time and in the same location (a TCU lecture hall), and

they needed to complete/return the assigned homework. Power analysis (Cohen, 1988) suggested a sample of 250 be achieved to sufficiently detect moderate to large effects; however, a sample of 288 was obtained. The final dataset contained 283 of which 77 were males (27%) and 206 were females (73%). Five students attended session one only, thereby not being included in the final analyses. The participants were randomly assigned one of seven colored folders (colors represented the decision-making strategies investigated). The resulting groups were: D Group (Decision, n = 41), DM Group (Decision Map, n = 39), DTT Group (Decision Thought Team, n = 42), DMTT Group (Decision Map and Thought Team, n = 40), DWOI Group (Decision without incubation, n = 41), CWI Group (Comparison with incubation, n = 40), and CWOI Group (Comparison without incubation, n = 40). The seven group design is exhibited in Figure 2.

- **D** = Decision Group (n= 41)
- **DM** = Decision Mapping Group (n=39)
- **DTT** = Decision Thought Team Group (n=42)
- **DMTT** = Decision Mapping & Thought Team Group (n=40)
- **DWOI** = Decision without Incubation Group (n=41)
- **CWI** = Comparison with Incubation Group (n=40)
- **CWOI** = Comparison without Incubation Group (n=40)

Total sample of college students (n=283)

Figure 2: Seven-Group Design

These groups were categorized to form independent variables. *Team* was used to represent students in the DTT Group (Decision Thought Team) or in the DMTT Group (Decision Map and Thought Team); whereas *No Team* were students in the D Group (Decision) or DM Group (Decision Map). Students in the DM Group (Decision Map) or in the DMTT Group (Decision Map and Thought Team) were referred to as *Map*; with the *No Map* students in the D Group (Decision) or DTT Group (Decision Thought Team). *Analyze* is representative of the D Group (Decision) or the DWOI Group (Decision without incubation); the *No Analyze* students were in the CWI (Comparison with incubation) or CWOI (Comparison without incubation). Finally, *Incub* stands for the D Group (Decision) or CWI (Comparison with incubation); with the *No Incub* students in the DWOI Group (Decision without incubation) or CWOI Group (Comparison without incubation).

This sample population was appropriate because TCU psychology students are likely typical of most other private university psychology students. As previously stated, college students in general struggle in their decision-making abilities, especially in regards to alcohol (Johnston, et al., 2006), drugs (Clayton, 1992), risky sex behaviors (Eaton et al. 2006), and even crime (i.e., Virginia Tech, April 16, 2007); TCU is no exception. On October 13, 2006, three TCU students were accused and formally charged with raping a fourth student in one of the men's dormitory rooms. Furthermore, from the TCU Official Student Handbook (2007-2008, p.28), the crime statistics for 2006 indicate there were a total of 36 burglaries (20 on campus, 16 in residence halls), 13 vehicle thefts (on campus), 10 cases of forcible sex offenses (5 on campus, 5 in residence halls) and 4 aggravated assaults (2 on campus, 2 in residence halls). Moreover, for that same year (2006), there were 669 liquor law violations (342 on campus, 327 in residence halls) with 26 resulting in actual arrests. Additionally in 2006, 26 drug law violations occurred

(13 on campus, 13 in residence halls) and 3 weapon law violations (2 on campus and 1 in residence halls). These statistics suggest that TCU students, as well as college students in general, could benefit from better decision-making.

Procedures

Prior to session one, approval for the experiment and all materials were obtained from the TCU student human subjects Institutional Review Board (IRB). In session one, informed consents (Appendix A) were signed and privacy strictly maintained. No names were requested on any of the materials other than the informed consent. The first session included administration of the Index of Learning Styles Questionnaire (Appendix B) and implementation of the decision-making strategies. Individually numbered colored folders filled with experimental materials for the seven groups were randomly distributed as students entered the lecture hall. Students were asked to follow the instructions in their folders and allowed to ask questions for clarification. All seven groups followed the same procedures for their second decision as they did for their first. The timing for all groups in session one was one hour and 45 minutes. Groups with less decision-making strategies had tasks such as unrelated stories and/or logic puzzles to maintain equal timed sessions across groups.

At the end of session one, students were asked to remember the color and the number on their folders to ensure that they would have their folder when they returned. Additionally, they were reminded to bring their homework to session two. Homework corresponded with each groups' strategy. Additionally, at the end of session one the SEQ (Appendix C), the Feedback Form (Appendix C), and the Delta Reading Vocabulary Test (Appendix B) were administered. In session two, homework was turned in and discussed, and the Thinking Through Decisions Survey (Appendix D), the Decision Advice Measure (Appendix E), and the Feedback Form (for

second time) were administered. Debriefing and a question and answer time followed, closing out the experiment. The decision-making research design is exhibited in Figure 3. A total of three rounds (Round 1, n = 112; Round 2, n = 106; Round 3, n = 65) of data collection were provided to increase the sample size. The complete version of all the strategies (Decision Map and Thought Team – DMTT) is exhibited in Appendix F.

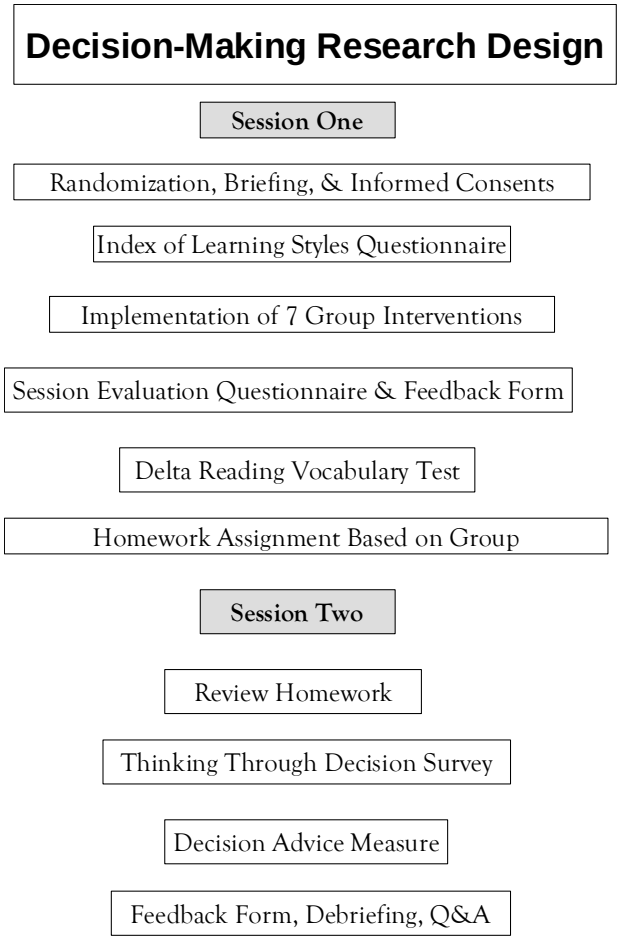

Figure 3: Decision-Making Research Design

Individual Difference Measures

Index of Learning Styles Questionnaire. The Index of Learning Styles (ILS) consists of 44 items (11 for each of the four scales) whereby participants were asked to select either "a" or "b" to indicate their answer. Only one answer is to be chosen, the one that applies most frequently. The four learning style dimensions (scales) of the instrument were adapted from a model developed in 1987 by Dr. Richard F. Felder and Linda K. Silverman. The four scales are 1) Active and Reflective Learners, 2) Sensing and Intuitive Learners, 3) Visual and Verbal Learners, and 4) Sequential and Global Learners. ILS was developed for use by college students and has only been validated for people of college age and older. Three studies have examined the independence, reliability, and construct validity of the four instrument scales (Felder & Spurlin, 2005; Zywno, 2003; Litzinger, Lee, Wise, & Felder, 2005). The authors conclude that the ILS meets standard acceptability criteria for instruments of its type. The ILS served as an individual difference measure to identity learning style differences.

Delta Reading Vocabulary Test. The Delta is a 45-item multiple-choice test of general verbal ability that is a 10-minute timed test. Students choose one of five options that are most synonymous with each target word. The Delta has been shown to have a moderate correlation (r = .60) to more extensive verbal tests such as the verbal section of the scholastic aptitude test (SAT – Dansereau, 1978). This instrument served to determine if individual reading differences existed among the students.

Session and Strategy Satisfaction Measures

Session Evaluation Questionnaire (SEQ). The SEQ (form 4 version) includes 24 items in a 7-point bipolar adjective format. The items are divided into two sections, session evaluation (12 items) and post-session mood (12 items – Stiles, 1980). In the first section, the stem "This

session was:" is designed for rating the session as bad-good, safe-dangerous, difficult-easy, valuable-worthless, shallow-deep, relaxed-tense, unpleasant-pleasant, full-empty, weak-powerful, special-ordinary, rough-smooth, and comfortable-uncomfortable. In the second section, the stem begins with "Right now I feel:" and ratings ranged from happy-sad, angry-pleased, moving-still, uncertain-definite, calm-excited, confident-afraid, wakeful-sleepy, friendly-unfriendly, slow-fast, energetic-peaceful, involved-detached, and quiet-aroused. The SEQ was administered to all groups at the end of the first session and served as a dependent measure to test session satisfaction.

Feedback Form. The eight-item Feedback Form is an elaborated version of the six-item version used in the pilot study. It was administered to all the groups at the end of session one and at the end of session two. It provided input regarding how much students learned, how useful the strategies were, and how hard/easy it was to understand the strategies. Specifically, the first five items, based on a 5-point Likert scale ranging from Strongly Disagree to Strongly Agree: 1) "You learned a lot from the Strategic Decision-Making module," 2) "You are likely to use these techniques in the future," 3) "You chose important decisions in this module," 4) "You chose easy decisions in this module," and 5) "It was hard to complete the strategies in this module." Items six and seven asked what was liked least and most about the module. Finally, item eight asked participants to describe the amount of effort put forth. Three items were utilized as dependent variables for two times of administration. *Learned1* indicated students having learned decision-making strategies in session one. *Learned2* represented students having learned decision-making strategies in session two. The *Useful1* variable reported the usefulness of the decision-making strategies in session one, and *Useful2* was for useful strategies in session

two. *Easy1* indicated how hard/easy it was to complete the strategies in session one and *Easy2* for the second administration of the instrument.

Attitudes/Intentions Measure

Thinking Through Decisions Survey. The Thinking Through Decisions Survey is an assessment of participants' general decision-making measured through the use of a 5-point Likert scale ranging from Strongly Disagree to Strongly Agree. This measure is the same assessment used in the pilot study. It is a 5-page, 58-item survey comprised of three factors: Confidence, Effort, and Influenced. It measured students' attitudes and intentions regarding decision-making. This dependent measure was administered to both the experimental and comparison groups at the beginning of the second session.

Behavioral Skills Measure

Decision Advice Measure. The Decision Advice Measure is a behavioral measure designed to capture the participants' ability to utilize the decision-making strategies provided in the intervention. It is based on the five stages of decision-making referenced in the Introduction (Stages in Decision Making, 2007; Levin, Huneke, & Jasper, 2000; Slovic, Fischoff, & Lichtenstein, 1977) and was designed so that students who received no decision-making strategies in their intervention could potentially score as well as students in other groups. It served as a dependent measure and was administered in session two. Students wrote out advice to three given decision-making scenarios. Each scenario provided the potential of 15 points to be earned (up to 3 points for each of the five components of effective decision-making): 1) decision description, 2) developing options, 3) evaluating options, 4) developing plan, and 5) coherence, for an overall total of 45 points for all three scenarios. The scoring sheet is exhibited in Appendix E, along with the measure.

The instrument was developed by thinking through realistic decision-making situations where college students might be asked to provide decision-making advice. Originally, four scenarios were written and piloted. *Decision one* was about a younger teenage sister who discovered she was pregnant and the father of the child could not be identified. She was confused, scared and wanted to act quickly. With tears she came to the participant, her older sibling, for decision-making advice. *Decision two* described a fun friend who spends money foolishly. He confided he was two months behind in his car payments and if within the week he does not pay the $950, his car will be repossessed. He doesn't have the money and turns to the participant for decision-making advice. In *Decision three*, a childhood friend has been tested and found to be HIV positive. He is afraid to tell anybody, especially his new girlfriend with whom he had unprotected sex one time. He needs decision-making advice. The scenario for *Decision four* was about a thin, cute, stylish girl, who is the envy of other girls. The participant accidently walks into the bathroom and finds the girl forcing herself to throw-up. In embarrassment and shame, the girl admits to bulimia and asks the participant for decision-making advice to break the cycle. These four scenarios were timed and ranked in order of preference when piloted with a small (n = 6) convenience sample of women. The ranking provided the means by which to eliminate one scenario (bulimia), thereby creating the Decision Advice Measure consisting of three scenarios. Participants were given 25 minutes to complete the three scenarios.

The five components represent five dependent variables in scoring. The first is *Decision Description* in which students identify the seriousness of the decision, identify a deadline for the decision, and identify potential obstacles. The second variable is *Developing Options* through generating alternatives, organizing thoughts/options, and considering consequences. *Evaluating Options* by seeking other's recommendations, selecting from options, and testing thinking

against an outer circle is the third variable. The fourth variable found in the Decision Advice Measure is *Developing a Plan* through suggesting a time of reflection, identifying a starting point, and creating a systematic plan. Lastly, the fifth variable is *Coherence* where students use a logical sequence in their advice-giving, provides practical advice, and summarizes their thoughts at the end of the advice. To insure unbiased scoring, the primary rater used a scoring sheet outlining criteria to calculate scores. Furthermore, the primary rater had no knowledge of the decision-making strategies utilized in the intervention and the data was scored without knowledge of group assignment (blind). Lastly, to insure inter-rater reliability, at least 25% (71) of the ratings were randomly selected from among the seven groups and scored by a second rater.

Results

Preliminary Analyses

Scoring. The Thinking Through Decisions Survey contained some items that had been constructed in a negative form on the 5-item Likert scale. These items were reversed scored so that a higher score on any question reflected a positive improvement. For example, if the participant answered "strongly agrees" to the statement "I have a history of making bad decisions", it would be reverse scored as "strongly disagree." Whereas a participant answering "strongly agree" to the statement "I'm usually happy with the decision I have made" which is not reversed scoring would be left as "strongly agree." Thus, all higher item scores indicate better decision-making while lower scores indicate difficulty in decision-making. Negative items on the SEQ were also reversed scored, as was one item on the Feedback Form.

Inter-rater Reliability. The Decision Advice Measure contained 3 scenarios which were each scored by a primary rater. A second rater scored 25% (71) randomly selected measures to

insure inter-rater reliability. Prior to scoring, the raters met for approximately one hour to discuss scoring criteria. When scoring was complete, data were entered into a dataset and intra class correlations were conducted as a check of agreement. Coefficients at .70 or higher were considered an acceptable level of agreement. For each of the five components, the coefficients were as follows: Decision Description (.82), Developing Options (.78), Evaluating Options (.71), Developing a Plan (.86), and Coherence (.82).

Factor Analyses. In order to consolidate the data into a more manageable form for further analyses, principal components factor analysis (with varimax rotation) was conducted on the Thinking Through Decisions Survey. Although analysis was performed on the instrument during the preliminary study in the fall of 2006, the sample size was considerably smaller (n = 35), thus the reason for conducting factor analysis again. The preliminary study had two-factors: *Confidence* (11 items) and *Choice* (5 items). For the current study, a three-factor solution yielded the *Confidence* factor (17 items), the *Effort* factor (8 items), and the *Influenced* factor (5 items). The original *Choice* factor was renamed *Effort* because it was a better fit after the additional items were added. Factor loadings for the Thinking Through Decisions Survey are exhibited in Table 1. A quota of at least three items per factor was set for the formation of the composites. In forming factor scores, criteria for item inclusion on a factor was that the item's highest loading occurred on the factor and that the loading was .50 or greater (loadings ranged from .50 to .73). For the SEQ, a two-factor solution yielded the *Depth* factor (5 items) and the *Smoothness* factor (5 items) with loadings ranging from .52 to .77. Factor Loadings for the SEQ are exhibited in Table 2.

Table 1

Factor Loadings of Items from the Thinking Through Decisions Survey.

Factor	Alpha	Item	Loading
Confidence	.80	Not difficult	.52
		Same thoughts	.54
		Not depressed	.50
		Not confused	.58
		Decisions history	.54
		Happy	.50
		Change	.58
		Someone else	.55
		Not paralyzed	.56
		Thinking	.56
		Good decisions	.64
		Follow through	.51
		No trouble	.73
		Like decisions	.55
		Improve	.70
		Not helpless	.65
		Not put off	.55
Effort	.89	Think hard	.67
		Figure choices	.57
		Organize	.54
		Time	.52
		Think over	.60
		Advance plan	.52
		Quick decisions	.56
		Examine choices	.57
Influenced	.90	Others want	.59
		Change mind	.58
		Others influence	.66
		Don’t go along	.60
		Others decide	.58

Table 2

Factor Loadings of Items from the Session Evaluation Questionnaire.

Factor	Alpha	Item	Loading
Depth	.73	Good	.52
		Valuable	.71
		Deep	.58
		Powerful	.74
		Special	.64
Smoothness	.69	Easy	.58
		Relaxed	.72
		Pleasant	.54
		Smooth	.77
		Comfortable	.76

Primary Analyses

As described in the Introduction, the current study attempted to fill an important gap in the literature, namely, to examine the effectiveness of potential components of a strategic brief decision-making intervention with college students. To answer research questions 1-3, a series of 2 (Thought Team vs. No Thought Team) X 2 (Mapping vs. No Mapping) multivariate analyses of variance (MANOVAs) were conducted on the dependent variables with Team, Map, and the interaction of Team and Map as the independent variables. For research questions 4-6, a second set of partially overlapping 2 (Decision Description vs. No Decision Description) X 2 (Incubation vs. No Incubation) MANOVAs were conducted on the dependent variables with Analyze and Incub, and the interaction of Analyze and Incub as the independent variables. Multivariate Analysis of Covariance (MANCOVA) was not warranted given that students in the groups did not differ by gender, by learning style, or by reading ability.

Research questions 1-3. Given decision description and incubation, does Mapping, Thought Team, and the combination of Mapping and Thought Team affect college students' attitudes, intentions, and behaviors concerning decision-making? In MANOVA One – Smoothness, Depth, Learned1, Useful1, and Easy1 were the five dependent variables, with Team, Map, and the interaction of Team and Map as the independent variables. The overall MANOVA was significant for Map, F (5, 154) = 2.39, p = .0406. For Learned1, Map was significant F (1, 161) = 8.89, p = .0033, and likewise for Useful1, Map F (1, 161) = 9.15, p = .0029, was also significant. An examination of the least squares means indicated that for Learned1, the Map students had higher mean scores (M = 3.94) than No Map students (M = 3.55) and for Useful1, Map students were also higher (M = 3.79 versus M = 3.40). For the Map students, there were no main effects or significant interactions for Easy1, Smoothness or Depth. There was no significance found for Team or for the interaction of Team and Map in MANOVA One. Means and standard deviations are exhibited in Tables 3 and 4.

