

MOTIVATED ATTENTION:  
A MODEL FOR PROMOTING ACADEMIC RESILIENCE  
AND STUDENT RETENTION AT UNIVERSITY

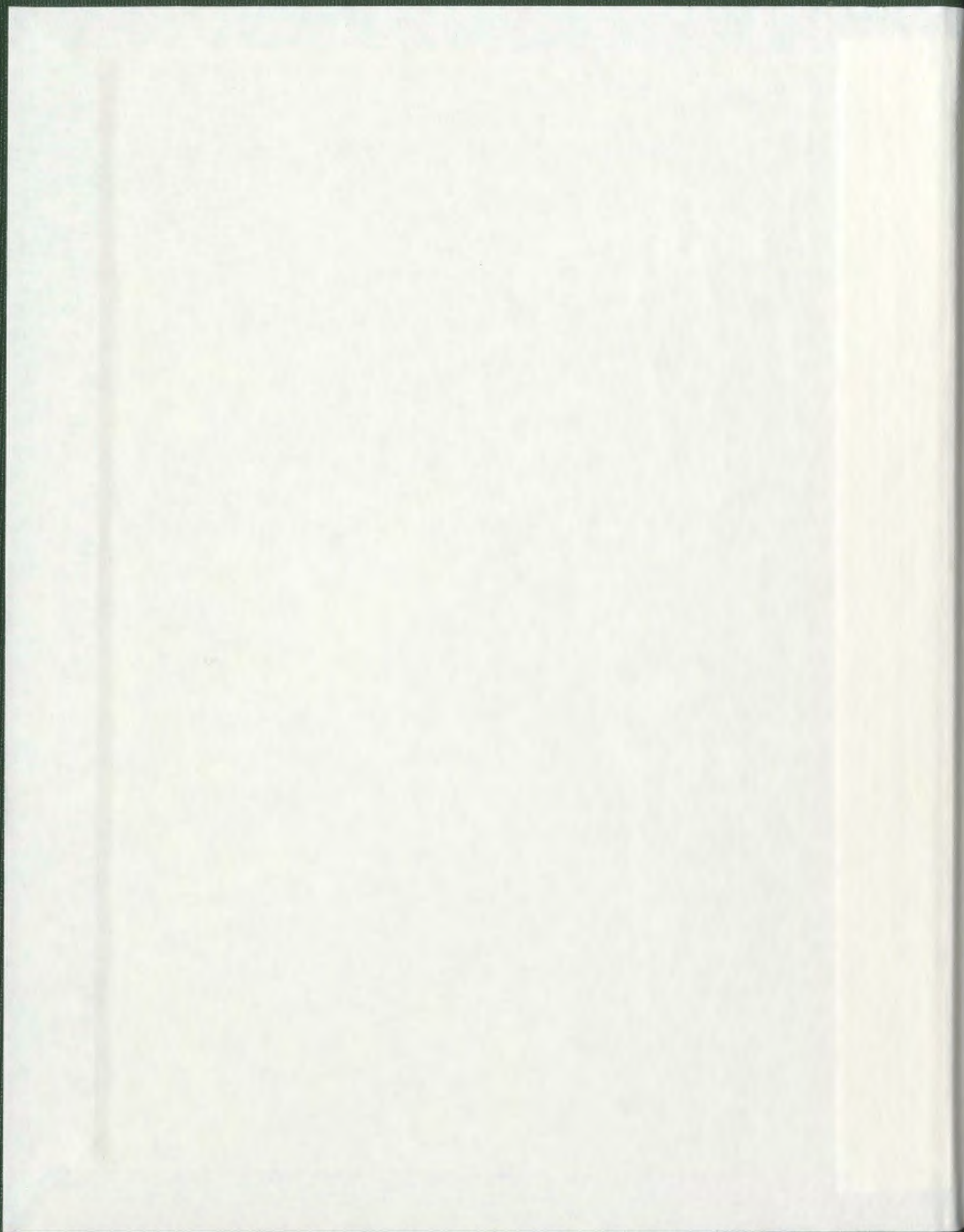
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Motivated Attention:  
A Model for Promoting Academic Resilience  
and Student Retention at University

by

Lester G. Marshall

A thesis submitted to the  
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## Abstract

Based on cognitive and motivational theory and research, this paper presents a conceptual model of how the success and failure experiences of students at university may be construed within working memory. In the model, goal-related information is represented dichotomously in working memory in terms of the perceived strengths and resources of the individual for achieving the goal, along with any weaknesses and threats to goal attainment that might exist. Because academic success and failure tend to be deeply felt personal experiences, mental representations are apt to include positive or negative cognitions, images, emotions, and physiological state information pertinent to the situation. The prevalence and content of such positive or negative information in working memory can persuade students to either continue at university or withdraw from further study. Retention initiatives designed around helping students establish and maintain positive working memory representations regarding their academic work should help to ensure they succeed.



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In writing this thesis, I was reminded of advice from life-long friends, Garry Ryan and Wilson Cave. While Garry taught me to, "paint one shingle at a time," Wilson admonished me to, "finish a race once it started." Both offered great advice!

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## Overview

This paper delineates many of the cognitive, motivational and behavioral issues that contribute to academic success or failure in post-secondary settings. The assumption made is that when students fail academic programs or drop out of post-secondary institutions, in a great many cases, responsibility for those losses must be shared by the institutions themselves. At some universities across North America, upwards of 50% of first-year students do not remain to complete degree programs (Tinto, 1993). The incidence of first-year students dropping out of universities is of central concern for many university administrators (Tinto, 1998). High rates of student attrition occur despite invigorated recruitment and retention initiatives across university campuses (Seidman, 1996). Too many students are dropping out at a time when student enrolment is clearly a priority within higher education.

An important time in the life of any student at university arrives in the form of grades that represent the culmination of a semester's work. A student's interpretation of grade results will have much to do with whether or not that student is likely to continue attending university. Weiner (1984, 1985) asserts that understanding the reasons why events occur in people's lives are important to those individuals. They search for causality, especially when the ramifications of an event are deeply meaningful to the

individuals affected. They need a reason to explain what happens to them. Weiner describes this attributional process as taking the form of an S-O-R contiguity. Environmental stimuli (S) trigger mental control processes within the organism (O) which, in turn, trigger the emotive and behavioral responses (R) of the individual. Thus, challenges within the university environment trigger cognitive and other processes within individuals that predispose their subsequent actions. This is true for students during a semester; it is also true at semester's end when students have to decide whether or not to return to university. Typically, the stimuli (S) that will trigger a student's withdrawal from university are course grades that are mediocre or poor, or that have little goal procurement value for the student.

Part One of this paper will explore the impact that academic evaluations and semester grades (S) have on students' consequential thoughts and other mental control processes (O). Of interest in Part One is what occurs in students' minds when students are passing or failing university. The balance of cognitive content and processes following academic success or failure predisposes students either to keep trying or to quit academically. Although there is a rich cognitive and motivational literature surrounding the tenets of perceived success and failure in the minds of individuals, the contention is that this literature is greatly underutilized in current university retention efforts. Part One establishes a conceptual model that discerns between the mental contents and processes of students who pass university in any given semester and those who fail. The model further distinguishes between the motivational mentations of students who plan to

continue at university and those who plan to quit, whether or not they had passed university previously. Pertinent cognitive and motivational theory and research is organized and presented in support of the model. Understanding how students mentally configure their success and failure experiences at university can help inform university student retention initiatives.

Part Two will introduce a retention program for students at risk of dropping out, and make policy recommendations for implementing retention efforts that are more congruent with the surmised “mind of the student.” Of special interest in Part Two is the student-university interface, or how universities might avail of the literature on students’ mental processes (O) to help students remain at university and succeed (R). From a retention perspective, having students return to university would be the desired student response, but it would critically depend on the adequacy of the university’s own response in attracting and retaining those students who are uncertain about wanting to continue at university. Interventions that can identify students’ thinking as efficacious or inefficacious to attaining academic goals should do much to foster students’ eventual success. Student retention initiatives should renew in students the desire and expectation that they would succeed academically in the future, as an alternative to withdrawing from university, i.e., students need to have and sustain a positive academic outlook rather than a negative one. Universities that are more proactive in helping students to surmount each evaluative hurdle and other challenges at university should do much to help students complete their academic programs.



The need for quality student-university interactions is implicit in university retention efforts, especially when such interactions foster increased engagement in learning. More students will be likely to achieve academic success when universities are dedicated to promoting such success in struggling and successful students alike. The academic mission of any university should be consistent with Deci and Ryans' (2000) criteria that students develop in competency, relatedness, and autonomy in their endeavours to become educated persons.

## **Part One**

### **An Elaborated Model for Promoting Academic Resilience at University**

## Chapter 1. The Theoretical Underpinnings and Rationale

This paper develops a model of students' thinking processes when they arrive at that crucial nexus in their university and personal lives, that of having to decide whether or not to continue with their studies. This paper does not formally examine students' specific thoughts about their successes and failures at university. Interviews were not conducted, questionnaires not administered, with implications for students' lives subsequently, although this line of investigation would be very worthwhile to conduct. In some instances, students' understanding of their own cognitive processes may even be unreliable (Bechara, Damasio, Tranel, & Damasio, 1997; Nisbett & Wilson, 1977), although student attempts at monitoring their own thinking, whether accurate or inaccurate, do provide crucial inputs for the subsequent regulation of behavior (Nelson, 1996). People typically act on what they think they know, often using quite incomplete information. This problem of understanding is particularly acute when students are at risk of dropping out of university. The great personal significance of such an event would probably bring highly self-relevant information readily to mind. Many students would base their decisions to leave university on very select and biased information regarding their learning efficacy or their status within the university, for example. A cognitive-motivational model that can help students make alternative choices to those that lead to failure or premature departure would de facto support their retention at university.

The proposed model stems from an investigation into cognate (and disparate) realms of cognitive, social cognitive and motivational research in order to elucidate what the literature may contribute to our understanding of student thought processes when students decide to remain at or depart from university. Much of the current research that offers student perspectives on program continuance at university highlights pragmatic situational variables, generally skirting the issue of the cognitive processes involved when one must decide whether or not to continue at university. Typically, reasons of cost, convenience, program quality and availability, and other practical inhibitors to completing an education are explored (Tinto, 1982). The reasons implicit in the conveyance of a grade report are cognitive; a student was or was not able to grasp course content to the satisfaction of instructors. However, many of the cognitive factors influencing a student's performance are often overlooked or handled inefficiently (McGivney, 1998). Many students experience poor grades due to waning interest, deficient study skills, or persistent difficulties with concentration.

When students encounter academic difficulty, there are programs at many universities designed to help students improve their chances for achieving academic success. In addition to learning-to-learn programs (Weinstein, 1994), there are programs that support the development of more self-efficacious thinking through attributional retraining (Perry & Penner, 1990; Wilson & Linville, 1985), rational restructuring (Goldfried, 1988), and stress inoculation training (Meichenbaum & Deffenbacher, 1988). These programs challenge students to adopt perspectives about their learning that would

permit them to have greater control over what might eventuate from their learning.

However, there is limited systematic training available to help students to cognitively restructure their thinking when they have to make such potentially life-changing decisions as whether or not to stay at university.

This paper explores self-regulation at deeply meaningful junctures in students' lives, when they have to decide whether to continue with their education or not. Emphasis will be placed on the portentous cognitive states of individuals that guide their subsequent actions. What can be gleaned from current cognitive and motivational research that might inform both students and universities in their attempts to attain mutually beneficial goals - the further educational development of the student and enhancement of the institution?

### *When Information is Dichotomized*

Although notions of success and failure seem antagonistic and exclusive, they reside at opposite ends of a continuum which is relativistic and subjective. Success for one individual is failure for another. Despite differing degrees of success and of failure, there remains that human propensity for catastrophizing, for summing and interpreting personally relevant events in reference terms that are extreme, to say the least (Seligman, 1991). The too frequent result is a dichotomization of some life dimension along a psychological dipole (Bannister & Fransella, 1971). Humans regularly dichotomize life events into right or wrong, good or bad, black or white, successful or unsuccessful (e.g.,



Pinget, 1981). One of the challenges of cognitive approaches to therapy is often to get individuals to generate more constructive alternatives to the limited and confining choices that people of all ages subjectively adhere to (Beck, 1976; Ellis, 1985; Meichenbaum, 1977).

To what extent do university students summate and dichotomize their experiences? According to Perry (1970), to a great extent. Indeed, one of the great challenges for university educators is to get predominantly first- and second-year students to develop their thinking from a dualistic position, that precept which proffers only right and wrong answers to questions, and that knowledge is correct or else it is wrong, with no options in between (Perry, 1970). Maintaining a dualistic position when studying commonly results in students engaging in rote memorization and in unquestioningly accepting textbook knowledge as the indelible truth.

To what extent do students summate and dichotomize particularly *significant* life experiences? In a system that rewards success and punishes failure via the ubiquitous (and ultimately dichotomous) grading scheme, students may tend to dichotomize information to an even greater extent as those in difficulty feel alienated from the institution that could censor their continued involvement. For young, still dualistically thinking students especially, it becomes a matter of the self against the system, the self against one's own shortcomings, one's performance against that of more successful peers, and so on. Grades congeal into the personally meaningful categories of pass or fail at university, of admission into program of choice or continued exclusion. Academic

indicators of success such as these supercede the subtler shades of academic performance that specific grades represent. For instance, the personal ramifications of not being admitted into a desired academic program are far greater than whether a student's grade-point average is 3.0 or 3.5, unless, that is, it marks the difference between getting a scholarship or not, another dichotomous distinction.

If humans are so predisposed to dichotomize life events, perhaps the cognitive process of dichotomizing deserves a fuller exploration in the context of a student's university performance. While there is undoubtedly tremendous utility in finding alternatives to the more extreme thoughts about academic success and failure, might not such an approach be all the more productive if it were known to the individual what thoughts he or she was to move away from and why? Alternatively, might not content inform process? Might it not be possible to set up alternative cognitive dichotomous arrangements that would spur a renewed awareness of what the individual could do to stay on or return to the path of academic success? This paper will attempt to provide some answers to these questions. Given the propensity of people for dichotomizing events in their world, it would be of considerable interest and value if such a pattern of organizing one's self in relation to the world could be more actively harnessed to the benefit of individuals. It will be argued in this paper that expressing one's difficulties and hopes in dichotomizing terms would have diagnostic utility. It would also afford individuals the opportunity to establish new and empowering dichotomous arrangements that would be more conducive to the achievement of personally meaningful goals.

*Evidence for Dichotomizing Attentional Processes*

Four issues important for understanding the role of attentional processes for academic performance will be reviewed next. Each one builds a line of reasoning that would support the usefulness of approaching stressful life situations in dichotomous terms, in terms of both positive and negative pressures for accommodating changes so that the person can become successful in realizing goals. Instead of moving away from dichotomous patterns of thought, as is so often recommended, such patterns may focus attention on the critical features of stressful situations that can provide useful information and insight for improvement. Thus, the first of the four issues discusses the crucial role that one's self-concept and attendant emotions play in dichotomized thinking. The second issue explores the interplay of the self with task and situational variables for conceptualizing the meanings of positive and negative events in one's life. The third issue will consider some plausible psychological and physiological mechanisms that may predispose individuals to dichotomize life events. Of special interest is the suggestion that when personal difficulties are being experienced, humans can be predisposed to act in a congruent negative manner, or they can choose to adopt an incongruent response that would facilitate more adaptive action toward personal growth. Finally, a rationale for dichotomizing information and an explication of a model for investigating the costs and benefits of conceptually bifurcating personally significant information will be developed.

*Sources of Attention I: The Valenced Self-concept*

Critical life events, as embodied in success or failure in a semester, are likely to implicate the self as part of one's worldview, or one's self-concept (Crocker & Wolfe, 2001; Inglehart, 1991). Yalom (1995) claims that an individual's self-concept is forged on the, "perceived appraisals of significant others" (p. 19). It is fair to think that a university evaluation constitutes significant appraisal from significant others, not only within the institution, but from family and peers. Yet, an individual's self-concept is no longer viewed within the literature as an exclusively singular and stable entity (Kihlstrom & Cantor, 1984; Markus & Nurius, 1986). According to Markus and Wurf (1987) the self-concept is a multifaceted system consisting of self-schemas or generalizations established from past experiences and possibly including "images, schemas, conceptions, prototypes, theories, goals, or tasks" (p. 301). Hence, an individual's self-concept is viewed as having a variety of possible expressions or emphases, some positive and some negative, depending on intrapersonal, interpersonal, situational, and environmental factors. Over a given time interval, a person may move from one facet of the self-concept to another in response to prevailing circumstances. At any given time, only one self-representation will be salient and constitutes what Markus and Wurf (1987) refer to as the "working self-concept," "a continually active, shifting array of accessible self-knowledge" or, that "part of the complete self-concept [which] will be accessible at any one time" (p.306). As such, the working self-concept may contain critical self-conceptions that help to define the person, and more transient self-conceptions that may

be especially pertinent to the moment.

Undoubtedly, people who are succeeding academically activate quite different self-representations within the working self-concept than do those who are not succeeding (Campbell, 1990; Cross & Markus, 1994; Dodgson & Wood, 1998). Many students react to perceived failure in different ways. Some otherwise successful students who do not perform up to their personal standards (e.g., obtaining B instead of A grades) might react as though they had failed, showing lowered self-esteem consistent with a negative working self-concept (Dweck & Leggett, 1988). In contrast, a perceived threat to the self in the form of failing grades will result in some students demonstrating resilience by finding some positive aspects of themselves to focus on (Dodgson & Wood, 1998). Others, meanwhile, will become despondent and quit in response to failing a semester. For instance, many students will no longer "feel like" continuing with their studies based upon their own negative phenomenological experience with learning (Sansone & Harackiewicz, 1996).

Personal failure is often accompanied by negative thoughts pertaining to the self in the knowledge or ability domain in which the failure occurs (Cross & Markus, 1994; Nurius & Markus, 1990). This may predispose an individual to withdraw effort in that domain, and perhaps in cognate domains as well through associative networking (Bower, 1981; Forgas, Bower, & Moylan, 1990). In this respect, people of low self-esteem appear to be especially vulnerable (Campbell, 1990; Dodgson & Wood, 1998). Effectively, for some, the experience of failing a semester could be interpreted as a failure of the self

across many if not all academic domains. Hence, academic failure seems to be integrally connected to the self-concept and the central role that it plays in meeting the challenges of self-regulation. As stated by Markus and Wurf (1987), "representations of what individuals think, feel, or believe about themselves are among the most powerful regulators of many important behaviors" (p.308). Indeed, the salient representations at the time that important decisions are made may well mediate subsequent actions.

This would be especially true in emotionally charged situations of significant personal import such as in academic failure (Crocker & Wolfe, 2001). Emotions, positive or negative, are inextricably tied to the self-concept when students receive feedback on their semester performance. Markus and Nurius (1986) claim that individuals can entertain multiple possible selves over time, many of which would be affectively valenced, positively or negatively. Possible selves can include the instantiation of self-images ranging from someone who is bumbling, incompetent, and unemployed (and sad, depressed, or frustrated), to someone who is accomplished and secure (and happy). Furthermore, Weiner (1984) argues that our feelings guide our actions, following an attribution-emotion-action pattern. He argues that emotions are triggered by causal attributions, or self-explanations, for the causes of events. Emotions, in turn, can direct or motivate a person's subsequent actions (Polivy, 1998; Stein & Levine, 1991; Weiner, 1984). As well, Bagozzi, Baumgartner, and Pieters (1998) contend that volitional activity toward achieving goals is fostered by anticipatory emotions concerning goal attainment.

Other emotion researchers corroborate the view that emotion primes an individual

to respond adaptively to situational pressures that can pose a perceived threat to the self (Boekaerts, 1993; Damasio, 1994; Forgas & Vargas, 1998; Frijda, 1988; Izard, 1993; Polivy, 1998). Emotions can also arise as a consequence of undertaking an action, ostensibly to serve as a guide to further action (Forgas, 1995). Thus, feelings from the body can function to guide behavior (Polivy, 1998). Tomkins (1987, cited in Kaufman, 1989) goes so far as to claim that affect is, "the primary innate biological motivating mechanism" (p.15), with different facial expressions in response to environmental circumstances serving to motivate feedback prior to taking action. Leary, Haupt, Strausser, and Chokel (1998) theorize that people are innately predisposed to monitor other people (using an evolved system they call a sociometer), searching for any signs of disapproval or rejection from others, and compensating accordingly to preserve self-esteem.

This paper takes the position that one's self-concept is that which centres the individual's decision-making processes, especially in times of personal difficulty. Depending on the nature of self-relevant thoughts and associated emotions, they will either contribute positively or negatively to decisions a student might make concerning whether or not to persevere at university, and to longer term outcomes for the person. At critical life junctures, it is to be expected that substantive information processing would involve the self, including awareness of one's emotions and, possibly, of any threats to the self that may exist in the environment (Markus & Wurf, 1987). It is tenable to regard the working self-concept as the active conduit through which processing of personally-

relevant information occurs.

*Sources of Attention II: The Self, the Task, and the Situation*

The following discussion suggests possible sources of attention to which a person may attend at any given time. Carver and Scheier (1981) distinguish between attending to the self and attending to the environment. Placing attention on information emanating from within the person and concerning the person, i.e., maintaining a self-reference of thoughts and feelings, constitutes a self-focus. Placing attention on information present in the environment is to keep an environment focus. Carver and Scheier (1981) support the position, however, that when one focuses attention on an object within the environment, one filters it according to one's self-concept and related knowledge already stored in memory. Indeed, Ingram (1990) suggests that people function optimally when they are able to maintain an equitable balance between self-focused inner attention and externally focused attention. In achievement contexts, both the self and the task have to be controlled for effective learning to occur (Norem & Cantor, 1990). According to Neisser (1976), "What is seen depends on how the observer allocates his attention, i.e., on the anticipations he develops and the perceptual explorations he carries out" (p. 39). Sensory information and personalized conceptual information combine in the cognitive construction of a moment in time. Hence, the self-concept remains an integral part of activity focused within the environment. In contemplating attentional foci, Forgas and Vargas (1998) further distinguish the task from the situational environment in which the



task is to be attended to. They, thus, claim that the processing of information is heavily influenced by three contextual variables - the person, the task, and the situational environment - depending on what is most salient and demanding of attention.

Derryberry and Tucker (1994) refer to "attentional orienting" as the tendency of a person to direct attention to that stimulus, intrinsic or extrinsic, which requires processing in any given context. They use the metaphor of a spotlight to denote this attentional feature. A person will typically be motivated to "spotlight" or direct attention to the most important information for that individual at the time, irrespective of whether that information resides inside or outside the person. Certain information will be selected over others. When confronted with failure, the person is likely to direct attention to his or her worrisome thoughts (Borkovec, Ray, & Stober, 1998), internal emotional states of anxiety, frustration, or anger (Lazarus, 1999), or else direct attention to that which is threatening in the situation itself (Pratto & John, 1991). An individual might also attend to his or her current physiological state (Damasio, 1994).

Individuals are generally motivated to protect their self-esteem and maintain a positive self-image (Leary et al., 1998). The self-concept and associated emotions, would thus be a major focus of attention, as previously stated. Paivio and Greenberg (1998) claim that, "Emotion functions to motivate behavior for the attainment of survival-related goals and, furthermore, functions to direct attention through the salience of emotionally laden information" (p.230). Information that is personally relevant, self-directed, or pertinent to goal attainment would receive close and sustained attention by the individual.

In this respect, emotions can serve as aids that help orient an individual toward finding solutions to problems. For instance, the negative emotions elicited as a result of receiving poor grades could culminate in self- and task-analyses focused on improving performance subsequently, and on retaining a self-positive view (Dodgson & Wood, 1998).

Alternatively, negative emotions can place attention on negative attributes of the self, the task, or situation. If an individual attends to a negative self-image (Markus & Nurius, 1986), dwells on professors' motives in grading (cf. Kluger & DeNisi, 1996), or questions institutional fairness, that person is apt to diminish efforts toward meeting academic success.

Kuhl (1986, 1994) argues for the importance of a self-focus in the selection and use of effective volitional strategies. Ultimately, though, he claims that successful individuals are likely to adopt a task-focus. He describes volitional competence as the ability to pursue a course of action while limiting competing thoughts, emotions, and motivations that might jeopardize goal attainment. Kuhl points out that a negative focus on the state of the self alone, as is common when people worry excessively, tends to interfere with effective self-regulation.

A task-focus can be broadly defined as inclusive of setting appropriate goals as well as carrying out specific task actions toward achieving those goals. Attention can thus be focused at different levels in a hierarchy of tasks that run from general to specific, identifying what has to be done to reach a goal. The highest level in hierarchical schemes have tasks that are usually self-oriented. Vallerand (2000) refers to this level as global

motivational, or involving the personality. Kluger and DeNisi (1996), in their feedback intervention theory (FIT), refer to this most general level of information processing as operating at the level of meta-tasks, that are largely self-related. Vallerand describes the next hierarchical level as contextual motivational, in which motivation to act is domain specific, for example, academic or social. Kluger and DeNisi also refer to a task motivation level. Finally, Vallerand identifies a situational motivational level, analogous to what Kluger and DeNisi calls the level of task learning, for the acquisition of appropriate knowledge and skills. In academic work, task learning may be further delineated at different hierarchical levels of abstraction, from general topics down to specific details, to facilitate learning (Ausubel, 1963; Cochrane, 1978; Kintsch & van Dijk, 1978; Meyer, 1975; Rumelhart & Ortony, 1977).

With so much to attend to, attentional focus shifts continually (Carver & Scheier, 1981; Derryberry & Tucker, 1994). However, much attentional orienting remains pertinent to the self for purposes of self-protection or self-enhancement. People are actively motivated to seek out information generally about the self (Carver & Scheier, 1981), concerning one's self-worth (Covington, 2000), of social acceptance (Bandura, 1988), of what others think of them (Damasio, 1994; Leary et al., 1998), of being evaluated (Dweck & Leggett, 1988; Kluger & DeNisi, 1996); of attending to that which is most diagnostic of one's abilities (Dweck & Leggett, 1988; Trope, 1986), of one's goals (Locke & Latham, 1990) and uncompleted intentions (Thoits, 1994). As well, the self is frequently attended to when specific tasks are to be performed. For instance, people are

apt to attend to that which interests them, or else they will find a way to increase personal interest in tasks to be performed (Sansone, Weir, Harpster, & Morgan, 1992).

According to Sansone et al. (1992), uninteresting tasks can be performed when individuals are able to adopt strategies for sustaining attention on the task, as an alternative to simply quitting the task. Of paramount importance to achieving eventual success, they claim, is maintaining the need or motivation to continue attending to a task even though the task may be unpleasant. Connecting lower level tasks to higher level personal values may help in this regard (Ryan & Connell, 1989). When people persevere, they often seem able to transform tasks into more interesting ones using strategies such as reframing the task in more positive and beneficial terms, competing against oneself, seeking more creative solutions, or applying different contextual cues to the task (Sansone et al., 1992). Attentional resources can thus be applied to finding suitable strategies for accomplishing tasks. Such attentional resources are, however, used to varying degrees by students, depending on which achievement goals they have adopted: mastery goals, performance-approach goals, or performance-avoidance goals (Covington, 2000; Elliot & Harackiewicz, 1996).

Achievement goals predispose individuals to attend to different self-concerns, or features of the task or situational environment. Achievement goals thus specify ways of responding to achievement tasks based on the application of established cognitive and affective patterns that guide people's behaviors (Ames, 1992; Duda & Nicholls, 1992; Dweck & Leggett, 1988; Elliott & Dweck, 1988). Students with mastery goals attend to

the task and situation so as to become more competent in what they do, exhibiting intrinsic motivation to learn by engaging in a task out of interest and enjoyment (Deci & Ryan, 1985; Dweck & Leggett, 1988). They focus attention on relevant strategies for gaining new understanding and skills, and on the utilization of effort to produce desired results according to "self-referenced standards" (Ames, 1992, p. 262). Students with performance-approach goals also have high competence expectations, but coupled with a perceived need for high grades which would command much of their attention (Elliot & Church, 1997). For performance-approach students, high academic grades suggest high intellectual ability, while low grades reflect low ability (Dweck & Leggett, 1988; Thompson, 1993). As a corollary, these students believe that they must outperform others academically in order to demonstrate their abilities and prove their self-worth, "in a society that values competency and doing well" (Covington, 2000, p.181). Hence, they approach tasks predominantly out of a fear of failure or of receiving a low-ability judgment, effectively turning learning opportunities into ordeals even as they succeed in their coursework. Students having performance-avoidance goals also appear to be guided by fear of failure, but, as well, by low competence expectations (Elliot & Church, 1997). Their attention is on managing anxiety associated with possible goal failure (Wegner & Wenzlaff, 1996), and on deflecting any notion that they may be incompetent in the event of a negative outcome (Pintrich, 2000). A pattern of diminished effort and persistence at tasks commonly emerges for performance-avoidant students (Bouffard, Boisvert, Vezeau, & Larouche, 1995). For these students, lack of effort provides a much more palatable

explanation for any substandard performance than attributing failure to incompetency (Nicholls, 1990; Pintrich, 2000), one that helps students protect their self-esteem in achievement contexts (Covington, 2000). For both types of performance learners, receiving a negative outcome after investing much effort would be very damaging to self-esteem indeed. In contrast, mastery learners will invest even greater effort when confronted with failure. It is evident that achievement goal orientation has a major influence on the way in which attentional resources are allocated by individuals to attain those goals, whether for self-enhancing or self-protecting purposes.

Finally, additional features of the task or environment may militate against individuals and impede their efforts to attain goals. Many students who are readily distracted will fail to apply effective strategies when they fall too far behind in work, receive ego-involving instructions perceived as threatening to them, or are asked to perform monotonous work (Kuhl, 1996). In these and other ways, already difficult academic tasks could be made more difficult by situational circumstances that could eventually lead a person to withdraw effort. For students in academic difficulty, the task of succeeding at university could be derailed by a perception that the university poses unfair challenges, is unreceptive to meeting their needs or facilitating their goal progress.

### *Processing Mechanisms for Dichotomizing Emotively Valenced Information*

Two psychological mechanisms - one operating via somatic markers and the other via affect infusion - may serve to regulate an individual's ultimate decision-making and

consequent actions, the former being more automatic and the latter more intentional. Damasio's (1994) somatic marker mechanism (SMM) permits individuals to use emotions in order to select from among various behavioral options and make informed choices during stressful decision-making. He claims that somatic markers are used to bias one's decision-making regarding possibilities for the future. Somatic markers are feelings that people experience when images generated in response to personal circumstances are accompanied by cognitive representations of physiological responses within the body or somatic state. Essentially, images 'mark' feelings that are tied to physiological or somatic states. The possibility of multiple images involving the self is consistent with Markus and Wurf's (1987) idea of a working self-concept except that an explicit connection to physiological state is also made. That thoughts and images have physiological consequences is well established (Whiteman, Verghese, & Petersen, 1996). Damasio, however, suggests a mechanism by which an individual's physiological state may also be represented in memory to influence that person's behavior.

According to Damasio (1994), the somatic marker mechanism alerts an individual to possible negative consequences for any actions that the person might take. The pairing of a negative somatic marker with an anticipated outcome serves to alert the individual to potential problems so that an alternative course of action, or corrective action, can be chosen. However, a positive somatic marker can further motivate ongoing action. While students ultimately are still free to decide whether or not to stay at university, somatic markers can predispose them to either continue with their studies or withdraw from

university. For instance, the unpleasant feelings connected to gut reactions in response to failure, may be coupled with self-images of continued struggles at university which would favor making decisions to avoid similar difficulties in future. These associations become automatic and readily primed for retrieval when an individual has had similar experiences in the past. This is because emotions become stored in memory in association with specific declarative and procedural knowledge (Berkowitz, 1993; Bower, 1981), standing ready to help discriminate between threatening and nonthreatening situations in the present or future (Frijda, 1986). Luu, Tucker, and Derryberry (1998) concur, adding that, "corticolimbic memory mechanisms ... form a base of anticipatory anxiety that may guide future experience and behavior" (p. 583). Gasper and Clore (1998), in their affect-as-information view, point to the importance of momentary or state affect as a source of information upon which evaluative judgements can be made. They report that people rely even more on state affect in decision-making when it is consistent with dispositional affective/physiological representations, conceivably somatic markers.

Both physiological state representations in memory and coincident images would be simultaneously active in working memory (Damasio, 1994), to impact on one's self-concept at the time. Indeed, according to Baddeley and Hitch (1974), working memory performs a central executive function by regulating attention so as to select what input gets processed into long-term memory to influence that person in the future. Much of that input is self-related. Indeed, the psychodynamic phenomenon of transference might be described using the somatic marker mechanism. In transference, as described by



Shapiro (1989), a client fuses the current image of a therapist with an image or past experience with someone else, marked by a "subjective sensation" in working memory, that guides the transference reaction. It is not uncommon for people who experience stressful events at an earlier point in their lives to react stressfully to similar events at a later time, whether or not an explicit association between the earlier and later events had been made in working memory (Jacobs & Nadel, 1985; Power & Dalgleish, 1997). The current situational cognitions and images could still trigger emotional and physiological responses associated with earlier and similar stressful events. Students having had bad experiences previously with their university studies may be physiologically and emotively primed through somatic markers in working memory to react strongly and adversely to having failed a semester. This problem may be particularly exasperated if an individual has low self-esteem (Dodgson & Wood, 1998).