Table 3

Raw Means and Standard Deviations for Session Evaluation Questionnaire (Map and Team).

Factor	Condition	Group	N	M	SD
Smoothness	Map	Team	40	4.59	1.02
		No Team	39	4.69	1.20
	No Map	Team	42	4.52	1.18
		No Team	41	4.41	.99
Depth	Map	Team	40	5.23	.87
		No Team	39	5.33	.97
	No Map	Team	42	5.01	.93
		No Team	41	5.09	.75

Table 4

Raw Means and Standard Deviations for Feedback Form (Time 1 – Map and Team).

Factor	Condition	Group	N	M	SD
Learned1	Map	Team	40	3.93	.76
		No Team	39	3.95	.72
	No Map	Team	42	3.50	.94
		No Team	41	3.61	.80
Useful1	Map	Team	40	3.68	.80
		No Team	39	3.90	.75
	No Map	Team	42	3.26	.83
		No Team	41	3.54	.87
Easy1	Map	Team	40	2.58	1.03
		No Team	39	2.67	1.06
	No Map	Team	42	2.52	.99
		No Team	41	2.70	1.05

In MANOVA Two, there were five dependent variables, Decision Description, Developing Options, Evaluating Options, Developing a Plan, and Coherence, along with the same independent variables (Team, Map, and the interaction of Team and Map) found in MANOVA One. The overall MANOVA for Thought Team was significant F (5, 153) = 3.00, p = .0130 and for the interaction of Team and Map F (5, 153) = 3.10, p = .0108. Team main effects were found for Developing Options F (1, 160) = 10.53, p = .0014; Evaluating Options F (1, 160) = 7.43, p = .0072; Developing a Plan F (1, 160) = 5.18, p = .0243; and Coherence F (1, 160) = 4.69, p = .0319. For Decision Description, no significant main effects or interactions were revealed for Team or Map. Examination of the least squares means for Developing Options indicated Team participants (M = 5.26) were higher than No Team (M = 4.29). For Evaluating Options, Team (M = 3.31 versus M = 2.68) was higher; for Developing a Plan, Team (M = 3.11

versus M = 2.47) was again higher, and for Coherence, Team also showed greater levels than No Team (M = 4.72 versus M = 4.14). No significant main effects were found for Map in MANOVA Two. Means and standard deviations are exhibited in Table 5.

Table 5

Raw Means and Standard Deviations for Decision Advice Measure (Map and Team).

Factor	Condition	Group	N	M	SD
Decision Description	Map	Team	39	4.67	1.42
		No Team	39	4.74	1.68
	No Map	Team	42	5.17	1.75
		No Team	41	4.44	1.03
Developing Options	Map	Team	39	4.90	1.91
		No Team	39	4.79	1.81
	No Map	Team	42	5.62	2.01
		No Team	41	3.78	1.84
Evaluating Options	Map	Team	39	2.97	1.29
		No Team	39	3.05	1.49
	No Map	Team	42	3.64	1.74
		No Team	41	2.32	1.23
Developing Plan	Map	Team	39	2.51	1.73
		No Team	39	2.69	1.56
	No Map	Team	42	3.71	2.29
		No Team	41	2.24	1.47
Coherence	Map	Team	39	4.43	1.54
		No Team	39	4.44	1.35
	No Map	Team	42	5.00	2.19
		No Team	41	3.85	1.48

The interaction Team and Map was significant for Developing Options F (1, 160) = 8.42, p = .0042 and for Evaluating Options F (1, 160) = 9.37, p = .0026. Additionally, the interaction for Team and Map revealed significant effects for Developing a Plan P F (1, 160) = 8.45, p = .0042 and for Coherence F (1, 160) = 4.69, p = .0319. The overall pattern on all the post hoc analyses for the interaction revealed Team and No Map were the highest performers for the four dependent variables; whereas No Map and No Team were the lowest. Patterns of significance fluctuated with the other combinations of groups.

MANOVA Three had three dependent variables – Learned2, Useful2, and Easy2, with Team, Map, and the interaction of Team and Map as independent variables. No significant main effects or interactions were found. Means and standard deviations are exhibited in Table 6. MANOVA Four also had three dependent variables – Confidence, Effort, and Influenced with Team, Map, and the interaction of Team and Map as independent variables. No significance was found. Means and standard deviations are exhibited in Table 7.

In summary, participants in the Mapping groups reported that in session 1 they learned more and found mapping to be useful more than No Map. However, participants in the No Map group did not have the opportunity to learn mapping. In the Team groups, students utilized the strategies of developing options, evaluating options, developing plans, and they had coherence in their decision-making advice more than the No Team students. Additionally, for the interaction of Team and Map, the Team and No Map combination had the highest means while the No Map and No Team had the lowest.

Table 6

Raw Means and Standard Deviations for Feedback Form (Time 2 – Map and Team).

Factor	Condition	Group	N	M	SD
Learned2	Map	Team	40	3.73	.68
		No Team	39	3.62	.78
	No Map	Team	43	3.63	.72
		No Team	41	3.51	.95
Useful2	Map	Team	40	3.63	.77
		No Team	39	3.74	.75
	No Map	Team	43	3.40	.85
		No Team	41	3.49	.87
Easy2	Map	Team	40	2.38	1.03
		No Team	39	2.23	.68
	No Map	Team	43	2.26	.88
		No Team	41	2.39	.86

Research questions 4-6. Does decision description, incubation, and the combination of decision description and incubation affect college students' attitudes, intentions and behaviors concerning decision-making? Five dependent variables (Smoothness, Depth, Learned1, Useful1, and Easy1) were included in MANOVA Five. The independent variables were Analyze, Incub, and the interaction of Analyze and Incub. The overall MANOVA was not significant for Analyze or Incub or for the interaction of Analyze and Incub. Means and standard deviations are exhibited in Tables 8 and 9.

Table 7

Raw Means and Standard Deviations for Thinking Through Decisions Survey (Map and Team).

Factor	Condition	Group	N	M	SD
Confidence	Map	Team	39	3.53	.49
		No Team	39	3.36	.69
	No Map	Team	43	3.50	.58
		No Team	41	3.54	.61
Effort	Map	Team	39	4.08	.47
		No Team	39	3.96	.48
	No Map	Team	43	3.96	.51
		No Team	41	4.00	.52
Influenced	Map	Team	39	3.75	.70
		No Team	39	3.49	.70
	No Map	Team	43	3.63	.72
		No Team	41	3.66	.73

Table 8

Raw Means and Standard Deviations for Session Evaluation Questionnaire (Analyze and Incub).

Factor	Condition	Group	N	M	SD
Smoothness	Analyze	Incub	41	4.41	.99
		No Incub	41	4.52	1.22
	No Analyze	Incub	38	4.91	1.04
		No Incub	39	4.56	1.25
Depth	Analyze	Incub	41	5.09	.75
		No Incub	41	4.96	1.03
	No Analyze	Incub	38	4.88	.86
		No Incub	39	4.60	.96

Table 9

Raw Means and Standard Deviations for Feedback Form (Time 1 – Analyze and Incub).

Factor	Condition	Group	N	M	SD
Learned1	Analyze	Incub	41	3.61	.80
		No Incub	41	3.29	1.08
	No Analyze	Incub	38	3.37	.94
		No Incub	39	2.77	1.11
Useful1	Analyze	Incub	41	3.54	.87
		No Incub	41	3.17	1.05
	No Analyze	Incub	38	3.24	1.00
		No Incub	39	2.87	.92
Easy1	Analyze	Incub	41	2.71	1.05
		No Incub	41	2.56	1.07
	No Analyze	Incub	38	2.47	.86
		No Incub	39	2.31	.95

In MANOVA Six, the dependent variables were Decision Description, Developing Options, Evaluating Options, Developing a Plan, and Coherence, and the independent variables were Analyze, Incub, and the interaction of Analyze and Incub. The overall MANOVA for Analyze was significant $\underline{F}$ (5, 153) = 2.33, p = .0447, but not for Incub or for the interaction of Analyze and Incub. Significant effects were found for Developing Options with the Analyze group $\underline{F}$ (1, 160) = 5.06, p = .0259. Additionally, for Developing a Plan, Analyze was significant $\underline{F}$ (1, 160) = 5.71, p = .0181 and for Coherence, Analyze once again was significant $\underline{F}$ (1, 160) = 3.82, p = .0525. Interestingly however, an examination of the least squares means indicated for Developing Options, the No Analyze students had higher means ($\underline{M}$ = 4.64) than did the Analyze group ($\underline{M}$ = 3.98). Likewise for Developing a Plan, No Analyze showed higher means ($\underline{M}$ = 2.54) than Analyze ($\underline{M}$ = 1.97). For Coherence, the means continued in the same direction with

No Analyze students having higher means (M = 4.18) and Analyze having lower (M = 3.71). Means and standard deviations are exhibited in Table 10.

Table 10

Raw Means and Standard Deviations for Decision Advice Measure (Analyze and Incub).

Factor	Condition	Group	N	M	SD
Decision Description	Analyze	Incub	41	4.44	1.03
		No Incub	40	4.60	1.10
	No Analyze	Incub	40	4.50	1.45
		No Incub	40	4.55	1.36
Developing Options	Analyze	Incub	41	3.78	1.84
		No Incub	40	4.18	1.72
	No Analyze	Incub	40	4.90	1.85
		No Incub	40	4.38	2.02
Evaluating Options	Analyze	Incub	41	2.32	1.23
		No Incub	40	2.30	1.02
	No Analyze	Incub	40	2.80	1.24
		No Incub	40	2.53	1.30
Developing Plan	Analyze	Incub	41	2.24	1.47
		No Incub	40	1.70	1.40
	No Analyze	Incub	40	2.75	1.80
		No Incub	40	2.33	1.31
Coherence	Analyze	Incub	41	3.85	1.48
		No Incub	40	3.58	1.30
	No Analyze	Incub	40	4.38	1.55
		No Incub	40	3.98	1.64

In MANOVA Seven, there were three dependent variables, Learned2, Useful2, and Easy2, with Analyze, Incub, and the interaction of Analyze and Incub as independent variables. The overall MANOVA for Analyze was not significant, neither for the Incub students nor for the interaction of Analyze and Incub. Means and standard deviations are exhibited in Table 11. MANOVA Eight included three dependent variables, Confidence, Effort, and Influenced along with Analyze, Incub, and the interaction of Analyze and Incub as independent variables. No significant differences were found for Analyze or for Incub or for the interaction of Analyze and Incub. Means and standard deviations are exhibited in Table 12.

Table 11

Raw Means and Standard Deviations for Feedback Form (Time 2 – Analyze and Incub).

Factor	Condition	Group	N	M	SD
Learned2	Analzye	Incub	41	3.51	.95
		No Incub	40	3.30	1.20
	No Analyze	Incub	40	3.20	1.04
		No Incub	40	2.75	1.03
Useful2	Analyze	Incub	41	3.49	.87
		No Incub	40	3.43	1.11
	No Analyze	Incub	40	3.25	.95
		No Incub	40	3.00	1.11
Easy2	Analyze	Incub	41	2.39	.86
		No Incub	40	2.40	.84
	No Analyze	Incub	40	2.53	.91
		No Incub	40	2.18	.87

Table 12

Raw Means and Standard Deviations for Thinking Through Decisions Survey (Analyze and Incub).

Factor	Condition	Group	N	M	SD
Confidence	Analyze	Incub	41	3.54	.61
		No Incub	41	3.31	.69
	No Analyze	Incub	40	3.45	.62
		No Incub	40	3.38	.57
Effort	Analyze	Incub	41	4.00	.52
		No Incub	41	4.09	.38
	No Analyze	Incub	40	4.04	.51
		No Incub	40	4.02	.57
Influenced	Analyze	Incub	41	3.66	.73
		No Incub	41	3.42	.75
	No Analyze	Incub	40	3.40	.85
		No Incub	40	3.57	.76

In summary, the students in the Analyze groups did not perform as well as the No Analyze students in developing options, developing plans, or providing coherence in their decision-making advice.

Discussion

As stated in the Introduction, the focus of this research was to explore college students' attitudes, intentions, and behaviors concerning decision-making. The literature on college students' decision-making suggests they sometimes make impulsive, emotionally influenced, risk-taking, and sensation-seeking decisions without fully understanding the nuances of their decisions or sensitivity to the consequences (Reyna & Farley, 2006). Overall, the findings of the present study further understanding and contribute to the literature regarding college students'

decision-making. There appears to be three key trends to have emerged from the results of Mapping, Thought Team, and the combination of Decision Description and Incubation.

Mapping

Mapping students did not significantly differ from non-mapping students in advising others in the five components of effective decision-making. This was a surprising finding, especially in light of the fact that Map students reported having learned more and found the intervention to be useful. Simply said, the initial impact of the training provided new learning and was found useful, but the learning did not translate into being able to utilize it to assist in giving decision-making advice. Additionally, mapping training did not appear to contribute to the students' confidence levels, or affect the amount of effort exerted in decision-making, or impact the level of influence others may have had over them when making decisions.

There are several potential reasons for these results. First, although mapping was not significant, higher means in the Decision Advice Measure as seen in Table 5, could indicate that mapping requires more intensive training than what was provided in the brief intervention and if greater training was given it could lead to better performance. Second, perhaps the Decision Advice Measure did not provide a reasonable way for the students to demonstrate mapping, therefore, it was not recommended. Third, it is possible that mapping students would not think to advise others with a strategy they themselves had just learned, and the receiver of the advice might likely not know. Lastly, given the impulsive nature and immaturity of college students, perhaps map students did not feel it necessary to suggest that the decision-makers take the time to organize their thoughts. Previous research with college students has found they sometimes have the tendency to simplify the decision-making process (Onken, Hastie, & Revelle, 1985).

Team

The findings in the current study revealed that Team students, particularly in the Team-No Team condition, scored high on developing and evaluating options, developing plans, and providing coherence in their decision-making advice, and yet were the only ones among the other student groups (Map, Analyze, and Incub) who did not initially report having learned from the intervention or having found it useful. A study from Gehlbach (2000) found that individuals who use social perspective taking are more likely to include the recommendations of family and friends, and others in whom they have regular contact, because of their familiarity. It is reasonable to imagine that this familiarity may provide an explanation for why Team students were able to utilize the training, but didn't report learning anything new. In other words, perhaps Team students may not have seen the Thought Team strategy as providing learning or being useful because it was not novel; students were familiar with the notion of thinking "What would Mom or Dad advise me to do in this situation?" If this were the case, theoretically speaking, Thought Team training could be viewed as a priming device bringing out what was already known, rather than providing a new learning experience. In contrast to the Map students who reported learning from the intervention, Team students may have found the Thought Team training information more like a refresher course. This priming effect could then be translated into advice giving, and later perhaps it might affect the individuals themselves in their own personal decision-making confidence.

The Judge Advisor System Model stems from the notion that a decision-maker (judge) seeks recommendations from others who act as advisors (Sniezek, 1999). Given the immense number of decision-making situations that arise daily, giving decision-making advice is not a trivial matter, but rather plays an important role in many social relationships. From the results

examined in this study, it appears as though Team students were able to serve as advisors by providing coherent advice in developing and evaluating options and developing a plan, thereby playing a potentially key role in the lives of judges/decision-makers.

Decision Description and Incubation

Another surprising result was found when comparing the Analyze group with the non-analyzing group. Significantly higher scores for developing options, developing a plan, and for coherence was found for the non-analyzing group in the advice giving task. Said another way, the comparison students were better able to utilize three of the five components of effective decision-making than the Analyze students who received the training. Why did performance decrease for Analyze students? The answer is unclear. Also unclear are the non-significant results for the incubation students.

In an attempt to speculate about probable causes for these results, it seems as though both decision description and incubation are each only one piece of a large decision-making strategy. Decision description was designed to be conducted at the beginning of decision-making to identify the seriousness of the decision, decision deadlines, and potential obstacles. Incubation, on the other hand, was to be used after examination of the options and consequences, and after gaining recommendations. It was to be conducted at the end of decision-making, as the last step before a final decision was made. Therefore, it is likely that decision description and incubation were "disconnected" when used without Mapping or the Thought Team.

Furthermore, for the incubation results, it is also possible that there was not enough time given for incubation to occur. In the groups receiving incubation training, the students were asked to read an interesting story and write their thoughts on the story prior to making a final decision. Perhaps this was not enough incubation time and rather than incubation occurring

during the opportunity given, there was only a time of delay or latency in training. If the experimental treatment had been planned for an implementation of several sessions and more time for incubation was built into the design, then it is conceivable that the results with this independent variable may have been different. Although incubation was not significant when compared with non-incubation, the cognitive maxims of "look before you leap", "think before you act", and "sleep on it" are typically still good practices to follow.

Limitations

Caution must be exercised in interpreting these results. First, the decision-making strategy was indeed brief – consisting of only one implementation session. Many brief interventions are a minimum of four sessions implemented over a two-week period or sometimes longer. Second, the results of the Thinking Through Decisions Survey may have been influenced by time of administration. In the pilot study, where group and gender differences were observed, the survey was administrated two days after the intervention, whereas in the current study it was administered one week later. Therefore, the accuracy of the results can only be assumed. Third, piloting of the scenarios would have been more appropriate if conducted with college students, a larger sample, both genders rather than the small convenience sample used, and scenarios that were not gender specific. Fourth, the gender composition of the sample was unbalanced with 27% males and 73% females participating creating a question about generalizability. Lastly, Decision Description was the only component of the five advice measures that was not significant for any of the groups. Perhaps this is because the component was not as well developed as the other components. Another likely reason may be that more intensive training in decision description was needed but not provided in this group study. It is interesting to note,

however, that for the other four components of effective decision-making, significance was found with the Team students thereby contributing to the validity of the measure.