The currently active or working self-concept espoused by Markus and Wurf (1987) is also considered to regulate behavior through its accessibility to working memory. Because the self-concept is so important to one's worldview, it is reasonable to think that self-representations are very salient to working memory and would contribute much to an individual's cognitive structures. Inglehart (1991) claims that, "[the self] normally takes up a larger portion of the person's cognitive representations than any other single cause" (p. 91). Situationally salient and central self-representations would be selected for processing in a limited-capacity working memory at crucial moments in a person's life. The shifting complex of active thoughts and related images would influence

further information processing, decision-making, and subsequent action.

According to Damasio (1994), in addition to the employment of somatic markers in memory to facilitate decision-making, students thus predisposed to approach or avoid alternative activities would still be free to choose from among alternatives. Thus, the process would be essentially two-fold. Somatic markers could predispose failing students toward making the more reflexive response to withdraw from university, while the reflective decision-making process could result in a student's continuation at university. Such decisions would also be coupled by emotional responses, whether preceding, paralleling, or pursuant to associated thoughts. The debate about whether cognition precedes emotion (Lazarus, 1984, 1995), or whether emotion precedes cognition (Zajonc, 1984) is immaterial here. Of importance is that emotions are paired with thoughts in some manner, and that the combination of the two predisposes individuals to act. Hence, personally meaningful thoughts are valenced. That is, positive self-related thoughts are associated with positive emotions while negative self-related thoughts are associated with negative emotions. Positive thoughts and emotions tend to, but do not always, trigger approach behaviors while negative thoughts and emotions tend to, but do not always, trigger avoidance behaviors (Boekaerts, 1993; Inglehart, 1991). While Weiner (1984) proposes a thought (attribution) - emotion sequence, both thoughts and emotions precede taking action. Furthermore, many attributions are internal, implicating various aspects of the self in achievement, including one's ability, effort, strategies, or lack thereof. Again, thoughts concerning the self are usually emotionally valenced.

Forgas and Vargas (1998) also propose a dualistic psychological mechanism for relating cognitions and emotions to action. They claim that emotional reactions and physiological responses are precipitated by people's cognitive appraisals of the meaning of situations in their lives. The affect infusion model (AIM: Forgas, 1995) identifies a two-stage process whereby affect is able to influence the executive thought processes involved when planning and implementing actions. Affect that is congruent with current information first becomes accentuated. This congruency effect of affect with cognitions is well-established in the literature (Bower, 1981; Forgas, 1990; Forgas & Bower, 1987; Mayer, Gaschke, Braverman, & Evans, 1992). People who are sad initially seek out information that further contributes to their sadness (Bower, 1981). Negative affect regarding a situation increases in negativity through affect infusion until some threshold is reached. Forgas and Vargas (1998) claim that the person is then compelled to switch from engaging in further affect infusion to implementing motivated processing strategies through affect control. This second stage of affect control is attained when an individual is able to selectively attend to information that is incongruent with the current affective state so as to diminish the negative affect and perhaps eliminate it altogether. The resultant affect-incongruent responses may serve not only to regulate a person's affect but to direct the person toward more productive planned activities.

A link between emotions and the self is suggested in other research. Berkowitz (1993) reports a congruence between one's thoughts and affect when attention is directed outward from one's self. The conjecture is that, ordinarily, the affective state predisposes

a person to have thoughts congruent with affect. However, when people direct attention inward to themselves and their own feelings, they tend to demonstrate affect incongruent thoughts by resorting to motivated and directed processing strategies. In another study, individuals with high self-esteem were able to switch more quickly from affect infusion to motivated affect control (and more task-appropriate behaviors) than were individuals with low self-esteem (Forgas & Ciarrochi, 1998, cited in Forgas & Vargas, 1998).

Affect infusion/affect control is somewhat analogous to problem-focused coping, as described by Lazarus (1995). According to Lazarus, problem-focused coping follows after the individual makes a primary appraisal that, "the environment itself [has changed] during an emotional encounter" (p.191), producing emotional change usually in a negative direction. That is, the modified environment is seen to be threatening to the person. In problem-focused coping, a person then tries to change the person-environment relationship in some manner to reduce or eliminate the problem and associated negative affect. When individuals conclude that a problem is insolvable, the tendency is to engage in emotion-focused coping by activating ego-defensive thoughts that reduce the negative emotions and permit people to feel better about themselves. Lazarus uses the term "core relational themes", to denote specific emotions - fear, anger, anxiety, sadness, guilt, happiness, gratitude, etc. - that are associated with the personal meanings that individuals construct in their daily lives. Kuhl (1996) distinguishes between self-regulation and self-control. Whereas problem-focused coping might be seen as a special case of self-regulation, emotion-focused coping would be considered an integral part of

self-control. While self-regulation maintains a focus on task completion, self-control tends to focus on the self, attendant emotions, and ego-defensiveness.

In yet another model for processing personally relevant information, the dynamic complexity model (DCM), Paulhus and Lim (1994) claim that emotional arousal diminishes, "the cognitive complexity of...perceptions, and...reductions in complexity result in polarized evaluations" (p.89). They used either exam apprehension or a loud white noise to induce high levels of arousal in their participants. When subsequently asked to make judgments of famous people or acquaintances, the tendency was for the judgments to become more extreme. Paulhus and Lim conclude that one's "evaluation becomes relatively stronger as secondary dimensions are discarded" (p.89). Under stressful circumstances, one would certainly expect self-judgments to become more pronounced. Even pre-schoolers and kindergartners tend to question their worth when they fail or are criticized on their work. They often adopt the extreme stance that not only is their work poor but that they, themselves, are somehow bad (Heyman, Dweck, & Cain, 1992).

People have to make approach/avoidance decisions regarding personal endeavours (Boekaerts, 1993; Polivy, 1998). When things are going well, people are generally motivated by their successes to continue their efforts. When in personal difficulty, the first tendency, when mechanisms such as the foregoing are considered, would be one that inclines the individual toward withdrawal of effort, or avoidance. Receiving negative feedback about one's academic performance would cause an unpleasant physiological

reaction that would be paired with negative images about one's place at university and one's prospects for the future. Somatic markers of sadness, frustration, anger, anxiety, etc., in response to such pairings in working memory would serve as information to suggest that continuing university under adverse circumstances might not be worthwhile. Beyond the somatic marker reaction and through affect infusion, continuing to think about one's difficulties would only lead to an increase in negative affect with congruent negative thoughts about one's options. At this stage, people might still be inclined to act in a manner consistent with their prevalent affect and thoughts concerning the problem. However, a point may be reached in which people will shift strategies and seek out information that is incongruent with their negative emotions, to render a more constructive and self-enhancing solution to their difficulties. Hence, while some students will be motivated by their continued success, some will withdraw following failure; yet others will persevere despite failure.

### *Dichotomous Arrangements in Memory*

As seen in the literature, many popular theoretical explanations for psychological phenomena are provided through dichotomous arrangements (cf. Dodgson & Wood, 1998; Dweck & Leggett, 1988; Funder, 1998; Kluger & DeNisi, 1996; Kuhl, 1996; Miller, 1987; Seligman, 1991). Respectively, these include high versus low self-esteem, mastery versus performance learning, the delay or non-delay of gratification, feedback versus no feedback, self-regulation versus self-control, monitoring versus blunting, and

optimism versus pessimism. It seems that the majority of psychological researchers are reductionist in seeking after the "cleanest" or simplest explanations for phenomena under consideration. In many cases, dichotomized psychological constructs are devised by cognitive researchers to reflect the ways in which people are surmised to think and act. Just as researchers find it convenient and useful to think about and construct theory through simplification of concepts, it is not unreasonable to think that people typically would entertain personal theories about the significant events that do occur in their own lives. Many of these personal theories are apt to be understood in dichotomous terms, especially if the individual is experiencing significant stress around the event (Paulhus & Lim, 1994).

Attentional processes work in accord with working memory (Cowan, 1993), and, while estimates of working memory capacity do vary, it is well established that memory capacity and associated attentional resources are very limited. Miller (1956) argued that working memory is limited to processing  $7 \pm 2$  units of information within any 30-second time interval. Graesser and Mandler's (1978) claim was even more conservative: at  $5 \pm 1$  units of information from lists of unrelated words. As processing difficulty increases, working memory capacity decreases, as evidenced in reading. Efforts to integrate information being read and relate it to previously read information and prior knowledge can reduce capacity to attend to meaningful text units (Adams, 1991; Just & Carpenter, 1992; Kintsch & van Dijk, 1978). For this reason, less skilled readers will either fail at comprehending text or require much more time to do so (Adams, 1991). With added

processing demands in reading, it is not uncommon for working memory capacity to be between 2 and 4 units of meaningful information from text (Kintsch & van Dijk, 1978). It might generally be said that as the information processing burden increases, working memory capacity decreases (Carver & Scheier, 1981).

Because of additional processing requirements within a stressful situation, an anxious person is apt to focus his or her attention on only a few pertinent pieces of information regarding the situation itself. Effectively, the person's attentional resources become limited (Eysenck & Keane, 1992; Mathews, 1990). As well, failure leads to a relative narrowing of attention. This is what Derryberry and Tucker (1994) refer to as attentional narrowing, limiting access to working memory of only small amounts of environmental information and stored information from long-term memory. When faced with failure, not only does an individual orient attention toward the source of the threat, that person is also likely to narrow down the range of ideas that receive attention in working memory. Derryberry and Tucker claim that when attention is so confined, the additional strength of the remaining information represented in working memory would help ensure that the held information receives additional processing. Of particular interest is what consumes a person's attention to receive processing at such times.

Pertinent findings come from diverse sources. In animal behavior research, a prey is apt to attend first to a predator in the immediate vicinity, and then, as well, orient to information in the environment that might afford an escape (Toates, 1986). A human infant may be seen to alternate attention between an anxiety arousing stranger who has



just entered the room and the presence of a reassuring mother - essentially shifting between danger and safety (Rothbart & Derryberry, 1981). In therapy, many obsessive-compulsives express a tremendous urgency to make a decision for change - to select and do something different as an alternative to what they are presently doing and to do so by a certain deadline (Shapiro, 1989). People who are anxious about some anticipated event also search out ways for preventing the threat before it occurs (Mathews, 1990). Meanwhile, perfectionists alternate between unrealistically high standards and an excessive preoccupation with making mistakes (Frost, Marten, Lahart, & Rosenblate, 1990). Indeed, many people seem to spend much of their time in self-regulatory efforts intended to promote positive outcomes for themselves while minimizing or preventing negative outcomes (Higgins, 1997).

Derryberry and Tucker (1994) claim that attentional processes following failure are directed predominately toward two sources of information. First, attention is directed toward any perceived threats in the environmental situation. Presumably, a primary appraisal is made that the stimulus is indeed threatening (Lazarus, 1995). Second, failure also triggers attentional orienting toward possible ways of addressing the threatening circumstances. This process reflects what Lazarus refers to as making a secondary or coping appraisal, seeking a way to reverse, improve, or even just manage the situation. Put another way, an individual can appraise a situation as being threatening to his or her well-being, and then access his or her personal resources for adequately meeting the demands of that situation (Boekaerts, 1993). Attending to the threat would be an instance

of selecting an input into working memory; while attending to personal resources would be a central processing activity for organizing an appropriate response (Sergeant, 1996).

Such limited and directed attentional resources can readily be accommodated within a working memory conceptualization that is intricately connected to long-term memory and the self-pertinent issues that reside there. For instance, Cowan (1993) suggests that working memory should not be viewed as a completely separate memory system from long-term memory, as some others have argued (Atkinson & Shiffrin, 1968; Waugh & Norman, 1965), but as that portion of long-term memory that is temporarily activated in a particular time frame. According to this interpretation, working memory capacity would indeed be quite limited in capacity, with the focus of attention representing a subset of relevant information, or that information which is currently activated in working memory. Self- and task-pertinent information in long-term memory would be kept directly accessible to working memory via retrieval cues in working memory, much in the same manner as a chess master can interface the locations of chess pieces on the board with knowledge of the game (Ericsson & Kintsch, 1995). At any given moment, the activated working memory is likely to include self-relevant information from long-term memory and the immediate environment that would be consistent with Markus and Wurf's (1987) idea of a working self-concept, especially when a person is faced with personal difficulty.

Hence, a working memory model can be suggested for handling stressful conditions, especially personal failure. In relation to coping with and recovering from a

setback such as academic failure, dichotomous informational arrangements in working memory can be explored for their effectiveness in understanding the salient information upon which students may base their decisions to continue at university. Conceptually, dichotomous arrangements might be expressed as follows:

$$\{NC, NI, NE, NPS : PC, PI, PE, PPS\}$$

The above working memory representation identifies two clusters of information that may reside concurrently, or compete for attention, in memory. The first cluster, formed in response to a threat, represents salient negative cognitions (NC), images (NI), emotions (NE), and physiological state representations (NPS) associated with failure. The second cluster consists of positive cognitions (PC), images (PI), emotions (PE), physiological state representations (PPS) corresponding to a more positive outcome than failure would suggest. This cluster would be formed to facilitate adaptive responding to the threatening situation.

In general, there would be an infusion/effusion of specific cognitions, images, emotions, and physiological state information into working memory in any given time frame. Negative cognitions in the form of cognitive appraisals (Lazarus, 1995) or causal attributions (Weiner, 1984) would operate in congruence with specific situational and negative self images (Markus & Nurius, 1986), negative emotions (Bower, 1981; Forgas & Vargas, 1998) and physiological state (Damasio, 1994) to predispose a person to

withdraw from an adverse situation. Any of these sources of information could be residing in working memory in an instant of time, capable of priming access to any other source of congruent information. In an associative long-term memory paradigm, a complete memory representation would consist of declarative and/or procedural information nodes connected to emotion nodes capable of priming each other for retrieval into working memory when the information is needed (Bower, 1981, Frijda, 1986). Images and physiological state information could be accessed as well (Damasio, 1994). While the information selected for processing may change continuously in working memory, much of it would remain pertinent to the significant personal problems or objectives of the individual (Carver & Scheier, 1981). Such self-relevant information would be highly accessible to working memory, increasing the likelihood that, "stimulus information related to [self-relevant] knowledge will receive attention" (Higgins, 1996, p. 159).

At any given time or in proximal time succession, it is possible that momentarily salient negative information could be coincident with momentarily salient positive information in working memory, hence the dipolar arrangement shown above. Negative and positive information in working memory could fluctuate in relative strength from one time interval to another. When negative information prevails, a negative working self-concept is likely to be activated; when positive information prevails, a positive working self-concept is likely to be experienced (Markus & Wurf, 1987). However, as argued by Derryberry and Tucker (1994), when an individual can attend to both positive

(relieving) and negative (threatening) information in working memory, that person is better, "prepared for improving as well as deteriorating conditions" (p. 175). The person can garner positive resources to produce a more responsive and adaptive motivational state while minimizing the risk of experiencing further loss. Consequentially, it is important that the working memory balance sheet favor information about beneficial resources that could lead to success, while remaining attentive to potential impediments to achieving success. The stronger working memory representation (or working self-concept) will tend to dictate which motives will be stronger in influencing subsequent actions (Polivy, 1998).

That only limited information resides in working memory increases the strength of the informational representations in memory, and their relative contribution to motivated behavior. For instance, Derryberry and Tucker (1994) claim that anxious people readily attend to salient representations of plausible threats, along with possible coping alternatives in working memory. Of course, some individuals may be wholly pessimistic, in whose working memory only negative information resides (Seligman, 1991). Some anxious individuals would therefore be candidates for depression, with ruminative thoughts alternating between a feared future event and perceived past failures (Nolen-Hoeksema, 1996). In extreme instances, feared future events for such individuals might be seen to be completely unavoidable. Other individuals may be entirely optimistic, allocating working memory capacity to only positive information (Cantor, Markus, Niedenthal, & Nurius, 1986). However, they might well be inclined to overlook

or underestimate the potential impact of threats to themselves when they do occur, and not respond as effectively to the threats as they could have. As evident in multimodal therapy, the alliance of congruent positive information or of negative information in counsellor-client interactions can be the subject of therapeutic focus (Lazarus, 1989). As well, Lewin (1951) delineated an approach called force-field analysis, in which clients could come to identify those forces in their lives that could facilitate goal attainment, while recognizing and responding to other forces that could restrain goal attainment. In therapeutic situations, individuals often are helped to identify and commit to a preferred life scenario for the future that represents a clear step up from the problems that exist within their current life scenario (Egan, 1994).

Thus, in endeavouring to resolve personal problems, it would seem beneficial to have two types of information receiving attention in working memory: information which pertains to the threat, and relieving information which promises a solution. Dichotomous arrangements in working memory hold promise for helping students understand and evaluate their current thinking about why they are either succeeding or failing at university. Conceptualizing problems dichotomously may also offer insight into alternative thinking patterns that might prove more conducive to students arriving at efficacious solutions for their personal problems.

As a cautionary note, dichotomous arrangements in working memory are intended to portray information pertinent to personal problems only, so as to manage the problem effectively. They would not preclude working memory exposure to other information

such as manifested in thoughts about the world or other personal, family, friendship, and leisure activities. However, strengths in these other life domains would surely serve to augment an individual's working self-concept. To maximize personal growth, students should strive to strike a reasonable balance between attending to academic goals, whether experiencing difficulty or not, and other personal pursuits. After all, attempts at excessive overregulation of one's thoughts and activities, such as witnessed in obsessive-compulsive behavior, may even underscore clinical symptomatology (Ainslie, 1996).

### *Self-regulatory Successes and Failures at University*

Four self-regulatory contingencies will be developed next, based on student academic realities and subsequent actions taken. The academic realities are whether students pass or fail the semester. The subsequent actions taken are whether students continue with their education or withdraw from university following the semester result. The four broad categories of student action and decision making include those students who Pass and Continue at university, those who Pass but Discontinue university, those who Fail and Discontinue, and those who Fail but still plan on Continuing at university if permitted. Of course, each of these groups is far from homogeneous. For instance, students who pass a semester and continue into the next semester range from scholarship students to those who barely manage to pass. As well, issues of cognitive content and processes as presented in each of the four categories are not restricted to those groups

only. They merely represent a "best fit" of relevant theory and research to each broad category of student, as determined by the author. Theory and research developed in any one category may well apply to students in one of the other categories as well. The aim is to survey the cognitive and motivational processes that may well underlie student decision-making. Some processes are more conducive to the achievement of academic success than others. Other cognitive and motivational processes seem to interfere with students' attainment of academic objectives. In the next four chapters, effective and ineffective forms of thinking (and behavior) will be elucidated as they contribute to student outcomes, i.e., in whether or not students continue to attend university.

This paper is developed, in part, from the self-regulatory indicators of control theory (Carver & Scheier, 1981, 1998), combined with research on self-regulatory failure (Baumeister & Heatherton, 1996). Both viewpoints appear to be congruent with the notion of an active working self-concept as discussed by Markus and Wurf (1987). According to Carver and Scheier, there are three requirements for effective self-regulation. The first requirement is the selection of realistic standards, consisting of such feasible future standards as goals (Austin & Vancouver, 1996; Locke & Latham, 1990), values (Schwartz & Bilsky, 1990), and future states such as possible selves (Markus & Nurius, 1986), personal strivings (Emmons, 1986), and life tasks (Cantor & Kihlstrom, 1987). Carver and Scheier claim that standards are best set and met in relation to an individual's conceptualization of self. Kuhl (1996) adds that self-related intentions are necessary if suitable volitional strategies are to be employed toward the attainment of



goals. However, he contends that those intentions have to be task oriented rather than state oriented for effective self-regulation. In other words, the self has to be seen as a harbinger of action and not that which focuses only on alternate internal states that interfere with goal maintenance. Consequently, the second requirement for self-regulating behavior is that individuals are able to apply appropriate operators to tasks in order to produce changes in the direction of established standards. Finally, the third requirement is that people effectively monitor their activities to ensure that their progress toward pre-set standards is satisfactory, and to adjust their rates of progress as indicated.

Students who are passing at university each term would be those who are able to fulfill adequately all three of the self-regulatory requirements stipulated by Carver and Scheier (1981, 1998). These students, in being able to set standards, employ operators, and use monitors to make steady goal progress, are essentially exemplars of what all students need to do to succeed academically. These students who Pass and Continue at university will be discussed at length in chapter 2. Based on control theory, failure to select suitable standards, satisfactorily employ operators, or monitor goal progress are the three main reasons why students do not reach their academic objectives (Baumeister & Heatherton, 1996). Each of the three self-regulatory failures will be considered in separate chapters on those who Pass and Discontinue university (chapter 3), those who Fail and Discontinue university (chapter 4), and those who Fail and Continue (or wish to continue) university (chapter 5), respectively. In many instances, students need to re-acquire control over the events in their lives instead of relinquishing that control to

their environment. But such active coping, when trying to remedy an important academic dilemma, can strain or exceed the resources - attentional, cognitive, motivational, and behavioral - that a person would require in order to be successful (Lazarus & Folkman, 1984). There are myriad impediments to achieving academically, culminating in the formative feedback on academic performance that the university finally provides its students at the end of each semester, especially if that feedback is negative. However, limited attentional resources form the conduit through which productive action is taken and, all too often, through which counterproductive actions are initiated and sustained.

According to Weiner (1984), student reactions to success or failure feedback have much to do with the credit or blame to which students attribute those outcomes. Any causal attribution that may be ascribed for success or failure can be assessed for its controllability and/or stability. Students who Pass and then Continue at university, for the most part, probably believe that they assert reasonable control over the academic events leading to the recent semester's outcome. They would view the likelihood of experiencing continued success at university to be very probable, or stable. Students who Pass but Discontinue university may or may not believe themselves to have been in control of the semester's outcome. For various reasons, they probably would view their prospects for achieving success at the present university to be unstable, or no longer relevant. For instance, they may have experienced prohibitive financial or other personal difficulties at the institution, or they may have decided to pursue different career alternatives at other institutions. Those students who Fail a semester and Discontinue

university are apt to view their failure as uncontrollable and stable. Presumably by their own estimation, they would be likely to fail again were they to persevere at university. Finally, those who Fail but are willing to Continue at university would be apt to believe that they could control academic outcomes in future semesters. Failure would thus be seen as an unstable circumstance that could be turned around. In the following chapters, the above rationale will form the basis for evaluating the cognitive, emotional, and motivational status of individuals who pass or fail a semester at university, and their subsequent intentions to continue or withdraw from that institution.

The next four chapters are divided into sections. Opening sections titled *Students Determined*, *Students Disconnected*, *Students Discouraged*, and *Students Distracted* detail the nature of student successes (in chapter 2), and the varieties of academic difficulty that could prevent students from continuing at university (chapters 3, 4, and 5, respectively). In sections titled *Dichotomous Working Memory Representations*, each chapter then argues for the diagnostic utility of considering either academic success or each of the respective categories of student “failure” as dichotomous constructions. Such constructions should help identify attentional processes and content in working memory that influence whether or not students succeed or fail in their academic endeavours. Finally, chapter sections titled *On Constructing Alternative Representations* implicate ways by which dichotomous working memory representations may be modified to increase the likelihood that students will remain at university and eventually achieve success commensurate with their interests.

## Chapter 2. On Passing a Semester and Continuing University

### *Students Determined*

Deci and Ryan (2000) argue that humans are innately predisposed toward achieving greater self-integration and moving away from self-fragmentation. One group of students who best typify these dispositions are those who appear to be most successful at university. These are the students who receive feedback that they are making steady progress toward reaching their academic goals. Such progress would help these students meet their basic psychological needs for competence, relatedness, and autonomy, the value-based needs that Deci and Ryan claim are the cornerstones upon which self-development occurs. To realize the basic psychological needs is to achieve those high level intrinsic goals that add value to a person's life (Deci & Ryan, 1985). A student might be described as competent if he or she is able to, "have an effect on the environment as well as to attain valued outcomes within it" (Deci & Ryan, 2000, p. 231). Furthermore, academic success bodes well for meeting the second psychological need espoused by Deci and Ryan (2000), that of relatedness. When academics are going well, one's connectedness to others is facilitated and certainly likely to be less strained. This includes having quality relationships with university faculty, staff, and classmates, as well as with family members, friends, and significant others. Along with the academic success accorded to students, many may experience a sense of empowerment or of volitional

control over academic events as part of having a more integrated sense of self (Markus, Cross, & Wurf, 1990). This form of personal autonomy is described by Carver and Scheier (2000a) as, "[meeting] the need to screen away enough of the controlling pressures to feel the sense of self-direction, even if it happens to be illusory" (p. 284). Illusory or not, perceived controllability over life events is crucial to an individual's self-development and goal attainment.

In effect, successful students are able to position themselves academically to experience continued success at university, despite any systemic or other obstacles. They tend to provide causal explanations about their academic successes that are in agreement or congruent with each other, and hence, reliably manifested within each academic challenge (Weiner, 1984, 1985). Whether they believe themselves to be intelligent, industrious, or skilled, their abilities or capabilities have been internalized as a stable dimension of who they are and of what they can achieve in a given academic domain. These students believe they can do much to control academic outcomes, and to work through or circumvent problems as they arise.

It is evident that most successful students intent on completing their university degrees regularly set goals and implement plans to meet those goals. When more distal goals are established, people are better able to direct their limited cognitive and behavioral resources toward reaching those goals (Baumeister & Heatherton, 1996). Making steady progress towards a goal adds to a person's perceived control over the eventual outcome and to that person's sense of self as belonging within the environment

in question (Martin, 1999). For students, that environment is the university setting. A number of accounts have been proposed to explain goal-directed behavior, including control theory (Carver & Scheier, 1981); action identification theory (Vallacher & Wegner, 1987); self-motivation (Strube, Hanson, & Fargher, 1999); goal-setting theory (Locke & Latham, 1990); and causal uncertainty (Weary, Jacobson, & Vaughn, 1999). For the most part, their basic tenets all seem to be consistent with requiring a higher-order self-focus.

Carver and Scheier (1998) state that the highest levels of goal abstraction may encompass, "the idealized sense of self, the idealized sense of a relationship, and the idealized sense of a communal group" (p. 108). It is from such abstract goals that more concrete and attainable sub-goals or standards for performance are set in reference to the self (Miller, Galanter, & Pribram, 1960; Powers, 1973, cited in Carver & Scheier, 1998). According to Carver and Scheier (1998), goal hierarchies elaborate how people can move between higher and lower levels of principles, programs, and sequences - between "be" goals, "do" goals, and motor control goals, respectively - toward realizing more idealized self-concepts, relationships, and social groups. Likewise, action identification specifies how people might think about the actions they are precipitating (Vallacher & Wegner, 1987), presumably for the attainment of personally meaningful goals. Vallacher and Wegner maintain that people are naturally inclined to move toward higher levels of action identification as they gain mastery of lower levels. Hence, reading a textbook chapter may help a student with overall exam preparation, while performing well on the exam

might contribute to a developing sense of competence in the subject that improves the self-concept in a tangible way. The student is closer to reaching a desired milestone in life - the degree or diploma that promises to open up other doors to personal advancement. Most hierarchical models of self-regulation and of hierarchical goal structures implicate the self and self-concept at the highest levels (e.g., Kluger & DeNisi, 1996; Vallerand, 2000). Strube et al. (1999) add that, "self-motives are best construed as attempts to establish, uncover, and maintain opportunity niches in which skills and abilities match favorably the demands of the environment, ensuring relatively greater success than failure" (p. 248). Individuals thereby move in the direction of self-enhancement (Taylor, 1983).

In discussing goal-setting theory, Locke and Latham (1990) take exception to Carver and Scheier's (1981, 1998) contention that those high in self-focus will perform better. They argue the importance of keeping an external task-focus if goals are to be achieved. While their argument has some merit, it is probably not helpful to argue for either a self-focus or a task-focus to the exclusion of the other. As hierarchical models tend to show, behavioral executions at the task level would be meaningless unless they contribute to goal completion at higher levels of processing. Hence, doing library research for a term paper only makes sense if the person proceeds to organize the information and generate the text of the paper. The higher goal is to write the paper; yet higher is the intrinsic goal of understanding course content and deriving personal satisfaction from it. Higher order, self-referenced goals are thus attained by providing

reference values for goal completion at the next lower level, in a recursive process that continues until the higher self-related goal can be achieved (Carver & Scheier, 1998). In fact, Locke and Latham (1990) imply this when they state that, "most goals refer to something *one wants to achieve* in the external world" (p. 23, italics added). They also point out that maintaining a self-focus may either enhance or diminish goal-oriented behavior depending on whether one's thoughts are self-encouraging or self-doubting. This point is especially valid, referencing as it does the cognitive and attendant emotional valence of self-relevant thoughts that might help guide human action. Carver and Scheier (1990, 1998) develop this issue in some detail, as discussed below, lending insight into how dichotomous information might be selected and made paramount in the working memories of successful students.

Most students who succeed in their academic endeavours generally have expectations that other preferred outcomes are attainable when sufficient effort is expended (Seligman, 1991). With effort, these students can reach desired outcomes by applying abilities and skills, which they believe they already possess or are readily capable of possessing, to the tasks associated with the anticipated outcomes. Successful students should anticipate continued success at university. According to Carver and Scheier (1981, 1998), individuals employ a process of feedback control to regulate the process by which goals are attained. More specifically, they argue in favor of a negative feedback or action loop whereby individuals engage in task-appropriate behaviors to *reduce* the discrepancy between where they are (their current position) and where they



want to be (the goal reached). Carver and Scheier maintain that people monitor their current actions in relation to the reference value and, when necessary, employ operators to make behavioral adjustments that bring current efforts more into line with the reference standard.

While they presume that negative feedback loops are of primary importance in the elicitation of goal-oriented behaviors, Carver and Scheier (1998) also consider positive feedback loops to constitute part of a more complete portrayal of human goal strivings. Attempts to move away from an undesirable possible outcome is one example of creating a positive feedback loop, by *increasing* the discrepancy between the undesired outcome and one's current position. Students who study solely to escape potential criticism about their academic performance follow this pattern. However, generally it is preferable for individuals to pursue the positive outcomes associated with success, such as high grades or a high level of course content understanding (Carver, Reynolds, & Scheier, 1994; Higgins, Roney, Crowe, & Hymes, 1994). Hence, setting new goals in life represents yet another example of a positive feedback loop insofar as there is an increase in discrepancy between one's current position and the newly sought after goal. Thereafter, a negative feedback loop prevails to reduce this new discrepancy.

In either case, a preferred criteria for the effective self-regulation of behaviors is to have a reference standard or attainable goal established in the first place. Hyland (1988) specifies four categories of goals: (a) the determination of a desired end-state; (b) the rate at which progress toward an end-state occurs, such as in adhering to a study

schedule; (c) the doing or being that is implicit in an action, such as in becoming competent and more self-determined; (d) the entrenchment of more positive emotions into one's life, as when one persistently strives to be happy. Any of these types of standards might be selected by a student as part of motivating subsequent behavior. The essential point, however, is that the reference standard is personally relevant to the individual and used as a measure for evaluating personal progress. Initially, goals may be personally set, or externally selected, as when a professor sets standards of performance in a course (Carver & Scheier, 1998). Yet, while many goals may at first be extrinsically motivated, added benefits will generally accrue to the person who is able to identify with the goals by making them personally meaningful (Deci & Ryan, 2000).

Thus, academically successful students at university generally have higher level standards or goals in place, whether actual or illusory. Actual goals tend to be tangible and concrete: for instance, gaining access into a desired faculty, graduating with a degree, or becoming an engineer (Austin & Vancouver, 1996). Other goals are essentially imagined, as when a student makes an upward social comparison to someone admired - whose values, lifestyle, and social status promise a better future if emulated (Taylor & Lobel, 1989). Indeed, in the pursuit and mastery of academic goals, an individual's perceived competency level, for better or worse, may often be more important than actual competency level for achieving those goals (Phillips & Zimmerman, 1990). Thus, successful students often experience "felt" competence in goal-relevant domains, implementing actions effectively to reach anticipated and specific goals (Markus et al.,

1990).