Summary

This research explored college students' attitudes, intentions, and behaviors following exposure to brief decision-making techniques utilizing decision description, decision mapping, multiple social perspective-taking, and incubation. Despite the limitations, the current study appears to make several notable contributions to the literature. First, it replicates the literature in demonstrating that the Thought Team is a portable and powerful method for making effective decisions (Atha-Weldon & Dansereau, 2006). This is important as college students daily face decisions that can have life-long repercussions (Herrnstein & Prelec, 1992; Slovic, 2000). Furthermore, given that students do not always take the time to organize their thoughts but rather uncomplicate the decision-making process (Onken, Hastie, & Revelle, 1985), the simplicity of the Thought Team may be especially appealing to college students. Second, although prior research has shown mapping to aid in understanding decision-making (Dansereau, 2005), the current research did not reveal significant results to support it although higher means were identified in Table 5. This is important because this knowledge may assist in future decision-making research designs to include more intensive mapping training and/or better mapping measures. Third, the evaluation of four components may have diluted the effect of any one component. This is important because future research might consider testing only one or two components at one time. Finally, a review of the college student decision-making literature didn't uncover any other evaluations of the components of decision-making strategies. This first attempt at bridging this literature gap, explored college students' attitudes, intentions, and behaviors following brief exposure to decision-making strategies. This is important because the

current study provides some preliminary evidence to suggest that the effectiveness of college students' decision-making ability, in particular advice giving, will likely increase when provided with simple, yet powerful strategies.

Future Directions

In addition to the components included in the current study that examined four decision-making strategies, future research should examine these strategies for more than just decision-making. For example, the Thought Team has been used during therapeutic writing (Czuchry & Sia, 1998), to enhance the writing process, improve problem solving (Galinsky & Moskowitz, 2000), increase creativity, promote insight, assist in recall, contribute to one's self-efficacy and self-confidence, and stimulate enjoyment (Atha-Weldon & Dansereau, 2006). Creating and designing an intervention that would include some or all of these cognitive domains in training, could provide opportunities for reinforcement, rehearsal, retrieval, and review thereby underscoring the practical benefits of the strategy and increasing retention and its long-term usefulness. Ideally, future research should include larger sample sizes, multiple measures of general and strategy-specific domains and longitudinal data collection methods.

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Appendix A

Student Informed Consent

STATEMENT OF CONSENT – Fall 2007

I, the undersigned, do hereby give my informed consent to my participation in the GO Point.
I have been informed about each of the following:

- The purpose of the study is to test a decision-making intervention.
- The procedures of the study include filling out a packet and questionnaires, and completing and returning decision-making homework. Homework will correspond to my group's decision-making strategies thereby reinforcing them. I agree to complete it outside of the lab. It should take about 10-15 minutes.
- The benefits of the study include the opportunity to be involved in psychological experiments like the ones I've learned about in class.
- The risks of the study are negligible. After the completion of the study, the experimenter will answer any questions that I may have about the procedures.
- I understand that I will receive credit for this experiment at its completion and I cannot receive credit for participation in the current experiment more than once. Full credit will be issued for participation in two sessions and returning completed homework.

I understand that I may withdraw at any time before or during the experiment at my option.

Recognizing the importance of avoiding bias in the results of this experiment, I agree not to discuss any of the details of the procedure with other participants. I understand that all of the research and evaluation materials will be confidentially maintained. The means used to maintain confidentiality are:

1. My data will be given a code number for research identification, and my name will be kept anonymous.
2. Data, along with consent forms, will be kept in a locked file cabinet.
3. Only the investigators will have access to my identification data.

I understand that if I have questions concerning the research, I can call the following persons:

Janis T. Morey, Principal Investigator Institute of Behavioral Research 257-5926	Dr. Donald F. Dansereau Department of Psychology Faculty Advisor 257-7410
Dr Christie Scollon Chair, Dept of Psychology Human Subjects Committee 257-7410	Dr Timothy Hubbard TCU Committee on Safeguards of Human Subjects—Psychology 257-7410

Participant's Name (PLEASE PRINT)	Date
Participant's Signature	Phone Number
Participant's TCU Student ID#	Professor

Appendix B

Individual Differences Measures

1. Index of Learning Styles Questionnaire

2. Delta Reading Vocabulary Test

FOR ADMINISTRATIVE PURPOSES

Index of Learning Styles Questionnaire

Today's Date: MO DAY YR **Gender:** M or F

Instructions: Please chose either "a" or "b", whichever one applies more frequently.
MARK ONLY ONE CHOICE for each question.

1. I understand something better after I
   - ○ *a. try it out.*
   - ○ *b. think it through.*

2. I would rather be considered
   - ○ *a. realistic.*
   - ○ *b. innovative.*

3. When I think about what I did yesterday, I am most likely to get
   - ○ *a. a picture.*
   - ○ *b. words.*

4. I tend to
   - ○ *a. understand details of a subject but may be fuzzy about its overall structure.*
   - ○ *b. understand the overall structure but may be fuzzy about details.*

5. When I am learning something new, it helps me to
   - ○ *a. talk about it.*
   - ○ *b. think about it.*

6. If I were a teacher, I would rather teach a course
   - ○ *a. that deals with facts and real life situations.*
   - ○ *b. that deals with ideas and theories.*

7. I prefer to get new information in
   - ○ *a. pictures, diagrams, graphs, or maps.*
   - ○ *b. written directions or verbal information.*

8. Once I understand
   - ○ *a. all the parts, I understand the whole thing.*
   - ○ *b. the whole thing, I see how the parts fit.*

9. In a study group working on difficult materials, I am more likely to
   - ○ *a. jump in and contribute ideas.*
   - ○ *b. sit back and listen.*

10. I find it easier to
    - ○ *a. to learn facts.*
    - ○ *b. to learn concepts.*

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FOR ADMINISTRATIVE PURPOSES

11. In a book with lots of pictures and charts,
I am more likely to

○ *a. look over the pictures and charts carefully.*
○ *b. focus on the written text.*

12. When I solve math problems

○ *a. I usually work my way to the solutions one step at a time.*
○ *b. I often just see the solutions but then have to struggle to figure out the steps to get to them.*

13. In classes I have taken

○ *a. I have usually gotten to know many of the students.*
○ *b. I have rarely gotten to know many of the students.*

14. In reading nonfiction, I prefer

○ *a. something that teaches me new facts or tells me how to do something.*
○ *b. something that give me new ideas to think about.*

15. I like teachers

○ *a. who put a lot of diagrams on the board.*
○ *b. I have rarely gotten to know many of the students.*

16. When I'm analyzing a story or novel

○ *a. I think of the incidents and try to put them together to figure out the themes.*
○ *b. I know what the themes are when I finish reading then I go back to incidents that demonstrate them.*

17. When I start a homework problem, I am more likely to

○ *a. start working on the solution immediately.*
○ *b. try to fully understand the problem first.*

18. I prefer the idea of

○ *a. certainty.*
○ *b. theory.*

19. I remember best

○ *a. what I see.*
○ *b. what I hear.*

20. It is more important to me that an instructor

○ *a. lay out the material in clear sequential steps.*
○ *b. give me an overall picture and relate the material to other subjects.*

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FOR ADMINISTRATIVE PURPOSES

21. I prefer to study
- O *a. in a study group.*
- O *b. alone.*

22. I am more likely to be considered
- O *a. careful about the details of my work.*
- O *b. creative about how to do my work.*

23. When I get directions to a new place, I prefer
- O *a. a map.*
- O *b. written instructions.*

24. I learn
- O *a. at a fairly regular pace. If I study hard, I'll "get it.".*
- O *b. in fits and starts. I'll be totally confused and then suddenly it all "clicks."*

25. I would rather first
- O *a. try things out.*
- O *b. think about how I'm going to do it.*

26. When I am reading for enjoyment, I like writer to
- O *a. clearly say what they mean.*
- O *b. say things in creative, interesting ways.*

27. When I see a diagram or sketch in class, I am most likely to remember
- O *a. the picture.*
- O *b. what the instructor said about it.*

28. When considering a body of information, I am more likely to
- O *a. focus on the details and miss the big picture.*
- O *b. try to understand the big picture before getting into the details.*

29. I more easily remember
- O *a. something I have done.*
- O *b. something I have thought a lot about.*

30. When I have to perform a task, I prefer to
- O *a. master one way of doing it.*
- O *b. come up with new ways of doing it.*

31. When someone is showing me data, I prefer
- O *a. charts or graphs.*
- O *b. text summarizing the results.*

32. When writing a paper, I am more likely to
- O *a. work on the beginning of the paper and progress forward.*
- O *b. work on different parts of the paper and then order them.*

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FOR ADMINISTRATIVE PURPOSES

33. When I have to work on a group project, I first want to

○ *a. have "group brainstorming" where everyone contributes ideas.*
○ *b. brainstrom individually and then come together as a group to compare ideas.*

34. I consider it higher praise to call someone

○ *a. sensible.*
○ *b. imaginative.*

35. When I meet people at a party, I am more likely to remember

○ *a. what they looked like.*
○ *b. what they said about themselves.*

36. When I am learning a new subject, I prefer to

○ *a. stay focused on that subject, learning as much about it as I can.*
○ *b. try to make connections between that subject and related subjects.*

37. I am more likely to be considered

○ *a. outgoing.*
○ *b. reserved.*

38. I prefer courses that emphasize

○ *a. concrete material (facts, data).*
○ *b. abstrct material (concepts, theories).*

39. For entertainment, I would rather

○ *a. watch television.*
○ *b. read a book.*

40. Some teachers start their lectures with an outline of what they will cover. Such outlines are

○ *a. somewhat helpful to me.*
○ *b. very helpful to me.*

41. The idea of doing homework in groups, with one grade for the entire group,

○ *a. appeals to me.*
○ *b. does not appeal to me.*

42. When I am doing long calculations,

○ *a. I tend to repeat all my steps and check my work carefully.*
○ *b. I find checking my work tiresome and have to force myself to do it.*

43. I tend to picture place I have been

○ *a. easily and fairly accurately.*
○ *b. with difficulty and without much detail.*

44. When solving problems in a group, I would be more likely to

○ *a. think of the steps in the solution process.*
○ *b. think of possible consequences or applications of the solution in a wide range of areas.*

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FOR ADMINISTRATIVE PURPOSES

Delta Reading Vocabulary

Today's Date: MO DAY YR **Gender:** M or F

Instructions: Fill in the circle of the word that means the same as the word underlined.
You will have ten (10) minutes to complete the 45 items. MARK ONLY ONE CHOICE for each word.

SAMPLE: **Large** means
- O *1. little*
- O *2. big*
- O *3. anger*
- O *4. dot*
- O *5. red*

1. Consecutive
- O *1. derived*
- O *2. prior*
- O *3. successive*
- O *4. conclusion*
- O *5. immediate*

2. Predict
- O *1. certain*
- O *2. forecast*
- O *3. state*
- O *4. before*
- O *5. decide*

3. Requisition
- O *1. enables*
- O *2. gives*
- O *3. demand*
- O *4. pay*
- O *5. quit*

4. Frequency
- O *1. subsequent*
- O *2. seldom*
- O *3. repetition*
- O *4. silent*
- O *5. loud*

5. Alternative
- O *1. light*
- O *2. start*
- O *3. align*
- O *4. change*
- O *5. choice*

6. Interchangeable
- O *1. substitute*
- O *2. mix*
- O *3. access*
- O *4. between*
- O *5. par*

7. Subset
- O *1. after*
- O *2. aid*
- O *3. destroy*
- O *4. intradivision*
- O *5. independent*

8. Addendum
- O *1. supplement*
- O *2. stupid*
- O *3. contents*
- O *4. precede*
- O *5. quantity*

9. Expend
- O *1. recover*
- O *2. consume*
- O *3. waste*
- O *4. lose*
- O *5. hasten*

10. Retention
- O *1. camp*
- O *2. imprison*
- O *3. remember*
- O *4. stop*
- O *5. return*

11. Consolidate
- O *1. unite*
- O *2. box*
- O *3. generate*
- O *4. mix*
- O *5. dual*

12. Remote
- O *1. dig*
- O *2. wireless*
- O *3. pay*
- O *4. distant*
- O *5. control*

13. Annotation
- O *1. bother*
- O *2. explanation*
- O *3. anoint*
- O *4. against*
- O *5. polarize*

14. Quadrant
- O *1. constant*
- O *2. fourth*
- O *3. radar*
- O *4. tangent*
- O *5. target*

15. Mantissa
- O *1. mantle*
- O *2. lady's scarf*
- O *3. fish*
- O *4. decimal log*
- O *5. fraction*

16. Fulcrum
- O *1. pivot*
- O *2. bow*
- O *3. axis*
- O *4. angle*
- O *5. weight*

17. Inductive
- O *1. channel*
- O *2. infer*
- O *3. conductor*
- O *4. denote*
- O *5. implicit*

18. Invalidate
- O *1. approve*
- O *2. correct*
- O *3. annul*
- O *4. evident*
- O *5. ancillary*

19. Syllogism
- O *1. alone*
- O *2. same*
- O *3. deductive*
- O *4. wordy*
- O *5. comparison*

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FOR ADMINISTRATIVE PURPOSES

20. Gradient
- 1. fulcrum
- 2. latitude
- 3. quadrant
- 4. ascending
- 5. score

21. Augment
- 1. prevent
- 2. cut
- 3. figure
- 4. increase
- 5. hole

22. Latent
- 1. hidden
- 2. after
- 3. language
- 4. religion
- 5. hanging

23. Ambiguous
- 1. unclear
- 2. massive
- 3. surrounding
- 4. steal
- 5. intelligible

24. Futile
- 1. unfriendly
- 2. deadly
- 3. useless
- 4. sad
- 5. dangerous

25. Redundant
- 1. precise
- 2. quick
- 3. excess
- 4. inconsistent
- 5. reliable

26. Loam
- 1. soil
- 2. dune
- 3. rock
- 4. water
- 5. geography

27. Succinct
- 1. substitute
- 2. tasty
- 3. brief
- 4. false
- 5. wordy

28. Inanimate
- 1. cartoon
- 2. dormant
- 3. lifeless
- 4. caricature
- 5. weak

29. Berate
- 1. scold
- 2. modify
- 3. evaluate
- 4. careful
- 5. measure

30. Plausible
- 1. believable
- 2. permissible
- 3. countable
- 4. statistical
- 5. mathematical

31. Technology
- 1. difficult
- 2. applied science
- 3. aerospace
- 4. computerization
- 5. automation

32. Hypothesize
- 1. water
- 2. angle
- 3. fake
- 4. insincere
- 5. assume

33. Viscous
- 1. tall
- 2. proof
- 3. thick
- 4. hold
- 5. strong

34. Abate
- 1. incite
- 2. agree
- 3. slacken
- 4. criminal
- 5. fly

35. Connote
- 1. explicit
- 2. deduce
- 3. imply
- 4. musical
- 5. short

36. Variable
- 1. quick
- 2. consistent
- 3. fluctuate
- 4. reliable
- 5. quantity

37. Affluent
- 1. adjacent
- 2. opulent
- 3. greedy
- 4. sufficient
- 5. sick

38. Criterion
- 1. standard
- 2. definition
- 3. visible
- 4. critic
- 5. explanation

39. Rescind
- 1. order
- 2. burn
- 3. revoke
- 4. perforate
- 5. shorten

40. Infinity
- 1. compute
- 2. unlimited
- 3. end
- 4. astronomical
- 5. conclusion

41. Remuneration
- 1. penalty
- 2. accounting
- 3. revenge
- 4. payment
- 5. worry

42. Impetuous
- 1. ream
- 2. rash
- 3. unexpected
- 4. dislike
- 5. inconsistent

43. Delete
- 1. aggression
- 2. forbidden
- 3. cancel
- 4. provoke
- 5. include

44. Quadratic
- 1. erratic
- 2. cosine
- 3. squared
- 4. four times
- 5. minus

45. Invincible
- 1. energetic
- 2. undefeated
- 3. conquered
- 4. concurred
- 5. elastic

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Appendix C

Session and Strategy Satisfaction Measure

1. Session Evaluation Questionnaire (SEQ)

2. Feedback Form

TCU Session Evaluation

Directions: Please place an "x" on each line to show how you feel about this session.

This session was:

1. Bad	_____:_____:_____:_____:_____:_____:_____	Good
2. Safe	_____:_____:_____:_____:_____:_____:_____	Dangerous
3. Difficult	_____:_____:_____:_____:_____:_____:_____	Easy
4. Valuable	_____:_____:_____:_____:_____:_____:_____	Worthless
5. Shallow	_____:_____:_____:_____:_____:_____:_____	Deep
6. Relaxed	_____:_____:_____:_____:_____:_____:_____	Tense
7. Unpleasant	_____:_____:_____:_____:_____:_____:_____	Pleasant
8. Full	_____:_____:_____:_____:_____:_____:_____	Empty
9. Weak	_____:_____:_____:_____:_____:_____:_____	Powerful
10. Special	_____:_____:_____:_____:_____:_____:_____	Ordinary
11. Rough	_____:_____:_____:_____:_____:_____:_____	Smooth
12. Comfortable	_____:_____:_____:_____:_____:_____:_____	Uncomfortable

Right now I feel:

13. Happy	_____:_____:_____:_____:_____:_____:_____	Sad
14. Angry	_____:_____:_____:_____:_____:_____:_____	Pleased
15. Moving	_____:_____:_____:_____:_____:_____:_____	Still
16. Uncertain	_____:_____:_____:_____:_____:_____:_____	Definite
17. Calm	_____:_____:_____:_____:_____:_____:_____	Excited
18. Confident	_____:_____:_____:_____:_____:_____:_____	Afraid
19. Wakeful	_____:_____:_____:_____:_____:_____:_____	Sleepy
20. Friendly	_____:_____:_____:_____:_____:_____:_____	Unfriendly
21. Slow	_____:_____:_____:_____:_____:_____:_____	Fast
22. Energetic	_____:_____:_____:_____:_____:_____:_____	Peaceful
23. Involved	_____:_____:_____:_____:_____:_____:_____	Detached
24. Quiet	_____:_____:_____:_____:_____:_____:_____	Aroused

Strategic Decision-Making
Feedback Form

(This module is still under development; therefore your feedback is valuable. Your honest responses are appreciated.)

How strongly do you agree or disagree with the following statements?

	Disagree Strongly (1)	*Disagree (2)*	*Uncertain (3)*	*Agree (4)*	*Agree Strongly (5)*
1. You learned a lot from the Strategic Decision-Making module.	O	O	O	O	O
2. You are likely to use these techniques in the future.	O	O	O	O	O
3. You chose important decisions in this module.	O	O	O	O	O
4. You chose easy decisions in this module.	O	O	O	O	O
5. It was hard to complete the strategies in this module.	O	O	O	O	O

6. What did you like least about the module?

7. What did you like most about the module?

8. Describe the amount of effort you put into session one/assigned homework.

Strategic Decision-Making Feedback Form 9/07

Appendix D

Attitudes/Intentions Measure

Thinking Through Decisions Survey

FOR TCU ADMINISTRATIVE PURPOSES

Thinking Through Decisions Survey

Instruction Page

This survey asks questions about how you make decisions.