### *Dichotomous Working Memory Representations*

In delineating dichotomous arrangements in working memory, the act of attending to a standard connotes the active presence of a personally meaningful idea or cognition in the working memory of a successful student, reflecting the standard. Symbolically, a reference standard may be represented as a positively valenced cognition (PC), as it tangibly represents a goal, value, or other end-state that the person is actively working toward. Furthermore, as seen in the possible selves literature (e.g., Markus & Nurius, 1986), it also appears to be beneficial to create in working memory a positive, concretized image of the self-related goal in question (PI), in addition to cognizing the goal, to help direct goal-related activity. While those who are able to explicitly imagine possible futures for themselves are more likely to engage in associated behaviors (Beach, 1990; Johnson & Sherman, 1990), Bandura (1997) adds that performance actually improves when success scenarios can be visualized. Furthermore, specific (and imageful) goals have been consistently found to produce better performance than more abstract 'do-your-best' goals or no goals in a variety of studies (cf. Latham & Lee, 1986). The importance of images is also tentatively supported by research indicating that generally anxious and worried individuals use less imagery and have more negative thoughts than nonanxious individuals (Borkovec & Inz, 1990). They add that this situation can often be remedied through therapy.

According to Carver and Sheier (1998), individuals implement a negative feedback loop by comparing their current position to the reference standard in order to reduce the discrepancy between them. Hence, the idea that stands in opposition to the standard is the awareness of one's current position relative to the goal. Just as an individual engages in actions toward attaining the standard, that person moves away from an earlier position by receiving feedback that he or she is making progress toward the standard. Essentially, the discrepancy between current position and reference standard produces a tension within the individual that the person is motivated to reduce (Carver & Scheier, 1998). In working memory, a representation of the individual's current position is a (relatively) negative cognition (NC) that stands in counterpoint to the reference standard in establishing a goal-connected dichotomous arrangement. Negative images (NI) in working memory may also be associated with maintaining an unsatisfactory status quo, or even with the possibility of deteriorating life circumstances that need to be addressed (Oyserman & Markus, 1990; Ruvalo & Markus, 1992). Markus and associates describe feared selves as images of possible selves that one does not want to become but fears becoming anyway.

Implicit within the working memory constituents given above is the sense of valence, positive or negative, that attaches to each reference point. Positive images and thoughts concerning the standard should tend to evoke more positive emotions (PE) with concomitant physiological states (PPS), while attending to the current position or to a nonpreferred position should tend to evoke negative emotions (NE) and physiological

states (NPS). Hamilton (1988) supports the viewpoint that emotional representations can occupy space in working memory. As well, common neurological substrates make emotions and associated physiological states intimately entwined (Damasio, 1994; Hamilton, 1988; Izard, 1993). Therefore, it is reasonable to think that representations of both can reside in working memory to help guide behavior. Fredrickson (2001) claims that positive emotions can expand an individual's "momentary thought-action repertoire ... [by creating] the bodily context suitable for pursuing the broader array of thoughts and actions called forth" (p. 222).

A dichotomous portrayal of positive and negative goal-related information in working memory would serve to clarify the active roles that specific cognitions, images, emotions and physiological states play in directing goal-oriented behavior. A successful student, for instance, would entertain aspirations of success in a course (PC), accompanied by congruent images (PI), emotions (PE), and body states (PPS). Positive emotions have been associated with more divergent and creative thinking (Fredrickson, 2001, Isen, 1984; Schwarz & Bless, 1991). The same student would also be aware of the possibility of performing at a substandard level (NC), despite being an excellent student to date, and may experience some anxiety in anticipation of writing exams (NE). This is a condition common to many high achievers. The negative emotions have been shown to increase both vigilance and analytical thinking (Schwarz & Bless, 1991). Anxiety, a negative emotion described by Lazarus (1999) as an "existential threat", can direct attention to perceived "threats" so as to enhance performance up to a point (Derryberry &

Tucker, 1994). Hence, to reduce anxiety, successful students may intensify their studies or be more vigilant in reading exam questions accurately. Attending to perceived threats can thereby facilitate the use of countervailing personal resources for attaining goals. These students, in making steady progress toward their goals, would generally not experience the extreme levels of anxiety that could debilitate the efforts of some other students (Yerkes & Dobson, 1908, cited in Barlow, 1988).

As shown above, a psychological alignment in working memory of negative and positive emotions and physiological states, with formulated thoughts and images of one's current position and future goals respectively, may provide a convenient explanation for the regulation of goal-directed behavior. A person would be able to monitor the relative strength or prevalence of all the positive and negative goal-related contents within working memory, which would then be instrumental in directing goal-related activity. However, in their explanation of the role of emotions in the regulation of behavior, Carver and Scheier (1990, 1998) have added meta-monitoring, a second monitoring system that operates in parallel to the behavioral monitoring system. Whereas the behavioral monitoring system assesses progress toward the standard, the meta-monitoring system monitors the "rate of progress", or how well the person is doing, in reducing the discrepancy within the behavioral feedback loop. The reference value for the meta-monitoring loop is a *desired* rate of discrepancy reduction against which the current rate of reduction is assessed. It is not enough to attain the standard; this has to be accomplished within reasonable time parameters.

The desired rate is often determined by the behavioral context, such as needing to complete all course requirements before the semester draws to a close. Alternatively, the desired rate of discrepancy reduction may be personally set. If a person is right on schedule, then there would be no discrepancy between the actual and desired rates of progress the person has made, and this would be marked by an absence of affect. (Nichols & Efran [1985] also cite an absence of emotions, which they claim occurs when a person is fully engaged in an important activity for which problems are not anticipated.) According to Carver and Scheier (1990, 1998) if the person detected that his or her rate of progress was ahead of schedule, that person would experience positive affect and added confidence. However, if the rate of discrepancy reduction proved slower than anticipated, negative emotions such as anger, frustration, and anxiety would likely result, along with self-doubt and worry. Carver and Scheier note that when people perceive themselves to be ahead of schedule, they tend to ease up on their goal-related efforts, often to focus on other goals; when people perceive themselves to have fallen behind their desired rate of making progress, they tend to either redouble their efforts to catch up, or else withdraw effort. For those who fall behind, the choice of action would depend on each person's expectancy of continued success. However, in general, people tend to remain goal-oriented by adjusting their behavioral output to bring it into line with their desired rate of discrepancy reduction. The emotions provide feedback, through meta-monitoring, that behavioral adjustments are necessary to facilitate timely attainment of the standard. When rate adjustments do occur in the behavioral system, the change in goal-related

activity is experienced as a change of affect. An increase in the rate of activity produces a change in favor of more positive emotions; a decrease in activity produces a change toward more negative emotions. Which emotions finally predominate would depend on the final rate of discrepancy reduction achieved and whether or not that rate exceeds the desired rate standard. Meanwhile, Carver and Scheier claim that rapid changes in rate of progress yield more pronounced forms of affect. A rapid and positive shift would tend to yield a feeling of exhilaration, whereas a rapid, negative shift would yield a powerful sense of deflation.

While Carver and Scheier's (1990, 1998) explication of behavioral and affective control processes is both eloquent and insightful, a dichotomous portrayal of goal-related information may prove even more efficacious for academic goal-setting and achievement. Couched in the arena of conscious awareness, dichotomous informational arrangements may offer a practical means of conceptualizing student goal-related concerns for helping students stay on track academically (see chapter 8 for applications). What a working memory dichotomous construction promises is the creation of a balance - between those influences that would be deemed constructive and positive, and those that would constitute threats to success. The confluence of both influences in working memory would be considered necessary; the psychological weighting of behavioral influences in favor of obtaining a desired outcome would be considered essential (Mathews & Mackintosh, 1998). Goal directionality and progress would be implicated in the relative weighting or strength of positive and negative influences, when considered together.



Whereas Carver et al. (1994) recommend movement toward positive feelings, thoughts, and actions in the pursuit of a goal, a dichotomous viewpoint would add emphasis to the need for maintaining a vigilance concerning any foreseeable impediments to goal progress that might occur. Overall, a successful student who is cognizant of an unsatisfactory state or circumstance would be more likely to (or make more effort to) attend to all information pertinent to the attainment of the desired state or goal.

Hence, it might be expected that a working memory dichotomous representation for the successful student who plans on continuing at university would take on some or all of the following representational form, with both negative and positive constituents:

$$\{nc, ni, ne, nps : PC, PI, PE, PPS\}$$

As presented, the capital letters denote a strength of positive cognitions, images, emotions, and physiological states relative to their negative counterparts. The negative constituents would be present in working memory as goal-connected representations that individuals would be motivated to move away from, or respond to. The colon at centre suggests movement from an undesirable set of circumstances depicted at the left of the colon, toward the more favorable circumstances depicted at the right of the colon. Identifying and establishing dichotomous arrangements in working memory may help students to focus their academic activities more succinctly toward accomplishing their goals in a semester and throughout their academic careers.

*Corroborative Research Reinterpreted in Dichotomous Terms*

The efficacy of establishing memorial dichotomous arrangements is implicated in a number of other research initiatives. Inglehart (1991) invoked a variation of Festinger's (1957) cognitive dissonance theory in discussing a generalized principle of cognitive consistency. According to Inglehart, individuals strive to maintain cognitive consistency between memory representations of certain life events or behaviors, and those segments of their worldviews to which they are attending. Inglehart defines a person's worldview as, "the cognitive representation of all perceived aspects of the person, the environment, and the relationship between the person and the environment" (p. 68). A dichotomous representation of the principle of cognitive consistency would distinguish between the awareness of an inconsistent event in one's life and that future condition in which the inconsistency would be resolved and one's worldview restored. Future-oriented constructs such as goals, expectations, and possible selves would thus be considered an integral part of an individual's worldview. The need, essentially, would be to repair any inconsistencies with one's worldview through the attainment of one's goals, for instance. For a successful student, this would occur because the cognitive inconsistency or tension produces a need to engage in effective tension-reduction behaviors, and the student would have the skills and discipline necessary to accomplish this.

Inglehart claims that events that are inconsistent with one's worldview can challenge a person's assumptions about the causes of certain effects that are observed, or the nature of the attributions that are made. Similarly, Weary et al. (1999) refer to causal

uncertainty beliefs as those beliefs that emerge when an individual experiences difficulty in ascertaining causal relationships in given situations. For example, a student whose exam result falls far below that which was anticipated may be confused as to why. Subsequently, the person can develop an expectation of not being able to assert control over possible outcomes in his or her life. As stated by Weary et al., the goal would be to achieve, "accurate understanding and ... a comparison of current [uncertain] and desired [more certain] states of causal knowledge" (p. 251). Again, a dichotomous arrangement in working memory is implicated between a state of causal uncertainty in the present, and one of confident knowing in the future. Individuals employ action plans to reduce the discrepancy between the two states of knowing.

Individuals with high self-esteem have been found to enlist positive thoughts of the self when confronted with perceived threats to their self-esteem (Steele, Spencer, & Lynch, 1993). Perhaps they have more differentiated self-concepts they can draw upon to offset any personal setbacks (Dixon & Baumeister, 1991; Linville, 1987; Niedenthal, Setterlund, & Wherry, 1992). They may be better able to select from a broader range of possible self-concepts and associated strengths in order to promote success and minimize any impediments to success. Additionally, because successful students are indeed successful, they may be more practiced than less successful students at accessing such strengths in memory as positive self-images, kinds of academic self-efficacy, and study skills to attain goals (Dodgson & Wood, 1998, Experiment 1; Steele et al., 1993). Successful students may even be more adroit at creating novel solutions to problems,

whether academic or personal (Langer, 1997). For the successful student, the increased accessibility of personal strengths for accomplishing tasks may be further enhanced by an active suppression of thoughts about personal weaknesses that are thereby rendered less accessible to working memory for influencing subsequent behavior (Dodgson & Wood, 1998, Experiment 2). Compared to students who are struggling academically, successful students may have fewer negative self-concepts overall to suppress in the first place (Brown & Dutton, 1995). Hence, the discrepancy between strengths and weaknesses would likely be greater for successful students than for borderline or failing students. Not only would many successful students have more multifaceted self-concepts upon which to draw, in many instances these self-concepts would reflect a ready access to personal strengths that could aid in the suppression of personal weaknesses that might interfere with goal attainment. From a dichotomizing perspective, successful students may be more adept at identifying weaknesses, but especially strengths, through applications of self-focused attention in the recruitment of personal resources (Steele et al., 1993).

Markus and Nurius (1986) described possible selves as parts of the self-concept representing what a person could be, would like to be, or is reluctant to become. Each possible self is a specific memory representation having cognitive, imaginal, and perhaps emotive and physiological components, that can facilitate an individual's accomplishment of a task. As such, they represent end-states that a person can strive to attain (or avoid) in the future. A working self-concept would consist of those representations of the self-concept currently active in working memory. If the working self-concept includes a

positive possible self, conditions are conducive for an enhancement of performance toward realizing that possible self (Ruvolo & Markus, 1992). Thus, conceiving of oneself as a successful student promotes the activation of more effective planning and study activities. Ruvolo and Markus contend that a positive possible self should be clearly envisioned by an individual to help ensure goal-oriented activity and subsequent success. However, Oyserman and Markus (1990) suggest that goal attainment is likely to be even more assured when more of a balance is expressed within working memory between a well-envisioned and positive possible self, and an opposing or feared possible self in the same domain (e.g, academic, social, career). When a student can envision failure and possible withdrawal from university, it can provide countervailing pressure on the individual to engage in activities to avert failure and achieve academic success. The working memory dichotomy would be between feared and desired possible selves.

Similarly, a dichotomized arrangement might also apply to individuals referred to as defensive pessimists. Defensive pessimists plan for the future as a means of coping with the prospects of possible failure (Norem, 2001; Norem & Illingworth, 1993). They first lower their expectations about how they might fare in the performance of a task, and this 'pessimism' serves to reduce to manageable levels the anxiety these individuals often experience that could debilitate their efforts. They then are able to use their residual anxiety to become cautious and thorough in their learning in preparation for future examinations. Defensive pessimists thus engage in mental activities that 'defend' against the prospect of failure and allow them to achieve their goals. They are often more

successful academically than people described as optimists, who often fail to consider complications that may arise in the pursuit of a goal. Indeed, Norem and Illingworth maintain that optimists often fail to think about possible futures in an attempt to block out negative thoughts about the future, or the negative possible selves that might emerge from such thinking.

However, plenty of evidence exists that people who tend to think optimistically are more likely to experience success than those who think pessimistically (Carver et al., 1994; Peterson, 2000; Seligman, 1991). Whereas optimists are apt to interpret (to themselves and others) success experiences as self-caused (internal locus of control), and to be expected in the future (permanent) and across various domains of personal endeavour (pervasive), pessimists are apt to interpret failure experiences as self-caused (internal) and expected to continue on into the future (both permanently and pervasively). These dimensions of personalization, permanence and pervasiveness as used by Seligman approximate those articulated by Weiner (1984, 1985) of locus of causality, stability and globality, respectively. Hence, pessimists, as described by Seligman, think and behave very differently from the defensive pessimists described by Norem and Illingworth (1993); pessimists are far less hopeful that they will be successful in the future. Seligman argues that individuals employing a pessimistic style of explaining life events can learn to adopt an optimistic style more conducive to achieving success. And, Seligman at least implicitly provides support for a dichotomous explication of information in working memory. He claims that optimists tend to interpret failure experiences as externally

caused, temporary, and specific to the situation under consideration. Although not specifically discussed by Seligman, when optimistic students consciously attend to the skills they need to be successful, they may concomitantly consider how they might diminish and delimit the risk of failure. According to Langer (1997), students will be successful to the extent that they exhibit mindfulness, implementing goal-oriented activities in a planful manner, while remaining mindful of behavioral alternatives for circumventing any problems that may arise.

In their discussion of achievement goal theory, Dweck and Leggett (1988) contend that students regulate their study behavior in accordance with one of two types of goals, performance goals or learning goals. Students with performance goals feel compelled either to demonstrate ability (i.e., they have performance-approach goals) or to avoid the demonstration of inability (i.e., they have performance-avoidance goals; Elliot & Harackiewicz, 1996). Performance-approach learners would believe that they have to be the best, and are driven by such performance indicators as high grades. Mediocre or poor grades would be unacceptable and suggestive of lacking the academic abilities needed to be truly successful (Thompson, 1993). In working memory, information regarding a smart possible self would stand in contrast to an intellectually average or dull possible self, proof of which would have to be avoided if at all possible. As long as they are achieving success, performance-approach students will often continue out of a fear of incompetency (Covington, 2000). Some even expend a great deal of effort, using diverse study skills, in attempts to retain their academic standing (Elliot & Harackiewicz, 1996;

Harackiewicz, Barron, & Elliot, 1998). They often become discouraged and relinquish their efforts, however, following perceived failure. Performance-avoidance learners, meanwhile, reduce their efforts not out of discouragement but to avoid any demonstration of inability that could lower their self-esteem. They would distinguish in working memory between that which reinforces self-esteem and that which threatens it. For them, hard work with little return would threaten self-esteem. Students with learning goals, on the other hand, are more intrinsically driven by a need to achieve competency and understanding of the material to be learned (Dweck & Leggett, 1988). When their performance is substandard, they typically attribute it to a lack of understanding, a temporary condition that could be improved through further efforts to learn. An effective working memory depiction for those with learning goals would be between their current state of competency/understanding and the desired state.

Each of the above theoretical models may be construed in terms of dichotomous working memory representations, depicting goal-related information of some personal significance to the individual. Arguably, students benefit from receiving feedback that they are indeed making satisfactory progress toward attaining their goals (Martin, 1999). Being able to distinguish in memory between inconsistent and consistent information, between causal uncertainty and causal certainty, weaknesses and strengths, feared possible selves and desired possible selves, between failure and future success can forge paths to taking more adaptive action toward goal attainment. In each of these models, a process of feedback control is implicated to reduce discrepancies between the negative



and positive states of the self in favor of attaining the desired states. When students have clearly identified goals and can identify and respond effectively to any hindrances to goal attainment, they are better able to monitor and regulate their progress toward goals.

### Chapter 3. On Passing a Semester and Discontinuing University

#### *Students Disconnected*

Carver and Scheier (1981, 1998) claim that the first step to effective self-regulation is the establishment of clear, unambiguous standards that are reasonably attainable. Thus, for many students, problems arise precisely because of deficiencies in setting suitable standards of performance, or in not having appropriate goals to strive for (Baumeister & Heatherton, 1996). There are myriad reasons why this may be so. At university, for instance, some students remain undecided about which academic degree to pursue. Meanwhile, others who wish to declare a major are unable to meet criteria for faculty admission. Consequently, many of these students may be passing their courses, yet choose not to continue with their studies. Added financial burdens or other personal concerns might further weaken a student's resolve for continuing at university, especially if the student lacks tangible goals (Beatty, 1994).

Three deficient goal-setting circumstances might culminate in students failing to persist with their studies despite passing their university courses the previous semester. First, as indicated above, some students may simply fail to specify reasonable goals or standards of performance in the first place. The goal of "going to university" is simply not enough. Without established goals, any feedback that an individual receives regarding his or her academic performance in a course, for instance, would not be useful

for guiding subsequent behavior in that or other courses. Again, the research on goal-setting (e.g., Carver & Scheier, 1998) suggests that performance is more likely to improve (and more learning occur) when it can be monitored and compared to a standard of performance (or of knowing). Similarly, those who maintain goals that are vague or abstract instead of being more concrete tend to experience less success (Locke & Latham, 1990). Emmons (1992) found that those who are less concrete in describing their goals tend to become more depressed, perhaps because ambiguous goals tend to be viewed as farther away or more out of reach. For example, the goal of earning a lot of money may seem very disconnected from analyzing Othello in an English course, or performing calculus operations in Mathematics. Consequently, even when they are passing their courses, students with abstract goals may have trouble in ascertaining their progress toward those goals (Emmons & Kaiser, 1996), and this can eventuate in a questioning of purpose at university and withdrawal of effort.

Second, the maintenance of low standards can adversely influence self-regulation and often contribute to a reduction of effort (Clifford, 1990). It is generally insufficient just to pass courses; learning and personal growth opportunities require a certain amount of striving to attain the requisite levels of knowledge and understanding in order to become successful in life's pursuits. In the achievement-goal literature, people with performance-avoidance goals tend to take on easier tasks that would help ensure success, at least in those tasks, while curtailing the possibility of negative judgments about their competence (Dweck, 1986). However, because they avoid efforts to attain goals that

provide a moderate level of difficulty and risk, they are not likely to maximize learning opportunities (Clifford, 1990). Consequently, their academic performance, as normatively defined within a university setting, may be modest at best. Setting insufficient standards for performance is consistent with having low competence expectancies and a fear of failure (Elliot & Church, 1997). These factors tend to undermine intrinsic motivation and effort (Elliot & Harackiewicz, 1996). With inadequate goals in place, many people are less likely to persevere in the face of difficulty (Blair & Price, 1998), oftentimes displaying symptoms of learned helplessness (Elliott & Dweck, 1988). Setting more challenging goals can have energizing effects on people for reaching those goals (Kukla, 1974, cited in Brehm & Self, 1989).

Third, other students may have unrealistically high standards or goals, with no clear plans for achieving those goals (Schneider & Stevenson, 1999). This may happen when goals that are externally set by someone else are unclear. The person may misunderstand what is required to be done to attain the standard. For people hoping to do well academically, misunderstood contingencies can be the source of a great deal of anxiety and wasted effort (Baumeister & Heatherton, 1996; Norem, 2001). For instance, many students who are uncertain about the method of evaluation in a course may undertake excessive measures to prepare adequately for the exam in an attempt to preempt the possibility of failure. Frequently, students with performance-approach goals, experiencing evaluative anxiety, learn by rote rehearsal in a misdirected attempt to be prepared for the impending exam (Elliot, McGregor, & Gable, 1999). Some students will

belabor a term paper out of concern that it is not up to someone else's standard or not as good as it could be (Nelson, 1993). Indeed, many students who maintain performance-approach goals are beset by perfectionistic tendencies that could become all the more pronounced under conditions of high uncertainty.

It is of interest that researchers presently identify two major types of perfectionism, one pertaining to personal standards or positive achievement striving, and the other relating to maladaptive evaluative concerns (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Those whose perfectionism stems from evaluative concerns tend to be performance-oriented, maintaining unrealistic standards for themselves while remaining very sensitive to criticisms from others. For such people, an uncertain standard would be untenable. They often are especially concerned over making mistakes that, to them, would signify failure and possible rejection by others (Frost, Turcotte, Heimberg, Mattia, Holt, & Hope, 1995). Many new students in a postsecondary setting are particularly vulnerable to having evaluative concerns, whether in response to standards that are explicit or inferred within an academic environment or that are expected of them by significant others such as family members and friends (Arthur & Hayward, 1997; Frost, Marten et al., 1990). Many conclude that they have to excel in all that they do in order to meet or exceed the perceived expectations of others - in essence, to be perfect. Thus, individuals striving for perfection will often compare their capabilities to others and feel threatened when others seem capable of attaining an even more perfect standard of performance (Bandura, 1997).

In contrast, personal standards perfectionism is denoted by the setting of high, yet realistic, standards for oneself. Furthermore, when confronted with impediments to making goal progress, these perfectionists typically will exhibit mastery learning (using learning goals) and engage in sustained problem-solving efforts to find an appropriate solution (Flett, Russo, & Hewitt, 1994). Presently, a number of studies support the position that, within an evaluative environment where grades do count, academic functioning would be optimized when students possess performance goals (hopefully with high personal standards minus the competitive aspect) in addition to mastery goals (Bouffard et al., 1995; Covington, 1999; Dweck & Leggett, 1988; Harackiewicz et al., 1998). The goal of knowledge acquisition would be supplemented by efforts to maintain high performance standards. In some instances, it is conceivable that mastery learners might not perform as well as they might on exams, presumably because they are satisfied with the level of their course knowledge and feel they have little to prove by doing well on an exam.

Setting either low or excessively high standards can make students more vulnerable to boredom and its effects. For many students, boredom results when a clear discrepancy is identified between a student's learning expectations for a course and the course's apparent requirements in terms of content and workload (Aldridge & DeLucia, 1989). If the course material is perceived to be too simple or too complex, and the classroom environment provides inadequate stimulation to sustain interest, student learning is apt to be compromised. In this respect, there has to be a match made between

the student's effectance and the situation's affordance - between the student's capacity for setting and attaining moderately challenging goals, and the task and situational parameters that would make such goal attainment possible (Harackiewicz et al., 1998; Higgins, 1997; Turvey & Shaw, 1979). While goals should be challenging, people have to have reasonable expectations of being successful (Locke & Latham, 1990). Students unchallenged in a learning situation are less likely to engage in learning strategies that promote more meaningful deep-level processing, such as organizing, elaborating, or thinking critically about the material (Karabenick & Collins-Eaglin, 1997). Students for whom the challenge is too great also will show impaired performance, effort, and persistence (Cochrane, 1978). Such students would effectively be "in over their heads." They would have difficulty in selecting learning goals commensurate with demonstrating course competence, and in applying appropriate cognitive strategies for attaining those goals (Clark, 1998). In this context, boredom would manifest from being overwhelmed and not knowing what to do to achieve results. This can have a negative affect on one's sense of competence and self-worth (Covington, 2000). Dropping out of university under such circumstances would be one way of protecting self-worth.

Finally, there are those students who may evolve vocational interests that can no longer be realized at that university, thus necessitating transfer to another school having academic programs that better match personal interests (Tinto, 1982; Williamson & Creamer, 1988). Some students simply choose to pursue other goals (Polivy, 1998). This form of "constructive attrition" can only be encouraged by universities in the interest of

promoting the full educational development of those students (Chickering & Reisser, 1993). From a student retention perspective, such losses are unavoidable. What is unfortunate is to lose students who might have been successful at university had they possessed personally relevant and reasonable standards toward which to work. The departure of these students represents missed opportunities, both for the students and the university.

### *Dichotomous Working Memory Representations*

#### *Representing the Problem*

Attention represents the all-important first stage in information processing (Higbee, 1996). Sustained and selective attention is a requirement if standards are to be realized (Puca & Schmalt, 2001). Students who have personally relevant goals are likely to direct their attention to tasks that could culminate in a goal reached and in a sense of personal accomplishment. In comparison, people without reasonable goals are more likely to lack attentional control in academic settings and experience some degree of self-regulatory failure (Baumeister, Heatherton, & Tice, 1993). Thus, for many students, learning itself may well become a piecemeal, often misdirected process. However, the personal significance of not setting appropriate standards may become most poignantly evident at semester's end when the student contemplates whether or not to continue with studies despite meeting or exceeding the minimal normative standard for staying at university. The nature of an individual's working memory representation is of significant



interest for its diagnostic implications at such times. A dichotomous working memory portrayal for someone lacking a clear standard by which to self-regulate goal-directed behaviors is symbolically shown below:

$$\{nc, ni, ne, nps : --, --, --, --\}$$

In lacking any cogent standard toward which to work, there is a paucity of positively valenced information depicted in the dichotomous arrangement given above. For students who voluntarily withdraw from university while in good standing at the institution, it might be surmised that many would have lacked a standard to strive for and to sustain them in their academic endeavours. And while students may have many other and legitimate reasons for not continuing at university, failure to avail of the opportunity to continue with one's learning represents, at the very least, a postponement of personal goal pursuit, with obvious ramifications for university retention initiatives.

The above depiction might also be representative of some of the working memory construals of those individuals harboring excessive personally relevant goals that prove to be self-defeating. Individuals who are bored or who are maladaptively perfectionistic (as opposed to the aforementioned personal standards perfectionist) may have goals that are either completely mundane or so high as to exceed the resources at the person's disposal for accomplishing them. Effectively, lack of goal progress would serve to neutralize any inherent motivational value that any such goals might seem to possess. The best goals for

self-regulation are those that are desirable yet reasonably attainable by the person, and, as such, produce a number of congruently positive indicators in the form of positive thoughts, images, emotions, and physiological states. As claimed by Sansone and Harackiewicz (1996) there is general utility in "feeling like" approaching an activity. Inappropriate goals for achieving success, if they were to be represented symbolically above, would tend to be negatively valenced, a condition that would run counter to effective goal-striving (Carver, Lawrence, & Scheier, 1996). Dunkley et al. (2000) found that those people who maintained healthy personal standards according to the Multidimensional Perfectionism Scales (MPS) factor of Positive Achievement Striving, also reported significant positive affect. Those perfectionists high on the factor of Maladaptive Evaluative Concerns, however, tended to report predominantly negative affect which was, "focused primarily on issues of self-definition, self-control, and self-worth" (p. 438). They had tremendous concerns about the quality of their actions and over the ever-present possibility of making mistakes. These people appeared to exhibit both negative cognitive and affective elements in the form of worry, anxiety and/or depression. Citing Hamachek (1978), Rice, Ashby, and Slaney (1998) concur that striving to attain unrealistic standards of performance, "severely reduces [perfectionists'] possibilities for feeling good about themselves" (p. 305).

In the absence of a viable standard, it is little wonder that negatively valenced attributes regarding the person, task or situation would predominate within the person's working memory representation. There would likely be a confluence of negative

personally relevant cognitions (nc), images (ni), emotions (ne), and physiological states (nps) in working memory associated with the individual's current position in life that would help shape the person's decision to withdraw from university.

### *On Constructing Alternative Representations*

It is apparent that goals are required if a person is to have a reasonable expectation of achieving specific outcomes (Carver et al., 1994; Elliot et al., 1999). In this respect, even the setting of more distal goals can be advantageous. According to Sansone and Harackiewicz (1996), distal goals or "purpose goals" provide the rationale for engaging in certain activities, while more immediate, or "target goals" are chosen so that more focused actions can be attempted. Perhaps not surprisingly, many people who are specifically assigned purpose goals for the regulation of behavior spontaneously establish more proximal target goals to guide their activities on their own (Stock & Cervone, 1990). Therefore, a student might be expected to establish a number of proximal subgoals or tasks in anticipation of writing an exam, for instance. Purpose goals, referred to by Gollwitzer (1999) as goal intentions, thus permit implementation decisions to be made. As stated by Gollwitzer (1999), whereas goal intentions have the form of "I intend to reach x", implementation intentions are subordinate and have the form "When situation x arises, I will perform response y" (p. 494). It is assumed that implementation intentions are based upon internal mental representations that are more precise or "perspicuous" than would be the case for more general goal intentions (Gollwitzer, 1999; Prawat, 1989).

That is, the working memory representations would explicitly delineate the main causal connections between the variables in a situation, through verbal representations (PC) and/or imagery (PI), in order to help fulfill goal intentions. Making steady progress toward a goal, meanwhile, would contribute to positive affect (PE) (Wicker, Wiehe, Hagen, & Brown, 1994). They contend that possible outcomes are approached because their successful attainment will have positive affective value. The anticipation of positive outcomes can improve an individual's physiological state (PPS) as well (Salovey, Rothman, Detweiler, & Steward, 2000).

The efficacy of having implementation intentions was demonstrated in a study by Gollwitzer and Brandstatter (1997). They asked university students before the start of the Christmas break to identify two projects, one easy and one difficult, that they intended to complete over the holidays. To ascertain if they had already formed implementation plans for fulfilling their goal intentions, the students were asked if they had decided when and where to get started on the projects. For the difficult projects, approximately two-thirds of students with implementation intentions had completed them when evaluated following Christmas, while only about one-quarter of those without implementation intentions were successful. For the easy projects, four-fifths of both groups of students were successful. The formation of implementation intentions did not appear to influence the completion rate on easy projects but made a significant difference on difficult projects. Hence, students lacking goals would probably be at a disadvantage for creating and implementing the detailed plans of action that would be necessary for

goal attainment and personal satisfaction.

Dichotomous working memory arrangements highlight the value of setting realistic goals that can be implemented, with an emphasis on achieving positive outcomes through the use of available resources. A person can employ skills toward the realization of a goal (Carver et al., 1994), while remaining cognizant of any potential threats to goal progress that may emerge and need to be accommodated (Oyserman & Markus, 1990). However, Carver et al. (1996) maintain that the best way to avoid an undesired state would be to move toward a desired state. For this reason, they argue in favor of pursuing a reduction in discrepancy between actual self versus an ideal self, rather than between actual self and an ought self, to coin goal-setting terminology from Higgins's (1987) self-discrepancy theory. Ideal selves are selves that one aspires to become and can achieve (at least according to Higgins); ought selves are selves that one perceives of as a duty or obligation. Whereas ideal goals are typically pursued to attain some form of self-fulfillment, ought goals are pursued to avoid some sort of punishment. While negative feedback loops are employed for reaching ideal goals, positive feedback loops are the norm for ought goals; a person will try to reduce the distance between current and desired or ideal state, but will try to increase the distance between current state and prospective punishment state until the threat of punishment subsides. Thus, students with ought goals may study to meet the prescribed standard of passing a course to avoid failure. They may give up studying when they believe they have put in enough effort to pass, a strategy which may or may not yield expected results. Similarly in a workplace setting, people

who are obligated to work may work to a predetermined level of productivity, but slack off upon meeting their quota (Kluger & DeNisi, 1998). In contrast, people with high personal standards of performance (Higgin's ideal goals) would likely be more persistent in their endeavours. Large discrepancies between actual and ought selves tend to produce anxiety, while large discrepancies between actual and ideal selves tend to produce negative emotions of dejection, sadness, and depression. For students experiencing anxiety, it would be interesting to contemplate having them adopt personal (ideal) standards instead of abiding by ought goals in order to avoid disapproval. Meanwhile, students sad or dejected concerning academic matters may need to re-evaluate whether or not the goals they aspire toward are realistic or achievable. Goal adjustments may be in order.