To complete the form, please mark your answers by completely filling in the appropriate circles.
PLEASE DO NOT FOLD FORMS. The examples below show how to mark the circles.

For Example -- ●

	Disagree Strongly (1)	Disagree (2)	Uncertain (3)	Agree (4)	Agree Strongly (5)
Person 1. I like chocolate ice cream.	○	●	○	○	○
This person disagrees a little so she probably doesn't like chocolate ice cream.					
Person 2. I like chocolate ice cream.	○	○	○	○	●
This person likes chocolate ice cream a lot.					

FOR TCU ADMINISTRATIVE PURPOSES

Thinking Through Decisions Survey

PLEASE FILL IN THE CIRCLE THAT SHOWS YOUR ANSWER TO EACH ITEM.

	Disagree Strongly (1)	*Disagree (2)*	*Uncertain (3)*	*Agree (4)*	*Agree Strongly (5)*
If I have an important decision to make I usually --					
1. wait until the last minute.	○	○	○	○	○
2. go with my "gut" feeling.	○	○	○	○	○
3. think about how other people would handle it.	○	○	○	○	○
4. think hard about the choices I have.	○	○	○	○	○
5. make a choice just to get it over with.	○	○	○	○	○
6. have a difficult time thinking it through.	○	○	○	○	○
7. keep going over the same thoughts without making progress.	○	○	○	○	○
8. try to avoid thinking about it as much as possible.	○	○	○	○	○
9. feel anxious or nervous.	○	○	○	○	○
10. talk to others about it.	○	○	○	○	○
11. write down my ideas to help me decide.	○	○	○	○	○
12. write down the long-term consequences.	○	○	○	○	○
13. try to figure what choices I have before I decide.	○	○	○	○	○
14. feel like I don't have any good choices.	○	○	○	○	○
15. feel it doesn't really matter what I decide.	○	○	○	○	○
16. do what others want me to do.	○	○	○	○	○
17. get depressed.	○	○	○	○	○
18. organize my thoughts to help me decide.	○	○	○	○	○
19. get confused about how to do it.	○	○	○	○	○

FOR TCU ADMINISTRATIVE PURPOSES

How strongly do you **agree** or **disagree** with each of the following statements?	*Disagree Strongly (1)*	*Disagree (2)*	*Uncertain (3)*	*Agree (4)*	*Agree Strongly (5)*
20. I have a history of making bad decisions.	O	O	O	O	O
21. I'm usually happy with the decisions I have made.	O	O	O	O	O
22. I can usually see how my decision is going to play out before I make it.	O	O	O	O	O
23. I think it is a waste of time thinking about a decision you need to make.	O	O	O	O	O
24. My friends are not very good decision makers.	O	O	O	O	O
25. I often change my decisions.	O	O	O	O	O
26. I like to think things over before I act.	O	O	O	O	O
27. If I know I might need to make a decision in the future, I plan in advance what I'm going to do.	O	O	O	O	O
28. I often wish someone else would make my decisions for me.	O	O	O	O	O
29. I don't believe it matters much what I decide, things just happen to me.	O	O	O	O	O
30. I think "flipping a coin" is as good a way as any to make most decisions.	O	O	O	O	O
31. I intend to make better decisions in the future.	O	O	O	O	O
32. In the future, I plan to take the time to think through my important decisions.	O	O	O	O	O
33. I often change my mind if other people don't agree with me.	O	O	O	O	O
34. I become paralyzed when I have to make a decision.	O	O	O	O	O
35. Thinking about a decision too much just confuses me.	O	O	O	O	O

FOR TCU ADMINISTRATIVE PURPOSES

	Disagree Strongly (1)	*Disagree (2)*	*Uncertain (3)*	*Agree (4)*	*Agree Strongly (5)*
36. I intend to make use of the opinions of others in my future decisions.	O	O	O	O	O
37. I really don't know how people make important decisions.	O	O	O	O	O
38. I am a good decision maker.	O	O	O	O	O
39. When I make a decision, I usually am able to follow through with it.	O	O	O	O	O
40. Other people have a strong influence on what I decide to do.	O	O	O	O	O
41. My emotions get in the way when I try to make a decision.	O	O	O	O	O
42. I make decisions quickly.	O	O	O	O	O
43. I often have trouble making decisions.	O	O	O	O	O
44. I have decided to make future decisions by asking myself how others I respect would handle the situation.	O	O	O	O	O
45. I don't like to make decisions.	O	O	O	O	O
46. I think I need to improve my way of making decisions.	O	O	O	O	O
47. I look at my past decisions to see where I went right or wrong.	O	O	O	O	O
48. I know how to make good decisions.	O	O	O	O	O
49. I usually go along with the decisions of others.	O	O	O	O	O
50. I have regrets over decisions I have made in the past.	O	O	O	O	O
51. I often feel helpless when it comes to making decisions.	O	O	O	O	O

FOR TCU ADMINISTRATIVE PURPOSES

	Disagree Strongly (1)	*Disagree (2)*	*Uncertain (3)*	*Agree (4)*	*Agree Strongly (5)*
52. I put off making decisions for as long a I can.	○	○	○	○	○
53. I help other people with their decisions.	○	○	○	○	○
54. I often let others make my decisions for me.	○	○	○	○	○
55. I wish I could make good decisions.	○	○	○	○	○
56. I learn from the bad decisions other people make.	○	○	○	○	○
57. I will continue making decisions the same way I have in the past.	○	○	○	○	○
58. I intend to make it a habit to examine possible choices before deciding.	○	○	○	○	○

Appendix E

Behavioral Skills Measure and Scoring Sheet

Decision Advice Measure

Decision Advice Measure

Instructions

These scenarios measure the decision-making advice you would give to another person. Please read each scenario thoughtfully and answer, with as much detail as possible, how you would realistically help in the decision-making process in each of these given situations. The back of the paper may be used if more space is needed. It should take about 15 minutes to complete.

Decision One –

Your teen-age sister, Kim, has just found out that she is pregnant. Since she is not sure who the father is, she doesn't want your parents to know. Her thinking is confused, she is scared, and wants to act quickly. With tears she comes to you for advice. How would you help Kim make a good decision?

Decision Two –

Jeff is a fun guy to hang out with but you have noticed that he spends money foolishly. Because he really likes you and trusts you, he confided that he is two months behind in his car payments. Yesterday, he received a letter that his car will be repossessed if he does not pay, within the week, the $950 for the two payments. Jeff doesn't have the money and called to ask you what he should do. How would you help Jeff make a good decision?

Decision Three –

Dave, who has been your friend since kindergarten, has just been tested and found to be HIV positive. He is afraid to tell anybody, especially his new girlfriend, Emily, because he doesn't want to lose her. Dave and Emily had sex only once (before he knew he was a health risk) and did not use protection. Over a couple of beers, he loosens up enough to tell you. How would you help Dave make a good decision?

SCALES

Decision Description
- Identifies the seriousness of the decision
- Identifies deadlines
- Identifies potential obstacles

Developing Options
- Generates alternatives
- Organizes thoughts/options
- Considers consequences

Evaluating Options
- Seeks other's recommendations
- Selects from options
- Tests thinking against outer circle

Developing Plan
- Suggests time of reflection
- Identifies starting point
- Creates systematic plan

Coherence
- Logical sequence
- Practical advice
- Summarizes

***Scoring –**
- 0=no mention
- 1=one out of three scale items
- 2=two out of three scale items
- 3=three out of three scale items

Decision Description Scenario 1
SCORE _____

Developing Options Scenario 1
SCORE _____

Evaluating Options Scenario 1
SCORE _____

Developing Plan Scenario 1
SCORE _____

Coherence Scenario 1
SCORE _____

Decision Description Scenario 2
SCORE _____

Developing Options Scenario 2
SCORE _____

Evaluating Options Scenario 2
SCORE _____

Developing Plan Scenario 2
SCORE _____

Coherence Scenario 2
SCORE _____

Decision Description Scenario 3
SCORE _____

Developing Options Scenario 3
SCORE _____

Evaluating Options Scenario 3
SCORE _____

Developing Plan Scenario 3
SCORE _____

Coherence Scenario 3
SCORE _____

****Total Scoring – (by summing each scale f scenario 1 + scenario 2 + scenario 3)**

Decision Description
SCORE _____

Developing Options
SCORE _____

Evaluating Options
SCORE _____

Developing Plan
SCORE _____

Coherence
SCORE _____

Appendix F

Decision Map and Thought Team Intervention and Homework

STRATEGIC DECISION-MAKING

DMTT

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Institute of Behavioral Research
Texas Christian University

Preface to Students

Learning to make rational, appropriate decisions is clearly a valuable skill and plays a major role in your educational process. This manual is based on 15 years of research and utilizes cutting edge strategies on decision-making. In particular, learning to make reflective decisions through mapping out potential pros and cons of each choice can make concrete what was previously only abstract thinking. Furthermore, learning to consider multiple perspectives by imagining what other respected individuals would do if faced with a similar decision has been shown to be a simple, portable and powerful method for making effective decisions (Atha-Weldon & Dansereau, 2006). The intervention addresses the use of these strategies as well as other cost/benefit approaches championed by researchers such as Prochaska and DiClemente (1986). If you follow these steps, you can be confident your decision-making will improve.

Please note:

We understand that in most of your decision-making cases, you will likely not go through the extensive decision-making analysis that has been provided in this intervention. However, the point of this intervention is to provide a lasting experience that will serve as a foundation for future decision-making. Therefore, it is important that you are willing to seriously participate and work well at all that is asked of you in this study.

"You will only get out of it,

What you are willing to put into it."

iii

Decisions, Decisions, Decisions

What actions will you take today that will shape your future?

Everything that happens in your life – both what you are excited about and what you are challenged by – begins with a decision.

The decisions you are making right now will shape how you feel today as well as whom you're going to become in the years ahead.

Impulsive decision-making – automatic default mode

Human beings can possess high intelligence and yet lack intellectual awareness when making decisions. These mindless decisions are often made without reference to vital information; even when such information is available. Boredom, listlessness, impulsivity, and absent-mindedly slogging through the routine of the day without noticing differences brought on by the passage of time can make each day look like every other. Such

psychological "checking out" or mindlessness is often called "human error" which can result in potentially disastrous consequences. Although it may be hard to avoid impulsively "jumping to conclusions", there is a better way. It is called - strategic decision-making.

Strategic decision-making – actively making distinctions

Strategic or reflective decision-making is an active cognitive state characterized by a deliberate rational forethought; conscious planned activity; paying attention, and looking freshly in the present moment at choices and available options needed for effective decision-making.

Drawing on new or novel distinctions is another aspect of reflective thinking that can further aid decision-making by:

1. Creating greater sensitivity to one's environment
2. Allowing more openness to new information
3. Stimulating the development of new categories for structuring perception and
4. Enhancing awareness of multiple perspectives

Look before you leap

As individuals look through a reflective lens, one key component is *taking time* to consider the likely consequences of various anticipated actions. In other words, the cognitive maxims of "look before you leap" and "think before you act" are good practices to follow. Furthermore, allowing a time of *incubation,* where one can mentally move away from the decision for a time to allow the decision to develop has been found to be beneficial. In fact, some believe that the notion of "sleeping" on a decision is a powerful decision-making strategy.

Consider aspects of your life where you need to make a decision that would have a relatively immediate impact on shaping your future; think about areas where you would like to see a positive change.

Read through the following categories and examples given. Choose one decision-making area from the examples or choose one of your own.

Decision Categories

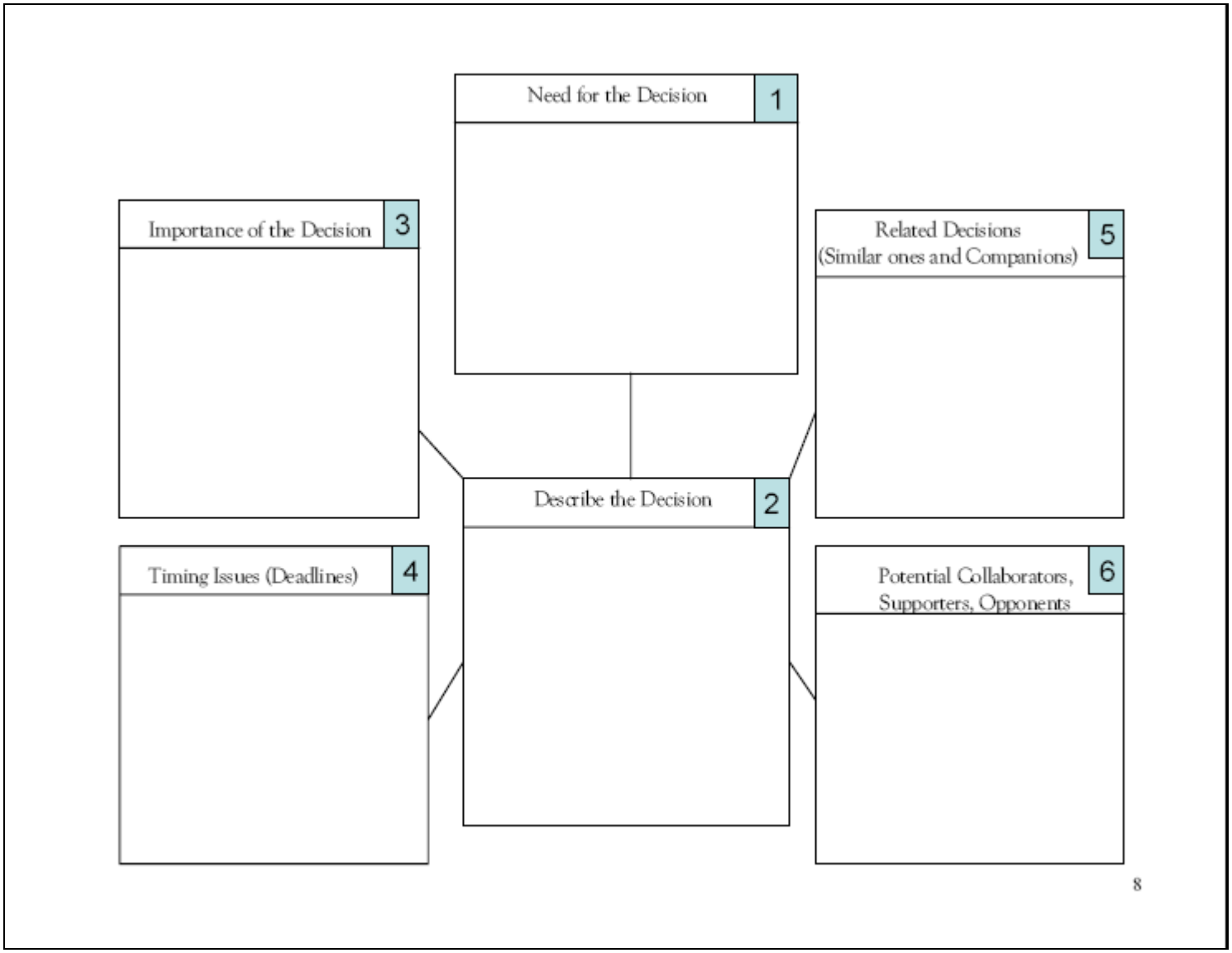
1. Self care – binge drinking, drinking, drugs, risky sexual behavior, improving diet, having regular exercise, getting more sleep, controlling spending/credit card debt

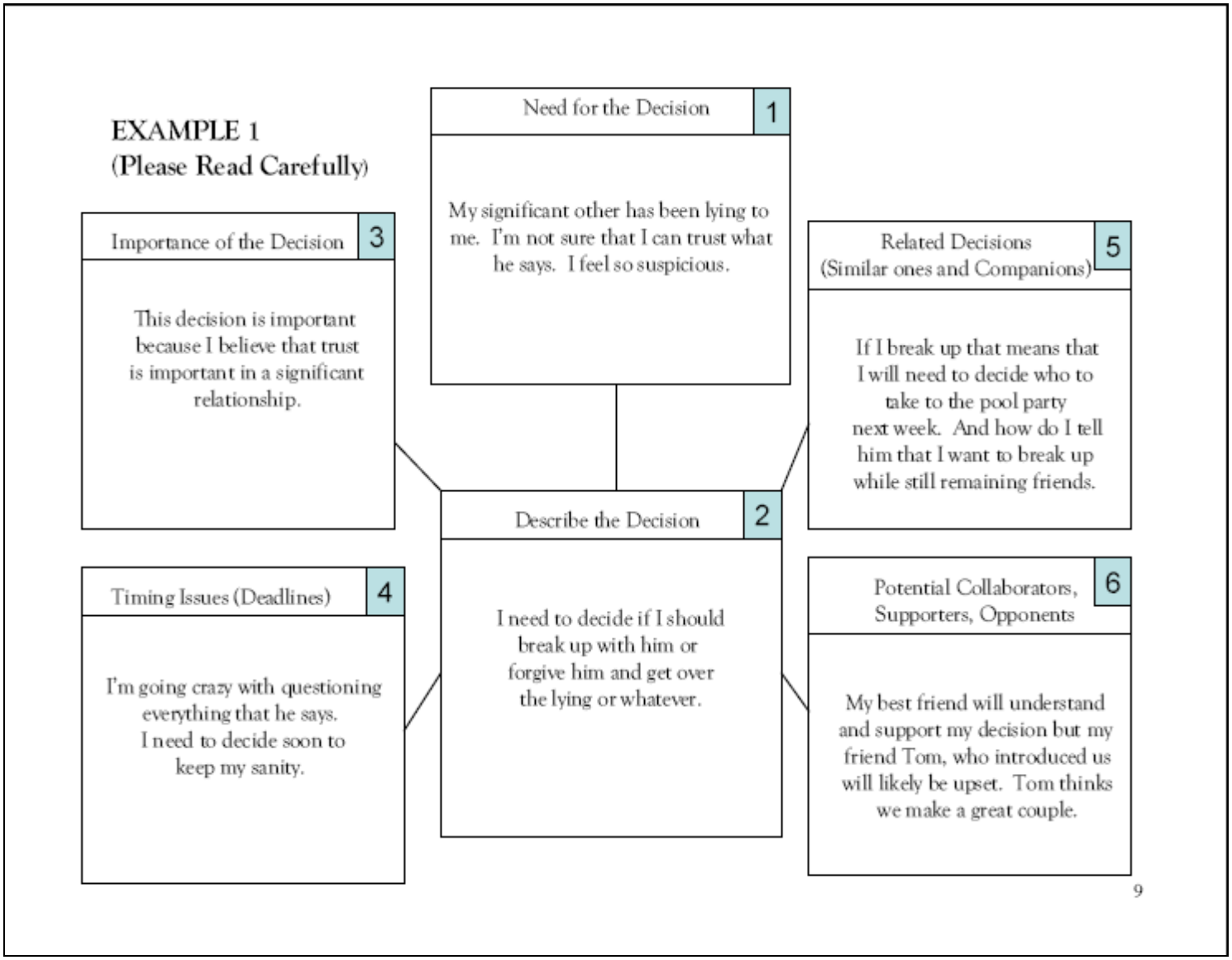
2. Career/School – choice of major/minor, attend graduate school, dealing with procrastination, preparations needed for the future

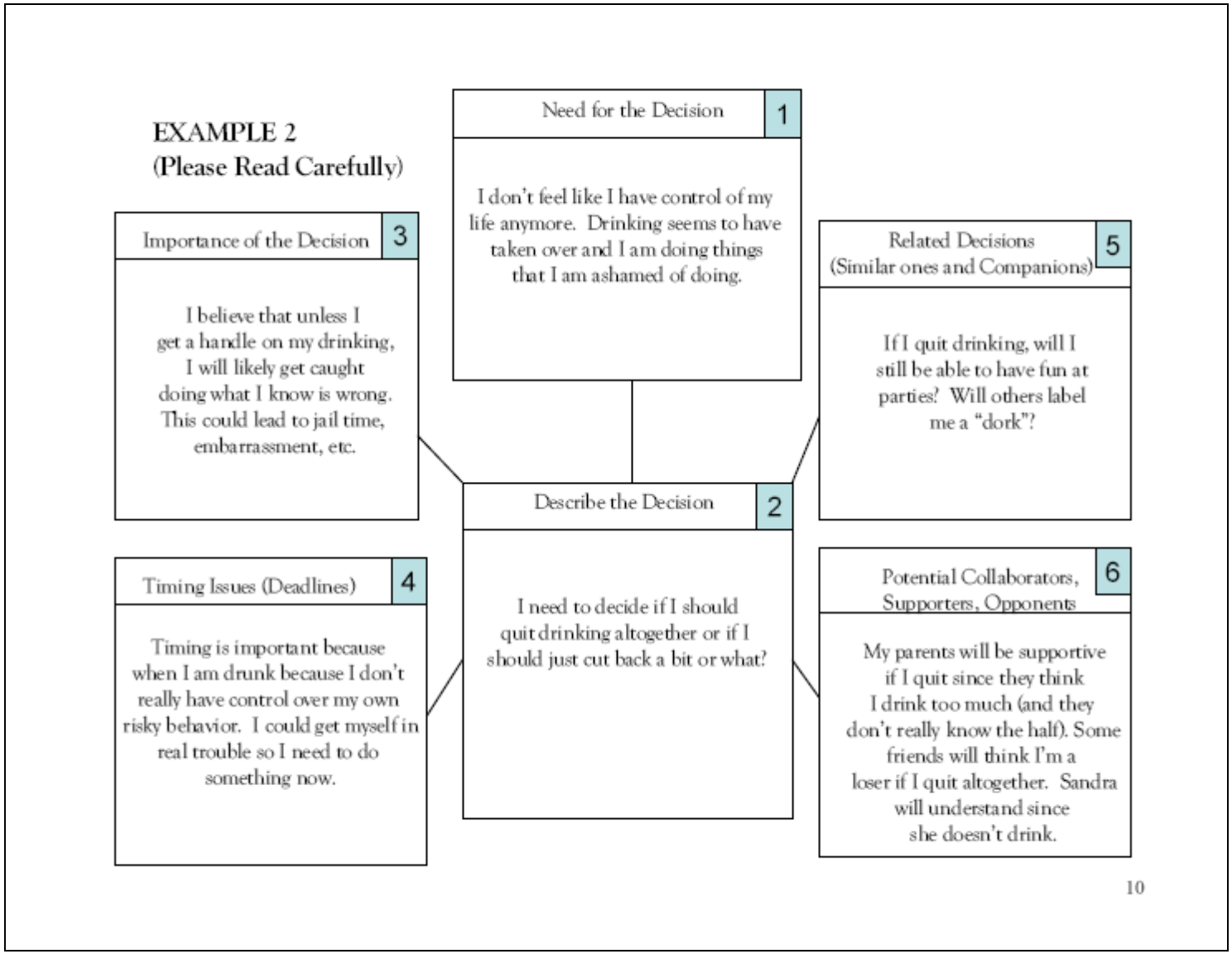
3. Social/Relationships – rekindling old friendships, breaking up with a significant person, taking a relationship to a deeper level

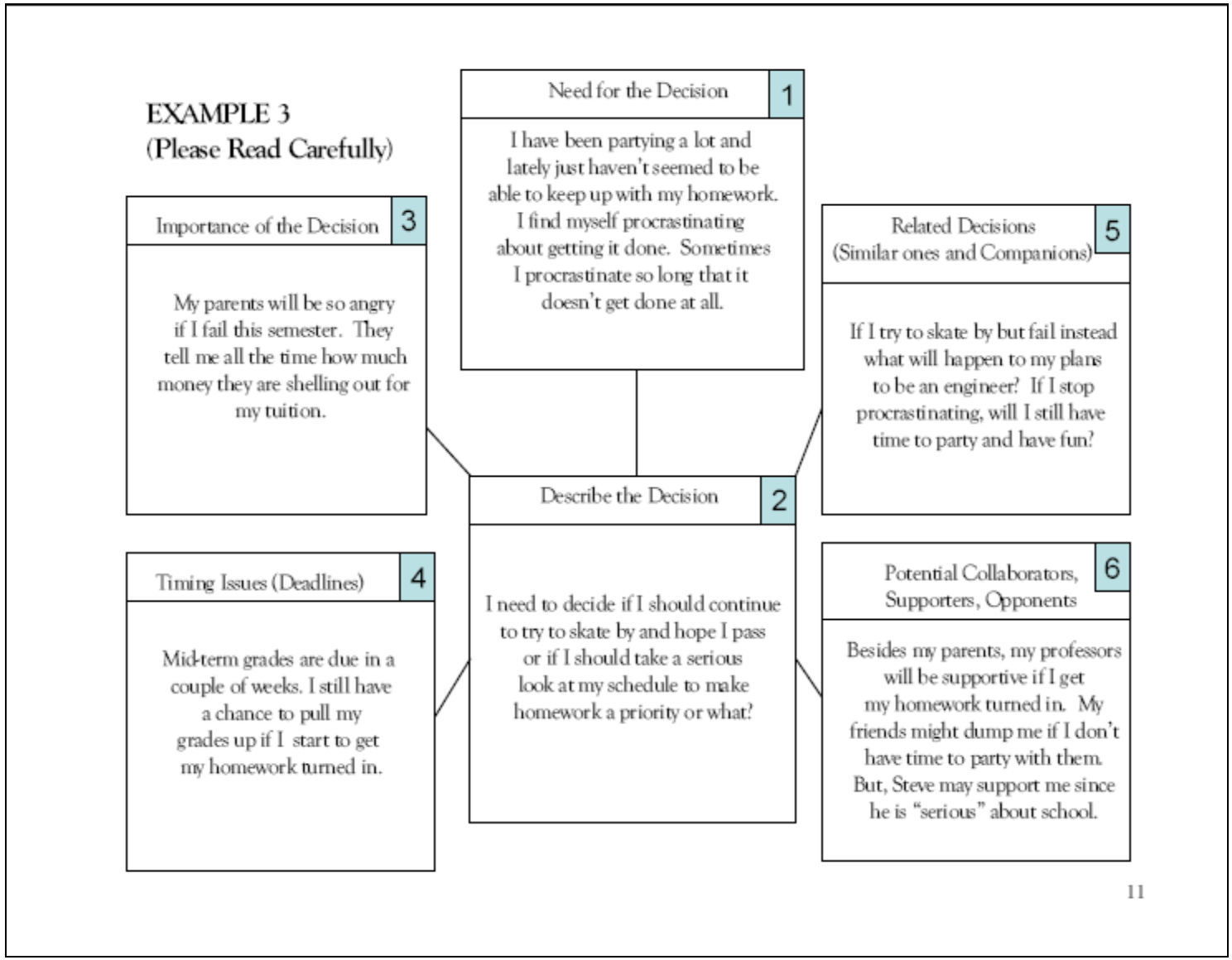
4. Recreation – decrease TV/games, deal with computer addictions, excessive shopping, partying too much

With your decision need in mind, study the blank map, then, read *carefully* through the following examples and think about what you would do in each decision-making situation.

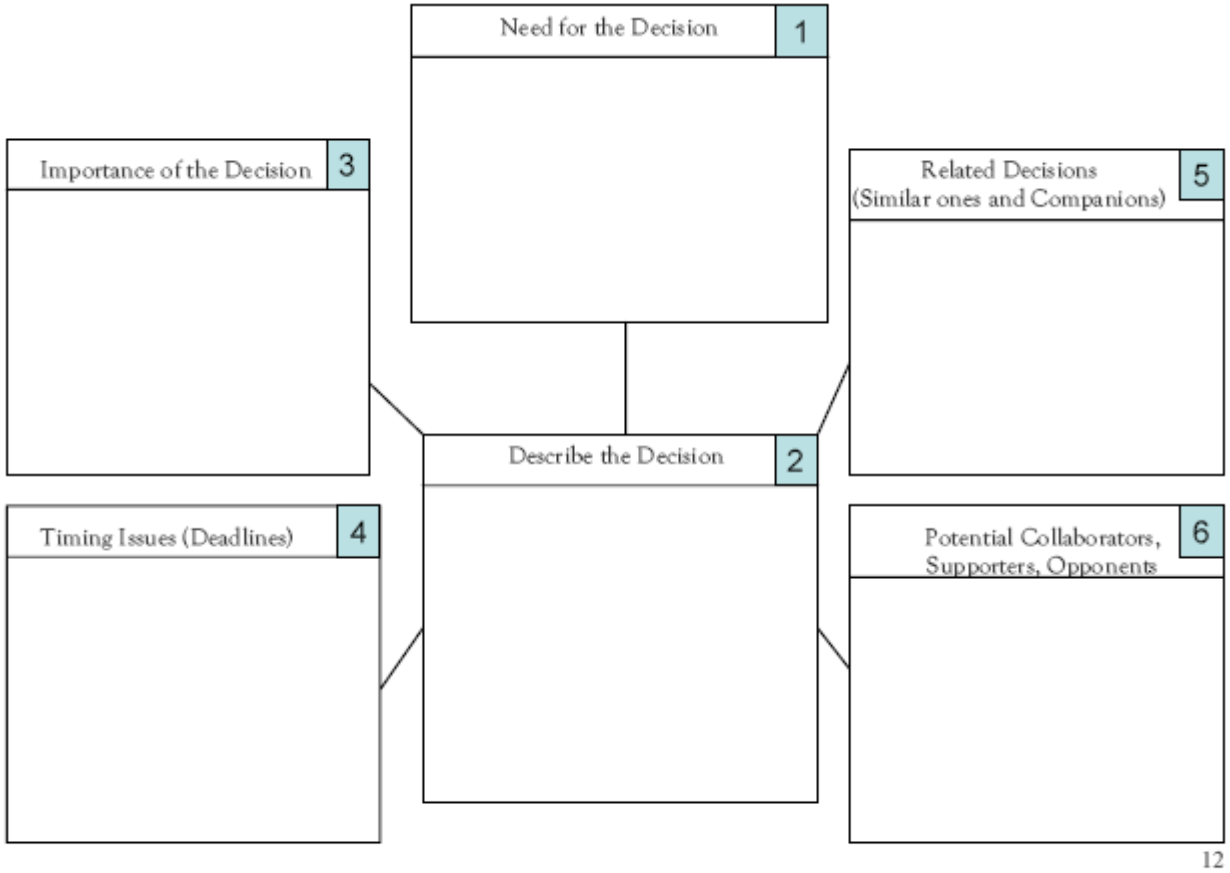

Need for the Decision
1
Importance of the Decision
3
Related Decisions
(Similar ones and Companions)
5
Describe the Decision
2
Timing Issues (Deadlines)
4
Potential Collaborators,
Supporters, Opponents
6
8


EXAMPLE 1
(Please Read Carefully)
Need for the Decision
1
My significant other has been lying to me. I'm not sure that I can trust what he says. I feel so suspicious.
Importance of the Decision
3
This decision is important because I believe that trust is important in a significant relationship.
Related Decisions (Similar ones and Companions)
5
If I break up that means that I will need to decide who to take to the pool party next week. And how do I tell him that I want to break up while still remaining friends.
Describe the Decision
2
I need to decide if I should break up with him or forgive him and get over the lying or whatever.
Timing Issues (Deadlines)
4
I'm going crazy with questioning everything that he says. I need to decide soon to keep my sanity.
Potential Collaborators, Supporters, Opponents
6
My best friend will understand and support my decision but my friend Tom, who introduced us will likely be upset. Tom thinks we make a great couple.
9


EXAMPLE 2
(Please Read Carefully)
Need for the Decision
1
I don't feel like I have control of my life anymore. Drinking seems to have taken over and I am doing things that I am ashamed of doing.
Importance of the Decision
3
I believe that unless I get a handle on my drinking, I will likely get caught doing what I know is wrong. This could lead to jail time, embarrassment, etc.
Related Decisions (Similar ones and Companions)
5
If I quit drinking, will I still be able to have fun at parties? Will others label me a "dork"?
Describe the Decision
2
I need to decide if I should quit drinking altogether or if I should just cut back a bit or what?
Timing Issues (Deadlines)
4
Timing is important because when I am drunk because I don't really have control over my own risky behavior. I could get myself in real trouble so I need to do something now.
Potential Collaborators, Supporters, Opponents
6
My parents will be supportive if I quit since they think I drink too much (and they don't really know the half). Some friends will think I'm a loser if I quit altogether. Sandra will understand since she doesn't drink.
10


EXAMPLE 3
(Please Read Carefully)
Need for the Decision
1
I have been partying a lot and lately just haven't seemed to be able to keep up with my homework. I find myself procrastinating about getting it done. Sometimes I procrastinate so long that it doesn't get done at all.
Importance of the Decision
3
My parents will be so angry if I fail this semester. They tell me all the time how much money they are shelling out for my tuition.
Related Decisions (Similar ones and Companions)
5
If I try to skate by but fail instead what will happen to my plans to be an engineer? If I stop procrastinating, will I still have time to party and have fun?
Describe the Decision
2
I need to decide if I should continue to try to skate by and hope I pass or if I should take a serious look at my schedule to make homework a priority or what?
Timing Issues (Deadlines)
4
Mid-term grades are due in a couple of weeks. I still have a chance to pull my grades up if I start to get my homework turned in.
Potential Collaborators, Supporters, Opponents
6
Besides my parents, my professors will be supportive if I get my homework turned in. My friends might dump me if I don't have time to party with them. But, Steve may support me since he is "serious" about school.
11

Now use your decision to complete the map for yourself.



Decision Mapping

When making a decision, identify all potential choices that you have in the decision-making process. Consider the pros and cons of each of the potential decisions. Think about how each of the pros and cons could affect you and how they could affect others. We will use this strategy in a few minutes.

Thought Team

Have you ever asked yourself, "How would mom or dad handle this situation?" or think about what one of your heroes would do in the same situation? Good decisions can be made by taking the time to think carefully what you have learned from others. Use your knowledge about others to create your own Thought Team, a team you carry around in your head. They can be everyday people in your life like friends, family, heroes, or even good hearted rascals. However, it is important to identify trusted and respected individuals whom you know well enough, either by experience or by knowledge about them, to anticipate how they would advise you in effective decision-making. Next, you will create your own Thought Team.

Creating Your Thought Team

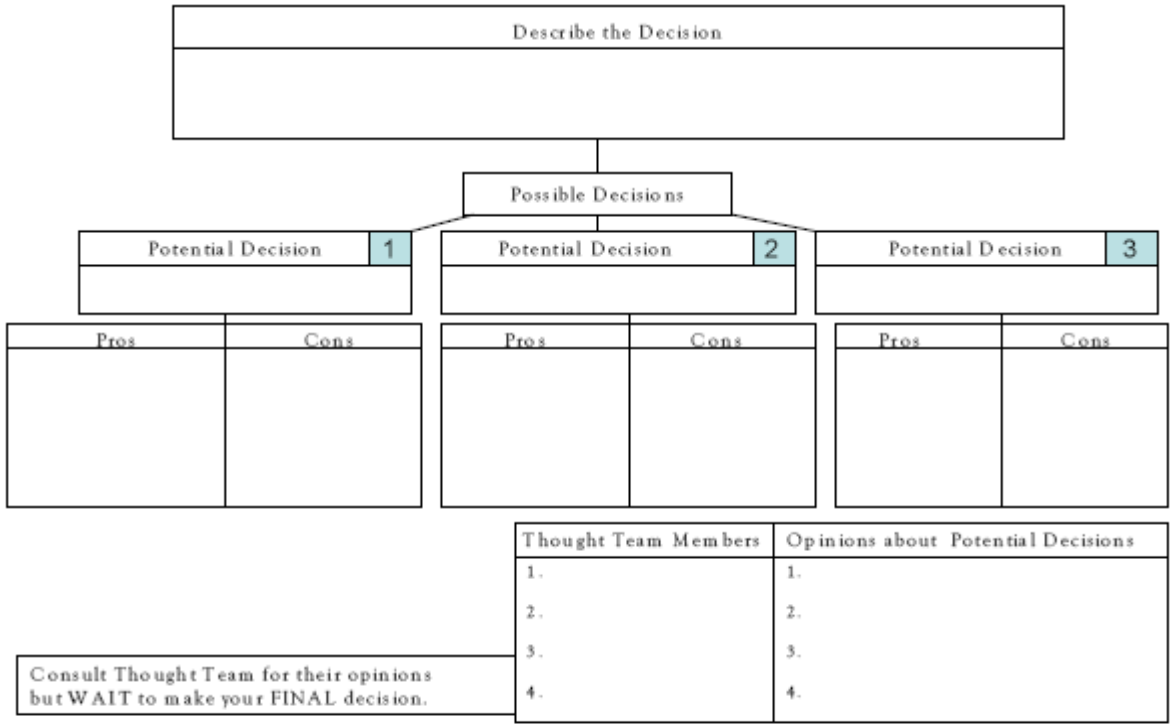
1. Brainstorm a list of all potential family, friends, heroes and/or good-hearted rascals that might be candidates for your team. Such as:
   An awesome aunt or uncle or other family member;
   An incredible teacher/coach who made an impact upon your life;
   A generous kind-hearted neighbor;
   An inspirational pastor or church member;
   A wise doctor or other medical person;
   Historical figures, religious leaders, scientists, warriors, or even individuals who are involved and/or a part of the problem since they might help you to see the situation from their viewpoint.