## Chapter 4. On Failing a Semester and Discontinuing University

### *Students Discouraged*

Many students who fail a semester have to re-evaluate their goals as well, especially if they no longer plan on continuing at university. Effective self-control does seem to require the setting of longer-range goals in which to frame more immediate concerns and make appropriate responses (Carver & Scheier, 1981, 1998; Vallacher & Wegner, 1987). Then, the ability to attend to and monitor one's current position relative to one's goals is of paramount importance if an individual is to be able to accurately gauge his or her progress. The value of monitoring one's progress is to be able to determine which operators to employ or procedures to implement to secure a return to sufficient goal-related activity (Stage 3 in Carver & Scheier's [1981] self-regulatory model). Failures at monitoring and its consequences for university-level study will be explored more fully in chapter 5 on students who fail university but who still wish to continue with their studies. For many students who become discouraged with their studies and eventually drop out of university, the challenge of monitoring one's progress may be superseded by the challenge of satisfactorily employing operators for the accomplishment of tasks toward goal attainment (Cochrane, 1978). For someone lacking the skills to perform a task or using inappropriate skills, attempts at monitoring would likely tend to produce anxiety and despair as the person falls progressively behind in the work needed

to be done (cf. Miller, 1987, experiment 2). This can further exacerbate efforts to self-regulate task activities effectively. For people to have reasonable expectations that their goal-directed efforts will pay off, they have to believe that they possess the means to achieve their goals (Carver & Scheier, 1998). Hence, monitoring will be most effective when an individual possesses the cognitive resources necessary, including the requisite knowledge and skills, for performing the required tasks (Kofta, 1993; Luzzo, Hasper, Albert, Bibby, & Martinelli, Jr., 1999; Wagner & Sternberg, 1985). When cognitive resources are taxed or exceeded, attempts to productively self-regulate behavior would require more effort and result in a depletion of capacity for continued effective self-regulation (Muraven, Tice, & Baumeister, 1998). The use of operators to adjust behavior so that it more closely approximates the behavioral reference standard is subject to misregulation at such times.

Students who wish to do well academically at university often misregulate their academic endeavours. They may misunderstand what operators to use to achieve desired results. In courses in which certain prior knowledge is assumed, gaining the prerequisite knowledge might be a crucial part of deciding to remain in those courses. Thus, someone weak in knowledge of trigonometric functions would do well to invest time in acquiring that knowledge before continuing in a calculus course requiring such background understanding. Failure to identify what one needs to know and ways to gain that knowledge can culminate in a great deal of unfruitful energy being expended during study, especially in cumulative knowledge areas such as Math. At such times, many



individuals may engage in relatively futile and misguided efforts to achieve their goals, such as by memorizing trigonometric formulae in lieu of understanding how the formulae are derived and applied (Fleet, Goodchild, & Zajchowski, 1994). Self-regulatory difficulties can become apparent as people attend excessively to peripheral or irrelevant features of a task for protracted periods (Baumeister & Heatherton, 1996). For instance, some students may persist in employing operators that become ineffectual to attaining the reference standard. An individual who conducts an extended literature review to the preclusion of doing any writing as the paper deadline nears would be a case in point. In such situations, lack of progress toward attaining the reference standard should be notable. While the misregulation of behavior might foil a person's attempts at reaching achievable goals, it stands to reason that the effective use of operators would be even more compromised for goals that are set unrealistically high so as to be virtually unreachable.

Students who try hard to succeed but seemingly cannot, in using operators ineffectively, are arguably volitionally impaired (Kuhl, 1996). That is to say, they fail at self-regulation because they are unable to coordinate the various mental subsystems (cognitive, emotional, motivational, etc.) necessary for carrying out an intention, or "active goal". At university, the harbinger of such impairment typically occurs when an individual gets stuck or reaches an impasse in learning, and cannot seem to proceed further (VanLehn, 1999). According to Klinger (1975), an individual who is blocked from reaching a desired goal will follow a predictable cycle intended to resolve the block

or else initiate steps to disengage from pursuit of that goal. Hence, when an impasse is reached, the first step would be to use operators at one's disposal to achieve a breakthrough. Failing this, frustration or aggression is apt to be expressed (Step 2), before an individual transitions into depression (Step 3), with being depressed regarded as the fourth stage. Finally, to round out the cycle, an individual becomes able to disengage from that goal and establish interests in attaining other goals (Step 5). As can be seen, the lack of operators or their inefficient use can have a number of consequences for a student that could eventuate in withdrawal from university. Paramount among these are the powerful negative emotions that are elicited when a person's goal pursuits are stymied (Srull & Wyer, 1986). People who do not or are unable to enlist appropriate operators to reach desired goals are likely to become anxious or depressed as prospective failure looms (Higgins, 1997; Pyszczynski & Greenberg, 1987).

It has been argued that emotion occurs precisely when information is processed that has personal significance for the individual (Kuhl, 1986). As information, blocked lower-order tasks that an individual associates with higher order self goals are more likely to evoke negative emotional reactions than would lower-order tasks that a person does not associate as much with higher order self goals (McIntosh, 1996). Hence, difficulty in solving Math problems in a course required for admission into an academic program of choice would probably yield stronger negative emotional responses than if the Math course were taken as an elective. For Carver and Scheier (1990, 1998), a meta system is assumed to regulate emotions by monitoring an individual's rate of discrepancy reduction

within the behavioral action system. A satisfactory rate of discrepancy reduction between one's current position and the reference standard yields positive emotions; an inadequate rate of reduction yields negative emotions. For someone whose goal attainment is effectively blocked, the lack of progress would stand to have great emotional impact upon the individual, especially if the goal is central to one's evolving self-concept (Markus & Nurius, 1986). Within an individual's working self-concept at such times, the desired possible self of being a successful student with specific vocational aspirations, for instance, would be largely suppressed by the feared possible self of becoming an academic failure (Markus & Wurf, 1987). Students faced with failure following a concerted effort to succeed are likely to question whether or not they possess the competencies needed to be successful (Reeve & Deci, 1996). In academic settings, the question of competency might also be pondered by students who perform poorly on exams despite their overlearning of the material. Referred to by Covington as overstrivers, these students are not unduly impeded in their acquisition of course content (Covington, 2000; Covington & Omelich, 1987). Rather, anxiety prevents them from retrieving well-learned information during a test. Whether the blocks occur during the acquisition of information or at retrieval, students will withdraw effort if the impediments to achieving success appear to be too prohibitive (Carver & Scheier, 1990).

Many individuals confronted with seemingly insurmountable problems will exhibit learned helplessness, or a tendency to give up on a task even though circumstances may have improved for applying operators to attain the goal (Abramson,

Seligman, & Teasdale, 1978; Seligman, 1991). Two out of three individuals, when placed in an aversive situation for which no solution seems apparent, tend to give up trying to improve their situation (Seligman, 1991). Both attribution theory (Weiner, 1984, 1985) and an individual's explanatory style for interpreting perceived failure experiences (Seligman, 1991) make theoretical contributions as to why this may be so. If an individual believes that the obstacles to achieving success are long term and likely to remain, then that person is likely to withdraw effort. The cause to which the person attributes the personal difficulty would be seen to have a stable (Weiner) or permanent (Seligman) dimension that would not seem subject to change. Seligman argues that personal explanations for failure may also become habitual in the sense that patterns of self-defeating thoughts (and behavior) may recur across a spectrum of related behavioral domains. This pervasiveness dimension (Weiner's globality) would serve to further neutralize efforts to realize goals. Hence, a student unable to pass a Physics exam may generalize the failure to all other academic domains requiring problem-solving ability such as Chemistry and Math. Then again, some students may even generalize their academic difficulties across all academic domains, concluding that they must not be academically adroit and that a university education is not for them.

In essence, the problem would be one of controllability (Weiner, 1984, 1985). Students in academic difficulty despite making a sustained effort would generally believe that they have little causal control over determining their own academic outcomes at university. This would be true irrespective of whether the perceived obstacles to

achieving academic success originate from within the person (referred to by Weiner as internal locus of causality) or from without (external locus of causality), as evidenced in typical learned helplessness studies in which researchers place aversive constraints on individuals to limit or remove their response options. Many students when blocked from attaining their goals will arrive at worst-case, catastrophic, internalized explanations for their lack of success (Seligman, 1991). They may decide that they cannot do sciences, are not of university caliber, or simply are not smart enough. By adhering to such negative, personalized, pervasive and permanent explanations, students might come to believe that they cannot be successful at university.

Seligman (1991) claims that such a pessimistic explanatory style is at the root of depressive thinking. Failure to attain a desired goal is commonly accompanied by self-focused ruminations and worries concerning one's own abilities, and about the perceptions of others with respect to oneself (Miller & Klein, 1989; Nolen-Hoeksema, 1998). As stated by Pyszczynski and Greenberg (1987), "depression occurs after the loss of an important source of self-worth when an individual becomes stuck in a self-regulatory cycle in which no responses to reduce the discrepancy between actual and desired states are available" (p. 122). They claim that individuals subsequently adopt a depressive self-focusing bias that includes devoting inordinate attention to the self following a negative outcome, but not following a positive outcome. This position is supported by other research indicating that an increase in self-focused attention occurs when individuals are in either depressive or anxiety states, or show other clinical

symptomatology (Ingram, 1990; Pyszczynski, Greenberg, Hamilton, & Nix, 1991).

Ingram proposes a diathesis-stress explanation whereby people predispositionally vary in their vulnerability to stressors in any given situation, thus producing differential amounts of situational self-focused attention in people. Some people more than others activate higher self-focused attentional processes that can lead to a cascade of negative affect in response to stressful situations (Ingram, 1990). Failure and withdrawal from university constitutes a significant self-relevant and affectively laden situational stressor. For many students, having a sense of self-worth is contingent upon achieving success in academic domains. When students fail and are consequently in doubt about their own self-worth, they are likely to experience lowered self-esteem which, too, is associated with depression (Crocker & Wolfe, 2001). People already with low self-esteem may be particularly vulnerable to experiencing shame and embarrassment as a consequence of failure (Brown & Dutton, 1995). Deci and Ryan (1995) distinguish between self-esteem that is contingent on such things as personal accomplishments and physical appearance, and "true" self-esteem, which develops from being able to act autonomously amid authentic, supportive relationships to achieve goals. While true self-esteem is desirable, its development is seriously jeopardized when students are having to confront and understand failure contingencies that they may attribute to some fault of their own.

In comparison with internalized explanations, externalized explanations for academic difficulties generally offer students more hope that conditions are not permanent and can improve for them in subsequent semesters at university. However, it

would be discomfoting for students to think that control over personal academic outcomes may reside as much or more with the university than with anything they might do (Weiner, 1984, 1985). A university that is perceived to make unreasonable demands upon students may experience higher rates of attrition. Unreasonable demands upon students may range from inadequate or unfair teaching practices that can make learning in specific courses extremely difficult, to overly lengthy and demanding academic programs. Some discouraged students, unable to make satisfactory progress in their academic endeavours, may give up all attempts at obtaining a post-secondary education; others may seek paths of lesser resistance to achieving their goals. Many of these students are apt to become disillusioned and angry as their goals slip inexorably beyond their reach (Berkowitz, 1993). They also are more likely to become self-focused and depressed (Ingram, 1990; Klinger, 1975; Palfai & Salovey, 1992). Again, for many of these students, self-esteem would be contingent on personal accomplishments (Deci & Ryan, 1995). They are likely to experience such negative emotions as anger, shame, guilt, and hopelessness when their academic efforts are thwarted (Weiner, 1984, 1985; Ryan & Deci, 2000a, 2000b). Ryan and Deci (2000a, 2000b) point out that people may be motivated to attain a behavioral goal for many reasons, ranging from a desire to meet other people's standards (external regulation), demonstrate ability (introjected regulation), consciously value the goal (identified regulation), or fully integrate the goal into one's self-system so that it is congruent with other pre-established values (integrated regulation). Any of these forms of extrinsic motivation would exact psychological costs

when goals are rendered unattainable. However, it is conjectured that those costs may be greatest when attempts to integrate valued goals into one's global self-concept have failed (cf. Cross & Markus, 1994). Meanwhile, students with intrinsic aspirations to become more competent academically and more affiliated within the university community would probably be devastated by any mitigating circumstances that culminated in failure. Failure at university would be inconsistent with the self-images that individuals would wish to convey to others about the kind of persons they are, i.e., their self-concepts (Andrews, 1989).

Attempts to regulate affect can take on special importance for someone who is effectively blocked from attaining a desired goal (Baumeister & Heatherton, 1996). Indeed, Lazarus (1999) suggests that emotion-focused coping is an adaptive response that a person can make when problem-focused coping no longer seems possible. It would help to ameliorate the negative emotional impact of being entrenched in a situation in which goal progress is unable to be made so that a person can feel better about his or her situation even though the impasse itself may remain. Strategies such as distancing oneself from the situation or trying to reinterpret the situation in a more positive light can help an individual to better manage the stressful emotions being experienced. Lazarus adds that, in many cases, emotion-focused coping will actually facilitate problem-focused coping such that the distinction between the two forms of coping may occasionally become blurred. For example, successful attempts at reducing negative emotions may permit an individual to adopt a more positive outlook regarding the problem situation that



could result in the realization of prospective new problem solutions. Too frequently, however, attempts to regulate negative emotions are counterproductive to being able to effectively regulate one's behavior for attaining goals (Baumeister & Heatherton, 1996; Kuhl, 1996). Baumeister, Bratslavsky, Muraven, and Tice (1998, experiment 3) report a decrement in performance on an anagram task following individuals' attempts to suppress emotions while watching a movie. They argue that the self possesses limited resources that are depleted when attempts are made to control emotions or engage in other volitional acts. Baumeister claims that an exaggerated emphasis on the self or on problems with respect to the self produces a desire to escape from continued negative self-awareness and attendant emotions (Baumeister, 1991; Baumeister & Scher, 1988). In ego-threatening situations, some individuals even resort to drug or alcohol use (or other vices) in order to escape, at least temporarily, the effects of a sustained negative or critical self-focus.

Students who have failed university may also attempt to control how they feel through thought control. Failure to attain personally meaningful goals may lead students to engage in excessive dwelling upon the circumstances pertaining to the failure. This commonly takes the form of rumination, where people consume “scarce processing resources” by focusing repetitively on thoughts regarding the reasons for their current distress (Segal, Williams, & Teasdale, 2002, p. 51). Also, individuals may worry excessively about their prospects for the future now that they have failed to achieve their goals (Borkovec et al., 1998). Because such thoughts are unpleasant, many people will

choose to try to suppress the negative thoughts instead of continuing to rehash them in their minds. This kind of strategy for coming to terms with negative experiences in one's life has a venerable history. Freud apparently used the term 'suppression' interchangeably with the term 'repression', when describing individual's attempts to render traumatic or other unpleasant experiences inaccessible to conscious awareness (Power & Brewin, 1991). Indeed, much of what typically guides human behavior operates automatically and generally below the level of conscious awareness. However, this is usually a beneficial outcome of skill acquisition and not something to be avoided (Bargh, 1997; Bargh & Chartrand, 1999; Damasio, 1994; Schneider & Shiffrin, 1977). Hence, skills practiced over time, from driving a car to playing chess to solving Math problems, eventually require fewer attentional resources and less effort to be performed competently. Efforts to suppress negative thoughts from conscious awareness will tend to have predictable effects as well, but, unfortunately, in ways that are counterproductive to effective human functioning. Implicitly, traumatic thoughts that are "successfully suppressed", or repressed, can cause a number of symptoms and characterological difficulties for the individual, a function of not having come to terms with the trauma (Brown, Schefflin, & Corydon Hammond, 1998). Thus, in therapy with incest survivors, Courtois (1991) recommends building an individual's sense of self before doing any memory work around the trauma.