2. Look at the strengths of each potential candidate.
3. Decide which of those strengths would be most useful to you.
4. Choose 5-6 people for your Thought Team.
5. Identify the character qualities each Thought Team member possesses that you would like to have in your life.
6. Add to the team the individual(s) that are involved in the situation or problem to get their point of view.
7. Fill out the following chart with your Thought Team members.

Name of Each Member	Qualities I Admire the Most

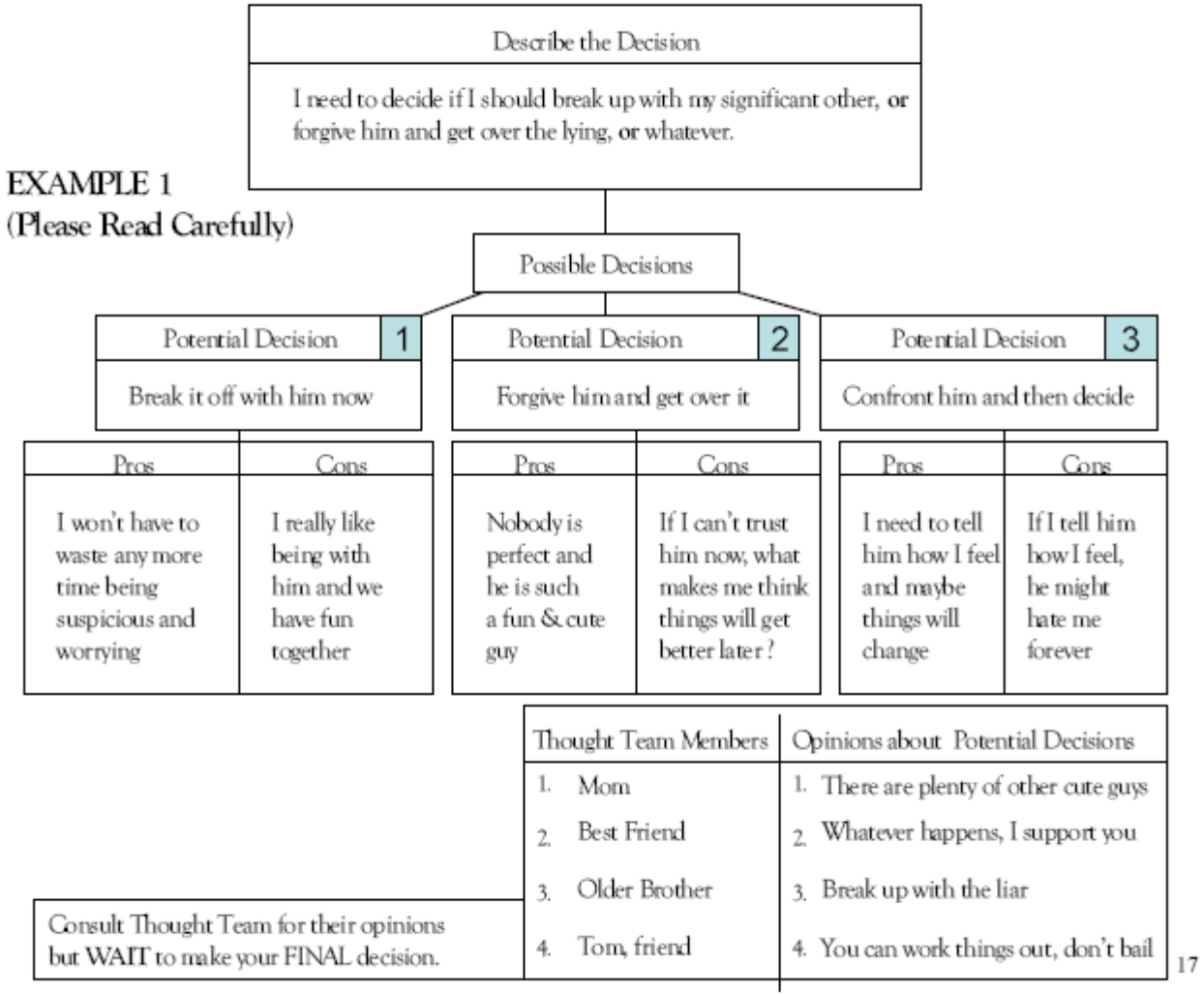
Decision Mapping and Thought Team

This map combines decision mapping and your Thought Team into one. Please study it and read *carefully* though all the example maps.

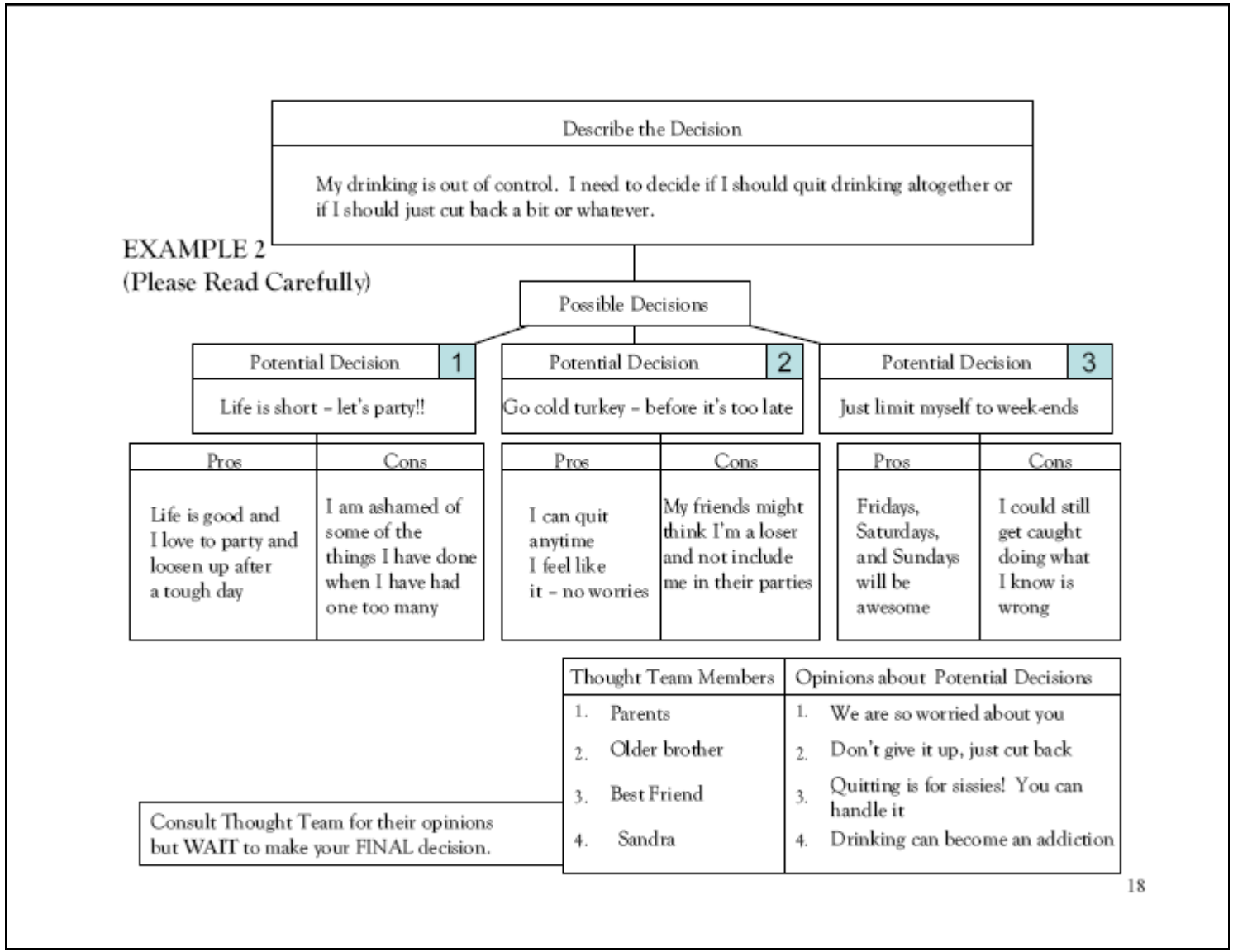


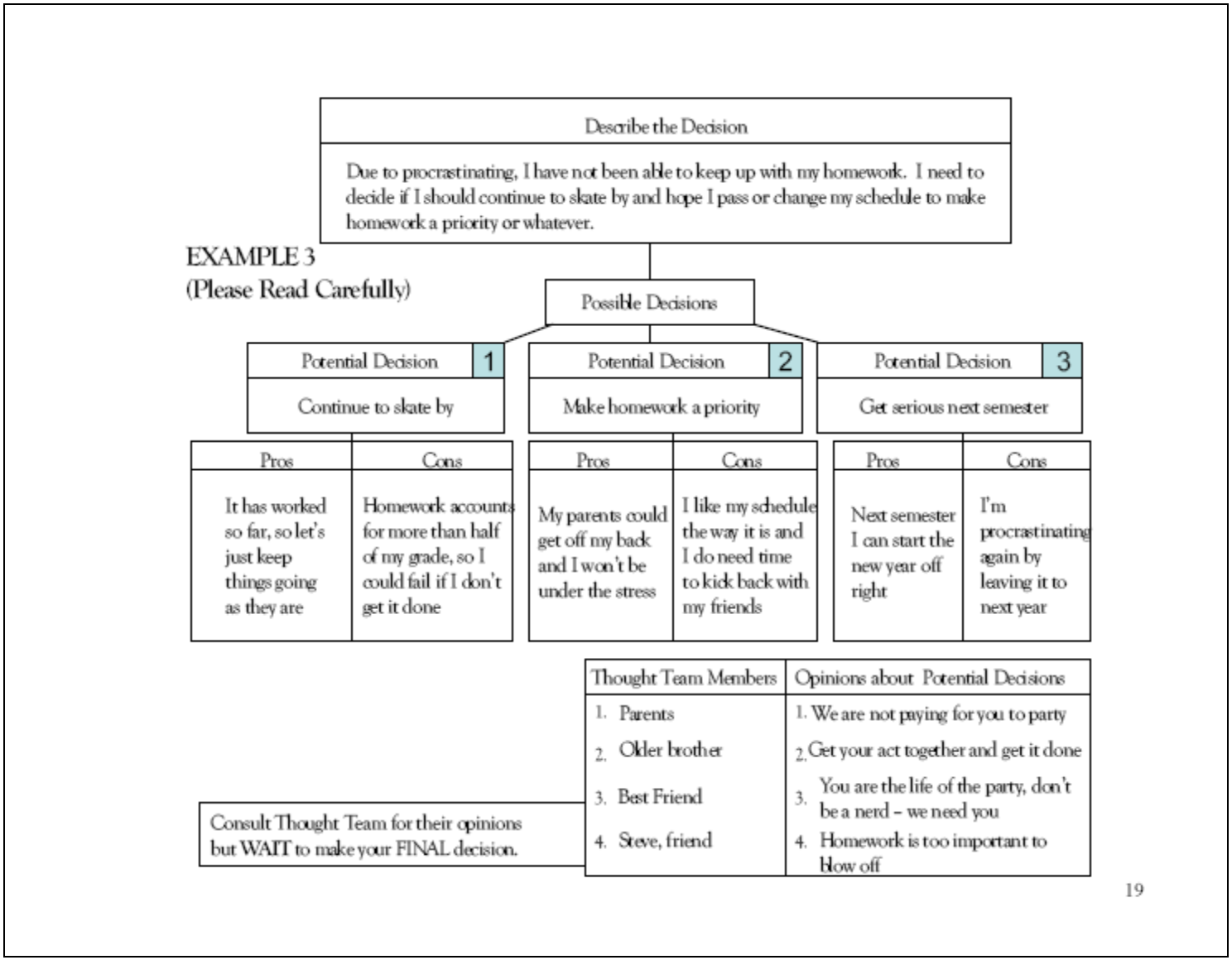
16

EXAMPLE 1
(Please Read Carefully)

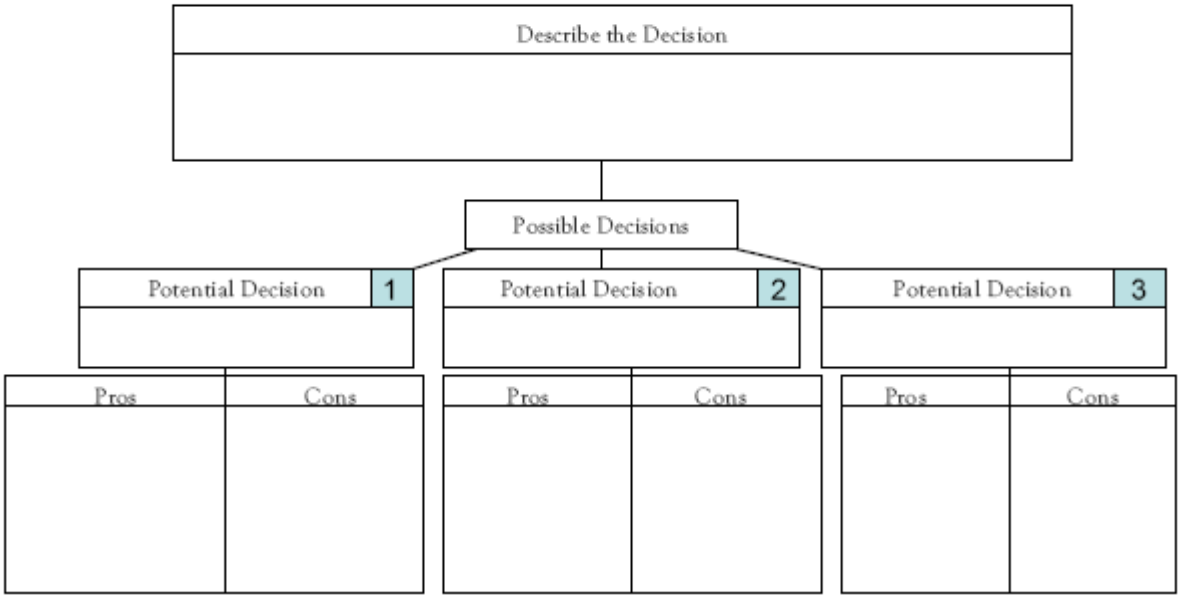


EXAMPLE 2
(Please Read Carefully)




Describe the Decision
Due to procrastinating, I have not been able to keep up with my homework. I need to decide if I should continue to skate by and hope I pass or change my schedule to make homework a priority or whatever.
EXAMPLE 3
(Please Read Carefully)
Possible Decisions
Potential Decision 1
Continue to skate by
Potential Decision 2
Make homework a priority
Potential Decision 3
Get serious next semester
Pros
Cons
It has worked so far, so let's just keep things going as they are
Homework accounts for more than half of my grade, so I could fail if I don't get it done
Pros
Cons
My parents could get off my back and I won't be under the stress
I like my schedule the way it is and I do need time to kick back with my friends
Pros
Cons
Next semester I can start the new year off right
I'm procrastinating again by leaving it to next year
Consult Thought Team for their opinions but WAIT to make your FINAL decision.
Thought Team Members
Opinions about Potential Decisions
1. Parents
2. Older brother
3. Best Friend
4. Steve, friend
1. We are not paying for you to party
2. Get your act together and get it done
3. You are the life of the party, don't be a nerd – we need you
4. Homework is too important to blow off
19

Now complete the map with the same decision you used previously.



Thought Team Members	Opinions about Potential Decisions
1.	1.
2.	2.
3.	3.
4.	4.

Consult Thought Team for their opinions but **WAIT** to make your FINAL decision.

20

Incubation

As previously mentioned, research has shown that allowing a time of *incubation,* where one can mentally move away from the decision for a time to allow the decision to develop has been found to be beneficial. Therefore, before arriving at your decision, please take a few minutes to read this story and write your thoughts about it.

The King's Anger

Have you ever gotten very angry and said or did something you truly regretted? Anger is an emotion that includes everything from being mildly irritated to being angry, resentful, furious or even enraged! The reason we get angry is because someone or something has violated an important rule or standard that we hold for our lives. Uncontrolled anger can be a hard but memorable teacher.

Genghis Khan was a great king and warrior. He led his army into China and Persia, and he conquered many lands. In every country, men told about his daring deeds, and they said that since Alexander the Great there had been no king like him. One morning when he was home from the wars, he rode out into the woods to have a day's sport. On the king's wrist sat his favorite hawk, for in those days hawks were trained to hunt. At a word from their masters they would fly high up into the air, and look around for prey. If they chanced to see a deer or a rabbit, they would swoop down upon it swift as any arrow.

Toward evening, the king rode through the woods. He knew all the paths, which led through a valley between two mountains. The day had been warm and the king was very thirsty. His pet hawk had left his wrist and flown away. It would be sure to find its way home. The king rode slowly along for he had once seen a spring of clear water near this pathway. If only he could find it now! At last, to his joy, he saw some water trickling down over the edge of a rock. He knew that there was a spring farther up. In the wet season, a swift stream of water always poured down here; but now it came only one drop at a time.

The king leaped from his horse. He took a little silver cup from his hunting bag. He held it so as to catch the slowly falling drops. It took a long time to fill the cup; and the king was so thirsty that he could hardly wait. At last it was nearly full. He put the put to his lips, and was about to drink. All at once, there was a whirring sound in the air, and the cup was knocked out of his hands. The water spilled all over the ground. The king looked up to see who had done this thing. It was his pet hawk! The hawk flew back and forth a few times, and then alighted among the rocks by the spring.

The king picked up the cup, and again held it to catch the trickling drops. This time he did not wait so long. When the cup was half full, he lifted it toward his mouth. But before it had touched his lips, the hawk swooped down again, and knocked it from his hands. And now the king began to grow angry. He tried again, and for the third time the hawk kept him from drinking. The king was now very angry indeed!

How do you dare to act so? He cried. "If I had you in my hands, I would wring your neck!" Then he filled the cup again. But before he tried to drink, he drew his sword. "Now, Sir Hawk," he said, "this is the last time." He had hardly spoken before the hawk swooped down and knocked the cup from his hand. But the king was looking for this. With a quick sweep of the sword he struck the bird as it passed. The next moment the poor hawk lay bleeding and dying at its master's feet. "That is what you get for your pains," said Genghis Khan.

But when he looked for his cup, he found that it had fallen between two rocks, where he could not reach it. "At any rate, I will have a drink from that spring," he said to himself. With that he began to climb the steep bank to the place from which the water trickled. It was hard work, and the higher he climbed, the thirstier he became. At last he reached the place. There indeed was a pool of water but what was that laying the pool, and almost filling it? It was a huge, dead snake of the most poisonous kind. The king stopped. He forgot his thirst. He thought only of the poor dead bird lying on the group below him. "The hawk saved my life!" he cried, "and how did I repay him? He was my best friend, and I have killed him."

He clambered down the bank. He picked the bird up gently, and laid it in his hunting bag. Then he mounted his horse and rode swiftly home. He said to himself" I have learned a sad lesson today, and that is, never do anything in anger."

Write your thoughts about the story.

24

Now describe your decision again and write out what you are going to do. You may look back at your map.

Describe the Decision

What are you going to do?

25

Now you are ready to look at the decision categories again. Choose another area for your second decision or use one of your own.

Decision Categories

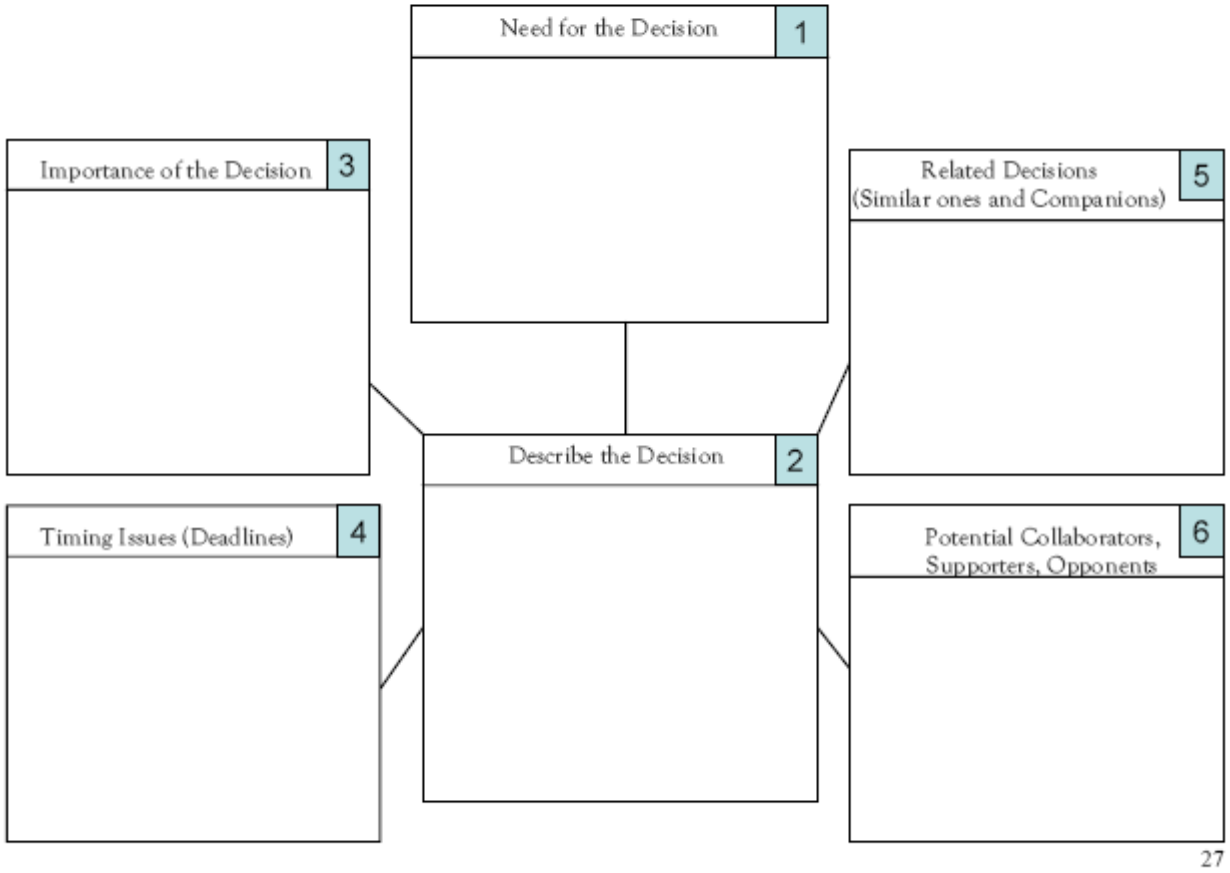
1. Self care – binge drinking, drinking, drugs, risky sexual behavior, healthy diet, regular exercise, getting more sleep, controlling spending/credit card debt

2. Career/School – choice of major/minor, attend graduate school, dealing with procrastination, preparations needed for the future

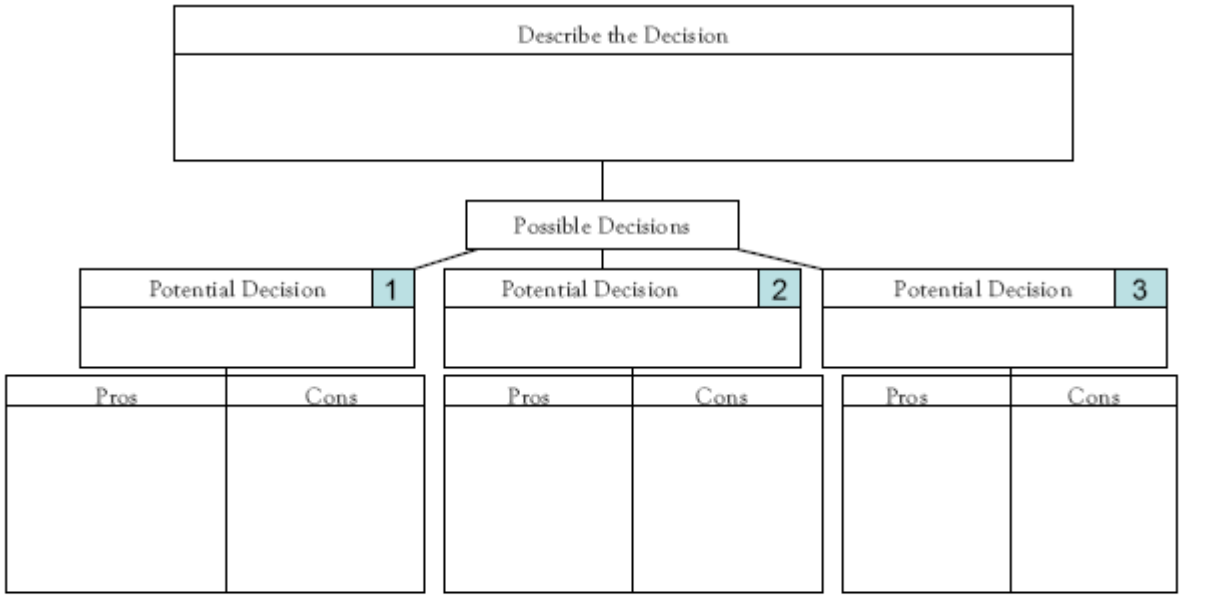
3. Social/Relationships – rekindling old friendships, breaking up with a significant person, taking a relationship to a deeper level

4. Recreation – decrease TV/games, deal with computer addictions, excessive shopping, partying too much

Now use your decision to complete the map for yourself.



Now complete this map with the same decision.



28

Incubation

Metaphors: Powerful Forces to Pain or Pleasure

The exact same force that drives Donald Trump also drove Mother Teresa. You might ask, "How can that be? They lived their lives so differently". And yet, both were driven by pain and pleasure. These two forces shaped both their lives.

Donald Trump has learned to achieve pleasure by having the largest and most expensive yachts, acquiring the most extravagant buildings, making the shrewdest deals – in short, accumulating the biggest and best toys. In interviews he's revealed that his ultimate pain in life is being second best to anything- he equates it with failure. In fact, his greatest drive to achieve comes from his compulsion to avoid this pain. It's a far more powerful motivator than his desire to gain pleasure. In interviews with Donald Trump, he often refers to life as a "test". This was his metaphor for life. Life is a test. You either win first place, or you lose – there is no in between.

By contrast, Mother Teresa is a woman who cared so deeply that when she saw other people in pain, she also suffered. Seeing the injustice of the caste system wounded her. She discovered that when she took action to help these people, their pain disappeared, and so did hers. For Mother Teresa, the ultimate meaning of life could be found in one of the most impoverished sections of Calcutta, the City of Joy, which is swollen past the bursting point with millions of starving and diseased refugees. For her, pleasure might have meant wading through knee-deep muck, sewage and filth in order to reach a shack-like hut and minister to the infants and children within, their tiny bodies ravaged by cholera and dysentery. She was powerfully driven by the sensation that helping others out of their misery helped alleviate her own pain. As she helped them experience a better way of life, she experienced life in a better way because giving them aid, gave her pleasure. She learned that putting yourself on the line for others is the highest good; it gave her a sense that her life had true meaning. Mother Teresa's metaphor for life was that it's sacred. Life is sacred.

Mother Teresa was not born to heroism. In fact, for over twenty years she taught the wealthiest children in Calcutta, India. Every day she overlooked the impoverished slums that surrounded the well-to-do neighborhood in which she worked. One night as she was walking down the street, she heard a woman crying out for help. Realizing the seriousness of the woman's condition, Mother rushed her to the hospital, where she was told to sit and wait. She knew

the woman would die without immediate attention, so she took her to another hospital. Again, she was told to wait; the woman's social caste made her less important than the others being treated. Finally, in desperation, Mother Teresa took the woman home. Later that night, the woman died in the comfort of Mother Teresa's loving arms. From that moment on, she decided she would devote her life to easing the pain of those who suffered around her and that, whether they lived or died, they would do so with dignity.

While it may be a stretch for most of us to liken the sublime humility of Mother Teresa to the materialism of Donald Trump, it's crucial to remember that these two individuals shaped their futures based upon what they linked pain and pleasure to. Certainly their backgrounds and environments played a role in their choices, but ultimately they made conscious decisions for themselves about what they linked to reward or punishment.

What are some of the experiences of pain and pleasure that have shaped your life? Whether you've linked these two feelings to drugs, for example, certainly has affected your decisions. So have the emotions you've learned to associate to cigarettes or alcohol, relationships, or maybe even the concepts of giving or trusting. Our behaviors, both conscious and unconscious, have been rigged by pain and pleasure from so many sources: childhood peers, moms and dads, teachers, coaches, movie and television heroes, and the list goes on. You may or may not know precisely when programming and conditioning occurred. It might have been something someone

said, in incident at school, an award-winning sports event, an embarrassing moment, straight A's on your report card – or maybe failing grades. All of these contributed to who you are today.

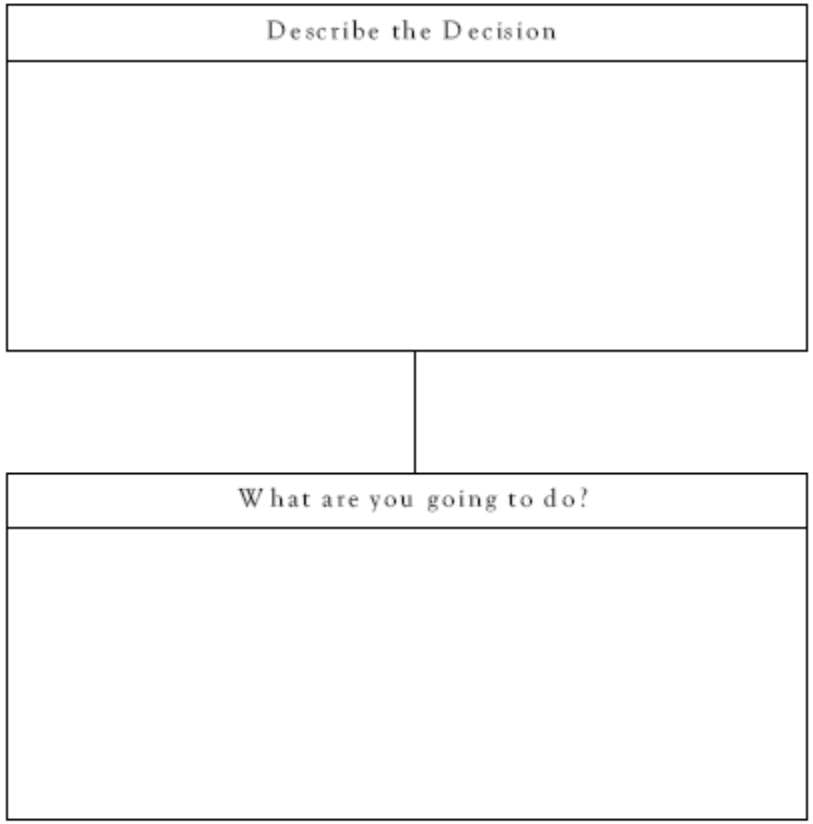
Whatever you link pain and pleasure to will shape your future. Therefore, we can learn to condition our minds, bodies, and emotions by linking these two feelings to whatever we chose. By changing what we link them to, we can change our behaviors. And most people will do more to avoid pain than they will to gain pleasure.

Consider adopting a metaphor for your life. Link this metaphor to either pain or pleasure. "Life is …" You fill in the blank. Use the "life is" metaphor to focus your future in the direction you want it to go. Will your life be a test like Donald Trumps' or sacred like Mother Teresa's?

Write your thoughts about the story.

33

Now describe your second decision again and write out what you are going to do. You may look back.



34

Please complete the Delta Reading Vocabulary now.

Homework

Your homework packet asks you to choose a third decision from the categories previously given or you may choose a decision of your own. Then complete the map. Next, read the story given and write your thoughts. Finally, write out your decision. **Please return next week with your homework packet so you may receive your full 5 hours of credit. Both sessions and the homework packet must be complete to receive full credit.**

35

A **logic puzzle** is a description of an event/gathering/contest, etc. Using the clues provided, you have to piece together what actually happened. This involves clear and logical thinking and decision-making! **Please work on these puzzles until time is called**. The answers are at the end of your homework packet.

LOGIC PUZZLE #1

After a local art theft, six suspects were being interviewed. Below is a summary of their statements. Police know that exactly four of them told one lie each and all of the other statements are true. From this information can you tell who committed the crime?

Alan said: It wasn't Brian, It wasn't Dave, It wasn't Eddie

Brian said: It wasn't Alan, It wasn't Charlie, It wasn't Eddie

Charlie said: It wasn't Brian, It wasn't Freddie, It wasn't Eddie

Dave said: It wasn't Alan, It wasn't Freddie, It wasn't Charlie

Eddie said: It wasn't Charlie, It wasn't Dave, It wasn't Freddie

Freddie said: It wasn't Charlie, It wasn't Dave, It wasn't Alan

Work out and write your answer here.

LOGIC PUZZLE #2

During a recent plane and train spotting contest, five eager contestants were lined up ready to be tested on their spotting ability. They had each spotted a number of planes (26, 86, 123, 174, 250) and a number of trains (5, 42, 45, 98, 105). From the clues below, can you determine what color jacket each was wearing, their position, their age (21, 23, 31, 36, 40) and the number of trains and planes spotted?

1. Simon spotted 44 less trains than planes.
2. Keith was 36 years old.
3. The person on the far right was 8 years younger than Simon, and spotted 174 planes.
4. James was wearing a beige jacket and spotted 37 trains fewer than Simon.
5. The person who was wearing a green jacket was 19 years younger than the person to his left.
6. Steven spotted 105 trains and 250 planes.
7. The person in the centre was 31 years old, was wearing a blue jacket and spotted 42 trains.
8. Alan, who was on the far left, spotted 26 planes, and spotted 72 trains more than planes.
9. The person who was wearing a red jacket was 4 years older than Keith and was not next to the person wearing a blue jacket.
10. The person who was next to the 31 year old but not next to the person who spotted 26 planes, was wearing an orange jacket, and spotted 45 trains.

Work out and write your answer here.

LOGIC PUZZLE #3

Albert is a keen dog admirer and over the years has had a number of dogs. He has had an Alsatian, a Dalmatian, a Poodle and a Great Dane, but not necessarily in that order. Albert had Jamie first. The Dalmatian was an adored pet before the Great Dane. Sammy, the Alsatian, was the second dog Albert loved. Whitney was housed before the Poodle and Jimmy was not a Great Dane. Can you tell each of the dogs' name and the order in which Albert had them?

Work out and write your answer here.

LOGIC PUZZLE #4

During the latest round of the Brain Bashers triathlon, Keith was fourth. Adrian is not the oldest, but is older than Duncan, who was not second. The child, who was next in age to the youngest, finished second. The child who finished in third place is older than the child who finished first. Billy is younger than the child who finished in third place. Can you determine who finished where and place the children in order of age?

Work out and write you answer here.

LOGIC PUZZLE #5

Santa always leaves plans for his elves to determine the order in which the reindeer will pull his sleigh. This year, for the European leg of his journey, his elves are working to the following schedule that will form a single line of nine reindeer:

Comet behind Rudolph, Prancer and Cupid. Blitzen behind Cupid and in front of Donder, Vixen and Dancer. Cupid in front of Comet, Blitzen and Vixen. Donder behind Vixen, Dasher and Prancer. Rudolph behind Prancer and in front of Donder, Dancer and Dasher. Vixen in front of Dancer and Comet. Dancer behind Donder, Rudolph and Blitzen. Prancer in front of Cupid, Donder and Blitzen. Dasher behind Prancer and in front of Vixen, Dancer and Blitzen. Donder behind Comet and Cupid. Cupid in front of Rudolph and Dancer. Vixen behind Rudolph, Prancer and Dasher.

Can you help the elves work out the order of the reindeer?

Work out and write you answer here.

LOGIC PUZZLE #6

Recently, Snow White's seven dwarfs met up with three of their friends and went to the theatre to see Bambi. From the clues below, can you determine the order in which they stood in the ticket line?

Grumpy was in front of Dopey. Stumpy was behind Sneezy and Doc. Doc was in front of Droopy and Happy. Sleepy was behind Stumpy, Smelly and Happy. Happy was in front of Sleepy, Smelly and Bashful. Bashful was behind Smelly, Droopy and Sleepy. Sneezy was in front of Dopey. Smelly was in front of Grumpy, Stumpy and Sneezy. Dopey was in front of Droopy. Sleepy was in front of Grumpy and Bashful. Dopey was behind Sneezy, Doc and Sleepy. Stumpy was in front of Dopey. Smelly was behind Doc.

Work out and write you answer here.

LOGIC PUZZLE #7

There are 5 houses in 5 different colors. In each house lives a person of a different nationality. The 5 owners drink a certain type of beverage, smoke a certain brand of cigar, and keep a certain pet. Using the clues below can you determine who owns the fish?

The Brit lives in a red house.
The Swede keeps dogs as pets.
The Dane drinks tea.
The green house is on the immediate left of the white house.
The green house owner drinks coffee.
The person who smokes Pall Mall rears birds.
The owner of the yellow house smokes Dunhill.
The man living in the house right in the middle drinks milk.
The Norwegian lives in the first house.
The man who smokes Blend lives next door to the one who keeps cats.
The man who keeps horses lives next door to the man who smokes Dunhill.
The owner who smokes Blue Master drinks beer.
The German smokes Prince.
The Norwegian lives next to the blue house.
The man who smokes Blend has a neighbor who drinks water.

Work out and write you answer here.

LOGIC PUZZLE #8

Five patients, all potential blood donors, are waiting in the doctor's surgery and are sitting on the bench from left to right. Can you determine the position of each patient along with their blood group, age, height and weight? Their ages are 5, 9, 30, 46 and 60. Their heights are 40, 48, 60, 65 and 74. Their weights are 40, 75, 96, 125 and 165.

The person on the far right is 37 years older than Jason, and is 60 inches tall.
Jason weighs 56 pounds more than his height.
Alan weighs 75 pounds and is 74 inches tall.
John is type AB and weighs 56 pounds less than Jason.
The person in the centre is 9 years old, is blood type AO and weighs 96 pounds.
Adam, who is the first, is 65 inches tall, and weighs 100 pounds more than his height.
The person, who is blood type O, is 25 years older than the person to the left of them.
Kevin is 60 years old.
The person, who is blood type A, is 55 years younger than Kevin and is not next to the person who is type AO.
The person who is next to the 9 year old but not next to the person who is 65 inches tall, is blood type B, and weighs 125 pounds.

Work out and write you answer here.

STRATEGIC DECISION-MAKING

HOMEWORK FOR DMTT

Janis T. Morey and
Donald F. Dansereau
Institute of Behavioral Research
Texas Christian University

Read through the following categories and examples given. Choose one decision-making area from the examples or choose one of your own.

Decision Categories

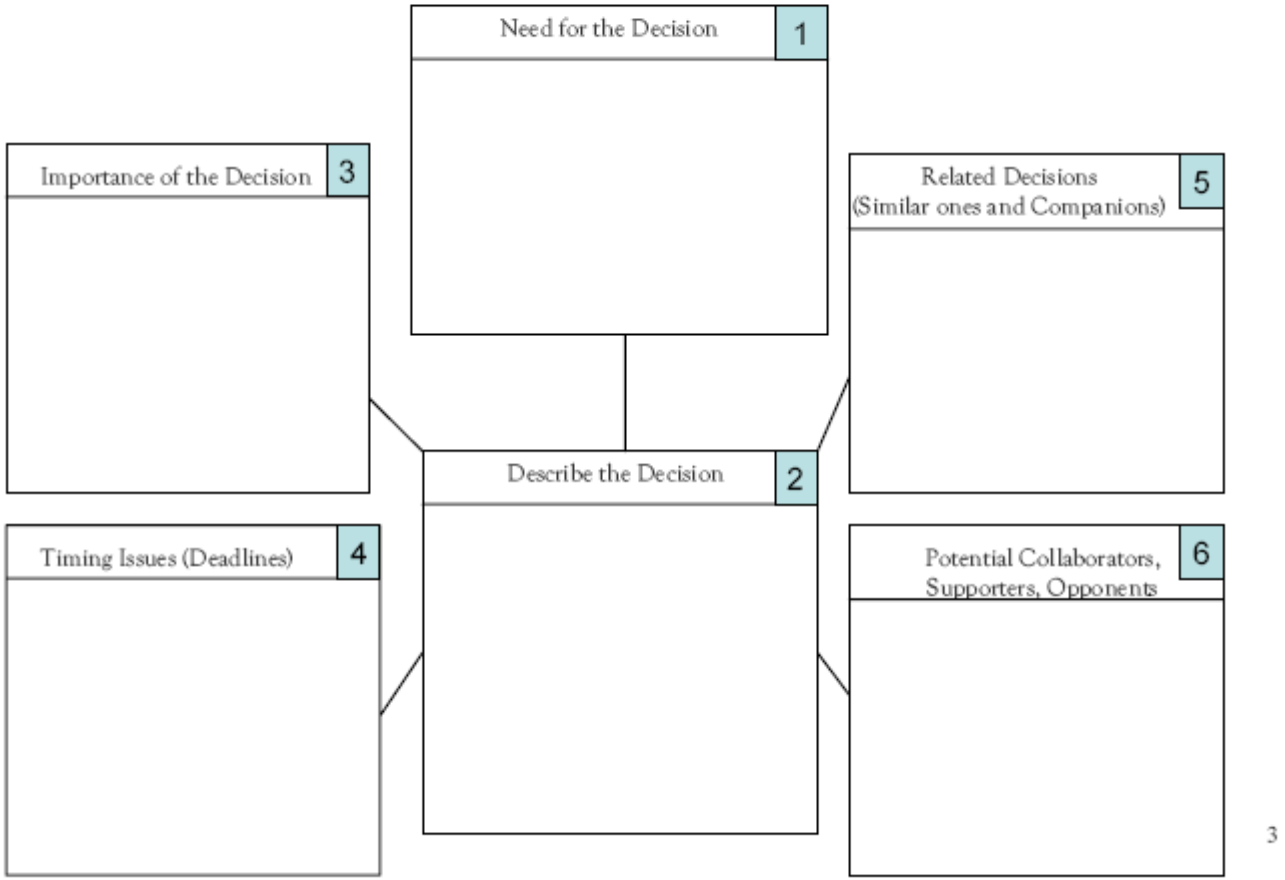
1. Self care – binge drinking, drinking, drugs, risky sexual behavior, improving diet, having regular exercise, getting more sleep, controlling spending/credit card debt

2. Career/School – choice of major/minor, attend graduate school, dealing with procrastination, preparations needed for the future

3. Social/Relationships – rekindling old friendships, breaking up with a significant person, taking a relationship to a deeper level

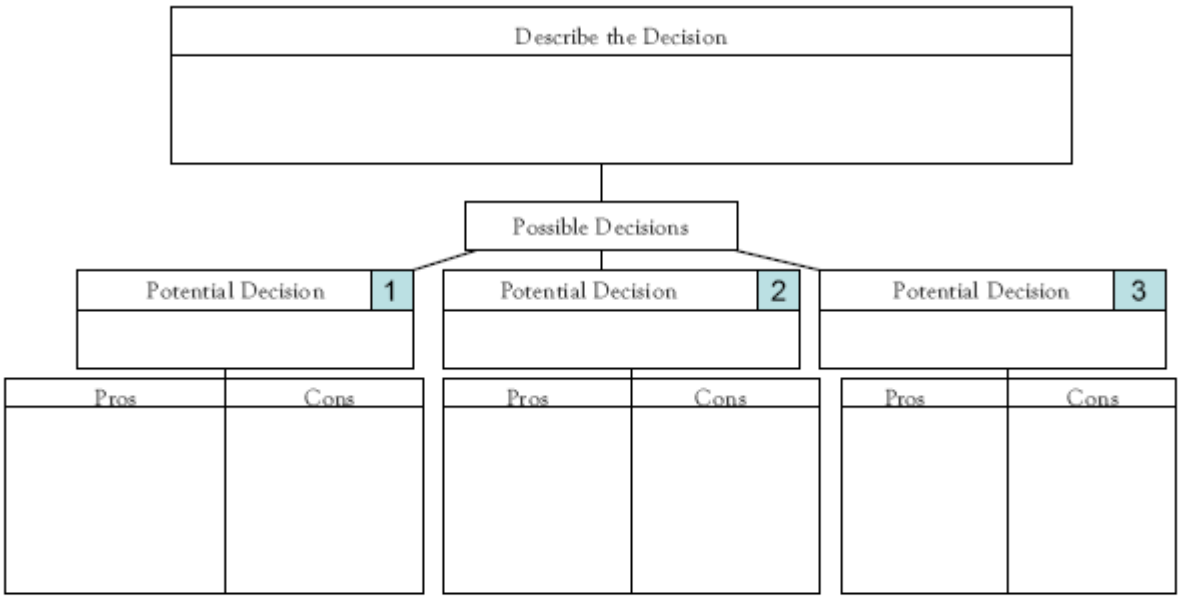
4. Recreation – decrease TV/games, deal with computer addictions, excessive shopping, partying too much.

Now use your decision to complete the map for yourself.



3

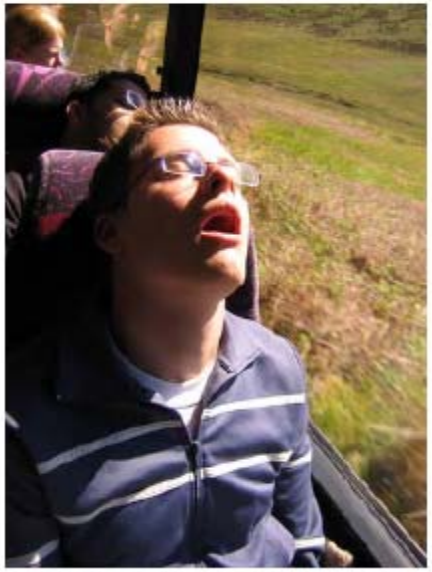
Use the same decision to complete this map.



4

Incubation

Before arriving at your decision, please take a few minutes to read this story and write your thoughts about it.



Sleep: A Powerful & Mysterious Master

Sleep is a powerful and mysterious master. Each night we abandon our companions, our work, and our play and drift off to the land of slumber. It is, in essence, a partial detachment from the world, where most external stimuli are blocked from our senses. One-third of our entire life is spent sleeping! And we have only limited control over the decision; we can postpone sleep for a while, but eventually it overwhelms us.

Normal sleep is characterized by a general decrease in body temperature, blood pressure, breathing rate, and most other bodily functions. But why do we sleep? What purpose does it serve? Despite many years of research, the joke remains that the only thing we are sure of is that sleep overcomes sleepiness. Whatever the function of sleep, there is good reason to believe sleep is designed solely for the brain. The brain relies on sleep to function effectively. Insufficient rest adversely affects the brain's ability to control speech, access memory, and solve

problems. A restful 8 hours in bed without sleep might allow your body to recover from physical exertion, but you would probably not be at your best mentally the next day.

Sleep deprivation is a common condition that affects 47 million American adults (almost a quarter of the adult population. Symptoms can interfere with memory, energy levels, mental abilities and emotional mood. Emotional stress or excitement can interfere with sleeping patterns, as can some medical conditions and medications. Food additives and caffeine can also make falling asleep difficult. Prolonged sleep deprivation is devastating to proper functioning, at least temporarily, and in some animals (though not in humans) it may even cause death. Sleep is essential to our lives- almost as important as eating and breathing.

In 1963, Randy Gardner was a 17-year old high school student with an ambitious idea for a San Diego Science Fair project. On December 28 he awoke at 6AM to begin. When he finished 11 days (264 hours) later, he had broken the world's record for continuous wakefulness (characterized by fast, low voltage EEG activity in both alpha and beta waves). While wake for those 11 days, Randy was under the continuous scrutiny of two friends, and during the last 5 days under the investigation of several fascinated sleep researchers. Randy used no drugs, not even caffeine.

The experience was not pleasant. After 2 days without sleep, Randy became irritable, nauseated, had trouble remembering, and could not even watch television. By the fourth day he had mild delusions and overwhelming fatigue, and by the seventh day he had tremors, his speech was slurred, and his EEG no longer showed alpha rhythms. Fortunately, he did not become psychotic, despite the predictions of some "experts". On the contrary, on his last awake night, he beat one of his better-rested observers at an arcade baseball game, and he gave a coherent account of himself at a national press conference.

When he finally nodded off, he slept for almost 15 hours straight, then stayed awake 23 hours to wait for nightfall, and slept for another 10.5 hours. After the first sleep, his symptoms had mostly disappeared, and within a week, he was sleeping and behaving normally. One of the most interesting things about Randy's ordeal is that there were not lasting harmful effects at the time; however, effects could possibly show up many years later.

So, what constitutes a good night's sleep? Research suggests that normal requirements vary widely among adults, from about 5 to 10 hours per night. The average length is about 7.5 hours, and the sleep duration of about 68% of young adults is between 6.5 and 8.5 hours. Over the last century, the average nightly sleeping time has been reduced by 2 hours from 9 hours a night in 1910 to 7 hours a night in 2002. What is the proper length of sleep time for you? The best measure of successful sleep is the quality of your time awake. You need a certain amount of sleep to maintain a reasonable level of alertness. Because of the wide variations among individuals, you must decide for yourself how much sleep you need. Yet, be aware that too much daytime sleepiness can be more than annoying; it can be dangerous if it interferes with driving, for example. The National Sleep Foundation has suggested that road rage may be caused, in part, by a national epidemic of sleepiness. In fact, a person, who has been awake for 24 hours, displays the same mental acuity as someone with a blood alcohol level of .1, which would be considered legally drunk in most states, including Texas. Two historic examples of severe sleep deprivation are the Exxon Valdez oil spill and the NASA Challenger shuttle explosion.

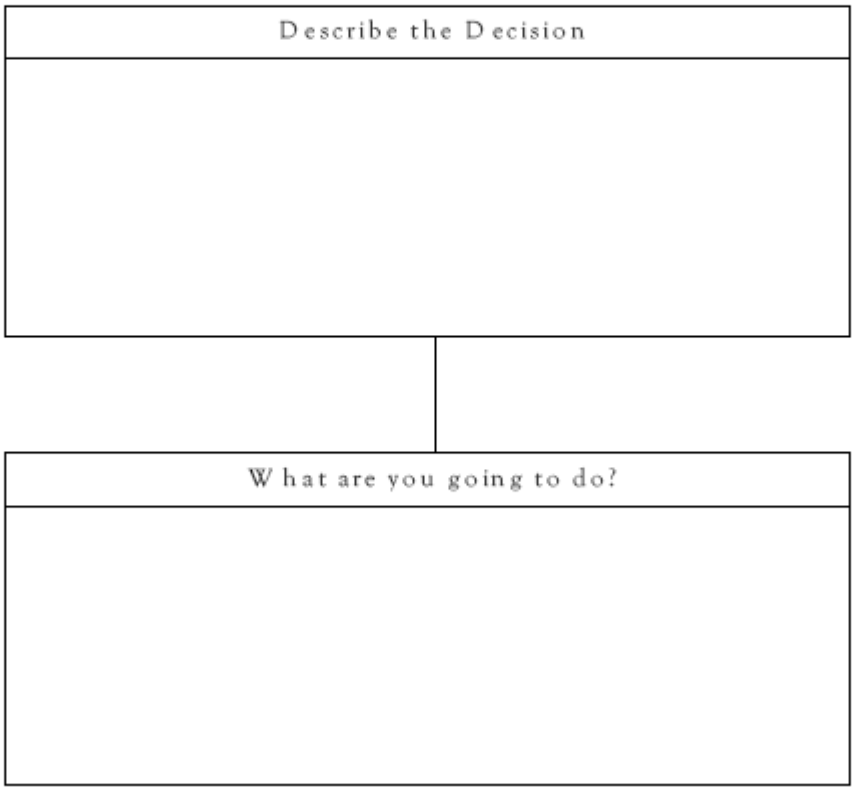
With today's increasingly on the go, around-the clock society, more people than ever are sleep deprived robbing their bodies of this necessary and vital biological function that is essential to our physical and emotional well-being. Clearly, sleep is indeed a powerful and mysterious master.

Write your thoughts about the story.

9

Now describe your decision again and write out what you are going to do.

You may look back at your map.



10

Returning Homework

Please return next week **date and time_____
with your homework packet so you may receive your full 5 hours of credit.

Both sessions and the homework packet must be complete to receive full credit.

Remember

"You will only get out of it,

What you are willing to put into it."

11

Answers to LOGIC PUZZLES

PUZZLE #1

Charlie committed the crime.

PUZZLE #2

Name	Jacket	Age	Planes	Trains
1 Alan	red	40	26	98
2 Steven	green	21	250	105
3 Simon	blue	31	86	42
4 Keith	orange	36	123	45
5 James	beige	23	174	5

PUZZLE #3

Albert had Jamie the Dalmatian first, then Sammy the Alsatian, Whitney the Great Dane and finally, Jimmy the Poodle.

PUZZLE #4

Name	Age
1 Duncan	youngest
2 Billy	next to youngest
3 Adrian	next to oldest
4 Keith	Oldest

PUZZLE # 5

Prancer
Cupid
Rudolph
Dasher
Blitzen
Vixen
Comet
Donder
Dancer

PUZZLE # 6

Doc
Happy
Smelly
Sneezy
Stumpy
Sleepy
Grumpy
Dopey
Droopy
Bashful

PUZZLE # 7

The German owns the fish and the table below details the full answer:

Nationality:	Norweg	Dane	Brit	German	Swed
Color:	Yellow	Blue	Red	Green	White
Beverage:	water	tea	milk	coffee	beer
Smokes:	Dunhill	Blend	Pall Mall	Prince	Blue Master
Pet:	cats	horses	birds	fish	dogs

PUZZLE #8

Name	Type	Age	Height	Weight
1Adam	A	5	65	165
2 Alan	O	30	74	75
3 Jason	AO	9	40	96
4 Kevin	B	60	48	125
5 John	AB	46	60	40

Vita For
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2003-------:	Texas Christian University, Fort Worth (General Experimental Psychology Ph.D. Program)
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PROFESSIONAL EXPERIENCE:

2001----: *Research Associate and CJ-DATS Project Coordinator*
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ABSTRACT

COMPONENTS OF DECISION-MAKING STRATEGIES FOR COLLEGE STUDENTS

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Timothy Hubbard, Professor of Psychology

George Joe, Associate Director, Institute of Behavioral Research

Previous research on college students' decision-making has shown they sometimes make impulsive, emotionally influenced, risk-taking and sensation-seeking decisions without fully understanding their decisions or the consequences. Utilizing decision-making components, this study addresses questions of group differences in response to training for decision description, decision mapping, multiple social perspective-taking (SPT), and incubation. The study was conducted in the fall of 2007 with a sample of Texas Christian University undergraduates (n = 283; males = 77, females = 206) enrolled in Psychology coursework. Findings for participants whose intervention included SPT were significantly better able to develop and evaluate decision

options, and develop coherent plans for effective decision-making advice than students who did not receive SPT training. Theoretically, it seems likely that SPT participants viewed the strategy as a priming device, bringing out what was already known, rather than providing a new learning experience. Participants receiving decision mapping reported they learned from the intervention and found it useful, but that learning did not translate into being able to enhance their ability to give decision-making advice. Additionally, neither SPT nor mapping contributed to the students' decision-making confidence levels. The study addresses a major gap in the college student decision-making literature and provides some preliminary evidence to suggest that the effectiveness of college students' decision-making ability will likely increase when provided with simple, yet powerful strategies. Implications and future research needs are also discussed.