More explicitly, ongoing attempts to suppress worrisome thoughts will often produce a paradoxical rebound effect whereby the negative thoughts seem to intrude even

more into conscious awareness (Kelly & Kahn, 1994; Wegner & Wenzlaff, 1996; Wenzlaff & Wegner, 1998, 2000). In theory on thought suppression, Wegner (1997) suggests a cognitive control process pattern, based on positive feedback loops, that invokes both operating and monitoring processes in the regulation of negative thoughts. In using positive feedback loops, the goal is to move away from some undesired state. Hence, Wegner describes an operating process that is purposive, whereby individuals try to supplant the unwanted thoughts in working memory with alternative, distracting thoughts. The monitoring process is then automatically engaged and acts as a sentinel to alert the operating process of any potential intrusions of unwanted thoughts into working memory. This permits the operating process to make additional compensatory attempts to suppress the unwanted thoughts, as required. However, when the operating process is unable to suppress the unwanted thoughts, the monitoring process gains ascendancy over the operating process in regulating thoughts. The ironic result is that troublesome thoughts being monitored for exclusion from working memory are brought to the forefront of conscious awareness, with negative consequences. The inadequacy of using positive feedback loops alone to regulate thoughts and behaviors has been argued convincingly by Carver et al. (1996), who claim that positive feedback loops are more likely to be effective when couched within overarching negative feedback loops that allow a person to work toward attaining some future-oriented, personally enhancing standard, if one is available.

As mentioned, Carver and Scheier (1981, 1990, 1998) claim important roles for

two processes in the regulation of behavior: the use of operators for making goal progress, and of monitors for providing feedback regarding the sufficiency of using operators for reaching goals. In general, it is difficult to suppress thoughts or inhibit behaviors that relate to a goal that one has been highly motivated to attain (Polivy, 1998). Yet, to fail university requires many students to do just that - inhibit a range of prospective goal-relevant behavioral and cognitive activities that would otherwise have been pursued by the student. The difficulty of doing this should not be underestimated when an individual is attempting to suppress thoughts about such a potentially catastrophic event as failing university (Rachman & Shafran, 1998). Typically, there is an increase in intrusive thoughts following active attempts to suppress those thoughts. In some instances, ordinary individuals may actually exhibit characteristics similar to people who suffer from obsessive-compulsive disorder (OCD)(Salkovskis, 1998). People with OCD frequently try so hard to suppress distressing obsessional thoughts to alleviate their anxieties that they are destined to experience a flood of even more of the same thoughts. Working memory capacity is likely to be taxed by excessive attending to the content and process of thought suppression. At such times, other cognitive functioning is likely to be impaired because of limited attentional resources (Eysenck & Keane, 1992). Increased distractibility and other information processing difficulties may lead some individuals to conclude, most often wrongly, that their memories are not that good (MacDonald, Antony, MacLeod, & Richter, 1997). Unfortunately, ascribing continued personal difficulties to such causal antecedents as a poor memory would tend to be self-

confirmatory in 'proving' that one's failures in life emanate from within the person and are immutable (Weiner, 1985).

While the efficient functioning of working memory may be impaired by attempts to suppress undesirable thoughts, the converse situation also applies: attempts at suppressing thoughts may be undermined by concurrent cognitive demands on working memory (Muraven et al., 1998). For students in academic difficulty despite making their best efforts to succeed, increased cognitive demands would be a pervasive part of students' everyday lives (Wenzlaff & Wegner, 2000). Students might experience added cognitive demands from more difficult course materials, frustrating and unproductive study sessions, increased time pressure, or too much anxiety in exams, to name just a few possibilities. Paradoxically, deliberately trying to suppress thoughts of failing while under added cognitive load would only serve to increase worrisome thinking about the eventuality of failing university. Thus, students who believe that they are hopelessly behind in their work, will tend to have further study sessions compromised by time-consuming and intrusive thoughts about failing. Upon failing university, any attempts to suppress thoughts about the failure event itself would only tend to eventuate in those negative thoughts receiving even more attention. Interpersonal considerations might further confound a person's efforts to suppress thoughts about failing (Lane & Wegner, 1995; Shoham & Rohrbaugh, 1997). Students who are reluctant to tell family and friends about having failed are likely to remain preoccupied with associated thoughts even after they have disclosed the information (Lane & Wegner, 1995). As well,

expressions of concern on behalf of caring others following failure (or alternatively, constant reminders by others of having failed) can undermine attempts to forget the failure event, thereby fueling a resurgence of negative thinking about having failed (Shoham & Rohrbaugh, 1997). Because people are under stress following failure, the extra cognitive load helps to ensure the continued presence in working memory of the self-relevant negative thoughts. Individuals struggling with depression have particular difficulty in being able to suppress depressing thoughts, especially as the cognitive load is increased (Wenzlaff & Bates, 1998).

The etiology and incidence of depression among students should be of major concern at universities. As many as 78% of students have been reported to exhibit depressive symptoms in any given academic year (Beck & Young, 1978, cited in Walters, 1989), while more than one-third of respondents in another study reported needing assistance with depression (37.3%) and anxiety (36.1%) while at university (Bishop, Bauer, & Becker, 1998). In surveying the causes of student depression, Furr, Westefeld, McConnell, and Jenkins (2001) found that 53% of respondents claimed to have experienced depression due to “grade problems,” which was the most commonly endorsed item in their survey.

Thoits (1994) explored the health consequences for individuals who continued to experience unsolved personal difficulties despite making persistent efforts to resolve them. She argued that successful completion of tasks had greater implications for positive psychological health, than merely having attempted the task if success were not

achieved. It is evident that failure to attain goals of significant personal import only serves to keep those goals on one's mind. Thoits concluded that, "symptoms of anxiety, depression, and psychosomatic discomfort should increase in response to unsolved stress situations, especially in response to attempted solutions that fail" (p. 145). For some students, failure to attain important goals at university despite making an earnest effort can have important health implications.

### *Dichotomous Working Memory Representations*

#### *Representing the Problem*

Derryberry and Tucker (1994) use a spotlight analogy to express how an individual orients attention to "perceptual or conceptual content" that has significant meaning to that person's life. For someone who is blocked in goal pursuit and unable to apply operators for breaking the impasse, there is likely to be excessive attentional orienting to personal threat-relevant content, whether that focus is on external situational stressors or on perceived internal shortcomings. Actually, Lazarus (1990) argues that what is important in stressful situations is the transaction between the individual and environment, as subjectively viewed by the individual. He claims that, "psychological stress ... depends on an appraisal by the person that the person- environment relationship at any given moment is one of harm, threat, or challenge. Stress is a postappraisal state" (p. 4). Primary cognitive appraisals are used to evaluate the person-environment transaction in terms of its potential impact on the individual's well-being (Burgess &

Haaga, 1998; Smith, Haynes, Lazarus, & Pope, 1993). Secondary cognitive appraisals are then made to try to reconcile individuals' goals and standards regarding both themselves and the world, with those situational circumstances that place those personal goals and standards in peril. Students failing out of university, however, may believe that they have exhausted all avenues for reconciling their goal interests with standards or performance criteria set by the university. During such times, individuals are likely to become poignantly aware of their distress as they deplete what volitional resources they have in trying to cope with the failure and its implications for their lives (Baumeister, Faber, & Wallace, 1999).

A dichotomous working memory representation would have to be consistent with individuals maintaining a predominantly negative self-focus at such times, in part, the result of making primary cognitive appraisals that the situation poses a threat to oneself (NC)(Lazarus, 1990). As well, corresponding negative emotions (NE) would also have the effect of focusing attention on the self (Palfai & Salovey, 1992). In general, one's working self-concept, as an "active, shifting array of self-knowledge" (Markus & Wurf, 1987, p. 306), would include self-representations that contain various cognitions, emotions, images, and physiological constituents for depicting oneself in the present or future. Students who fail university despite making a concerted effort to succeed are likely to have predominantly negative self-representations consistent with viewing oneself as a failure. Persistent "self as failure" representations in working memory will tend to produce further attentional biases toward any other negative self-relevant



information that may be interpreted from the environment (Cross & Markus, 1994). A pattern of selective information processing may emerge that recapitulates the viewpoint that the person would be unable to succeed academically at university. As such, a dichotomized portrayal of working memory contents would underscore the personal difficulties being experienced by the individual, as follows:

**{NC, NI, NE, NPS: pc, pi, pe, pps}**

The negative constituents within the above representation are bolded to denote the weighty, internalized nature of the perceived difficulties. Students are likely to ruminate more as higher-order goals are left unattained, and they are likely to experience negative emotional reactions as a consequence (McIntosh, 1996). Sustained negative cognitions and affect surrounding one's circumstances also contribute to the establishment of negative self-images (NI)(Mathews & Mackintosh, 1998; Pyszczynski & Greenberg, 1987) and to an awareness of the body's aversive physiological responses to the stressful event (NPS)(Chorpita & Barlow, 1998; Koranyi, 1989; Lazarus, 1999). These thoughts, images, feelings, and physiological constituents in working memory would have a pervasive effect on regulating subsequent actions, especially given that goal-related opportunities would appear to be bleak. As represented in working memory, positive goal-connected thoughts (pc), images (pi), emotions (pe), and associated visceral states (pps) can appear less and less frequently as part of one's active self-representation in

memory when an individual becomes increasingly preoccupied with managing excessive threats to goal attainment. Indeed, there are indications of an information-processing asymmetry, especially in stressful circumstances, whereby threatening information does tend to receive more attention than positive information (Mathews & Mackintosh, 1998; Tafarodi, Tam, & Milne, 2001; Taylor, 1991; Wegner, 1997). Similar attentional biases toward perceived sources of threat have been observed for traumatized individuals (Resick & Schnicke, 1992). For many people, the threats emanate from within as unwanted thoughts that the person consciously tries to suppress (Wegner, 1997). The troubling thoughts rebound into awareness following active attempts to suppress them, and this can cause the person additional distress as the locus of attention remains with the problem that the thought represents. Many students waste enormous energy and time vacillating between trying to avoid negative thoughts and actively ruminating over those thoughts (Wegner, 1997). One effect of thought suppression is that it seems to reduce immunological functioning (Petrie, Booth, & Pennebaker, 1998). As well, when the thought suppression problem exceeds coping resources, a person's cognitive and behavioral functioning will be impaired (Baumeister et al., 1999). The situation is further exacerbated when individuals enter into tasks believing that the tasks are diagnostic of ability (Trope, 1986). On many occasions, people will attribute academic failure to their own inabilities and grudgingly accept the fact that they have failed. Despite apparent acceptance, these people would hardly be consoled and would probably retain a lingering awareness of having failed (Thoits, 1994).

Dichotomous working memory representations permit goal-relevant personal difficulties to be signified in a number of ways, depending on the individual, and this can have diagnostic utility. As the currently salient part of the working self-concept, the negative cognitions, images, emotions, and physiological states within working memory would not usually be expressed with equipotentiality. While they would share a certain synergistic relationship in working memory, at times negative images might be prevalent for some individuals (Andrews, 1989; Pyszczynski & Greenberg, 1987), negative emotions for others (Rusting, 1998; Salovey et al., 2000), and physiological representations for yet others, a consequence of becoming aware of negative somatic states while in aversive situations (Damasio, 1994). Many students would tend to represent their apprehensions about failing verbally. Verbal thoughts can take the form of excessive rumination, entailing repetitious and generally unprofitable efforts to fathom the reasons for one's failing university (Nolen-Hoeksema, 1998). Congruent with ruminative thoughts, there may be emotive correlates also, as the situation is perceived to be damaging to one's goals and aspirations for the future. When an important goal is blocked, emotional responses may manifest as sadness, dejection, anger, frustration, guilt, shame, or anxiety, among other emotions (Bagozzi et al., 1998). These emotions can spur an individual to initiate actions that would contribute to a greater processing and reduction of the negative emotions (Bagozzi et al., 1998; Frijda, 1988; Schwarz, 1990).

Upon failing, people will often worry excessively about their diminished prospects for the future, for either hedonic reasons or eudaimonic reasons (Ryan & Deci,

2001). That is, they either have concerns for their subjective well-being (i.e., their future happiness), or for the likelihood that they can ever become more fully functioning human beings. However, it is not always the case that people who worry a great deal will experience congruent negative emotions. Worry, as mostly verbal thought, may actually function to inhibit the emotional processing of negative information in working memory, a situation that interferes with fully processing the meanings of negative emotions so that emotional problems may persist (Borkovec et al., 1998). For example, Luu et al. (1998) maintain that focusing attention on anxiety influences how information is organized in working memory, which can be instrumental for, "[extending] the individual's mental representations into implicit plans for future actions" (p.582). They offer a neurological explanation, similar to that of Damasio (1994), in which physiological and emotional states are associated with anticipated future outcomes through attentional processes operating in conjunction with working memory. Furthermore, people who are anxious typically generate images to represent the threats in memory as well (Mathews & Mackintosh, 1998). In contrast, people who worry excessively are less likely to form images as they attend predominantly to their negative thoughts (Borkovec & Inz, 1990). Also, when people process emotional information verbally by ruminating as opposed to generating images, physiological responses to stress appear to be more muted (Vrana, Cuthbert, & Lang, 1986).

Mathews (1990) suggests that the problem with worrying is the extent to which it can consume attentional resources, to the detriment of other useful sources of

information. For a student who fails university, a predominance of negative thought might effectively interfere with a person's ability to attend to other sources of information that would be jousting for attention within working memory - emotive, imagery, and physiological information that could help the person respond more resourcefully to having failed. Indeed, worry may often be used, at least implicitly by people, to avoid having to contend with the unpleasantness of attending to powerful images, emotions, and physiological states that people would find more disturbing. Worrisome thoughts can have unintended, negative consequences when they interfere with finding solutions to problems that are likely to persist. Worrisome thinking can perpetuate the maintenance of depressive thinking patterns in those who are depressed (Borkovec et al., 1998). For those who are highly anxious, worrisome thoughts can interfere with tasks performed under stressful circumstances, presumably because worrisome thoughts deplete working memory resources (Derakshan & Eysenck, 1998). As well, in academic settings, students worrying too much about being evaluated on their performance will often perseverate in negative self-referenced thinking so that it interferes with attending effectively to specific tasks (Harackiewicz et al., 1998). Perhaps this is why students are frequently admonished to concentrate on doing a task rather than thinking too much about it to the point that ancillary thought processes are introduced.

A systematic exploration of the nature and relative contribution of negative cognitions, images, emotions, and somatic states to an individual's goal orientation following failure would do much to elucidate possible corrective measures that may be

taken or recommended. Indeed, the focus of many therapeutic interventions is to facilitate an adaptive reintegration of the self with one's subdued images and estranged emotions concerning stressful events (Mahoney, 1991; Stanton & Franz, 1999). For instance, the therapeutic tool of writing (or talking) about negative life experiences such as failing university permits individuals to self-disclose (or other-disclose) what they truly think, imagine, and feel about the events rather than trying to avoid attending to such things, or alternatively, ruminating unproductively about having failed (Smyth & Pennebaker, 1999). As people gain insight into stressful events through writing, they frequently introduce more positive emotional words into their writings (Pennebaker, Mayne, & Francis, 1997). Students who attempt to process more fully the failure event and their reactions to it will be better prepared to try again to achieve personally meaningful goals at university.

#### *On Constructing Alternative Representations*

As previously mentioned, Derryberry and Tucker (1994) use a spotlight metaphor to describe an individual's capacity for concentrating attentional resources by filtering out information irrelevant to perceived threats so that the threats can receive more exclusive attention. Thus, people under stress may be inclined, initially, to focus on threat-based information to produce an attentional (mental) environment in working memory that would not be particularly conducive to resolving personal difficulties. This is because negative self-relevant information may be processed in such a way that it produces a

heightened self-focused awareness of one's personal problems and perceived deficiencies, and this may perpetuate a pattern of continuing to select negative self-relevant information from the environment (Ingram, 1990). Individuals may have negative self-images of themselves (Markus & Nurius, 1986), and seek out information that tends to confirm their undermined self-expectations (Andrews, 1989). Thus, people tend to become more biased in their interpretation of information while under stress than they would be in ordinary circumstances. Paulhus and Lim (1994) found that students required to evaluate famous people, such as Princess Diana or Adolph Hitler, were much more positive or negative in their judgements just prior to writing an exam, when emotional arousal was high, than they were one week before or one week after the exam. Shortly after failing, students may experience similar "cognitive arousal" in the form of more polarized and extreme thoughts regarding the failure event and associated memories at university. These students may tend to polarize their experiences at university, past and present, into university policies just or unjust, professors good or bad, courses easy or difficult, assignments fair or unfair, and themselves as situationally capable or incapable. Polarized thinking can be advantageous when a threatening situation exists and a person has to rapidly discern friend from foe by filtering out irrelevant information from working memory (Paulhus & Lim, 1994). It may even be advantageous as a form of rationalization that permits better emotion-focused coping to occur when one's academic prognosis does not look good (Lazarus, 1990, 1999). In withdrawing from university, polarized thinking can be used to justify a person's poor academic performance when "the

system" is perceived to exceed one's capabilities or to be totally unreasonable. However, polarized thinking patterns only serve to retain a negative self-focus. After all, the reality of having failed university still remains and may even be accentuated by polarized thinking. Furthermore, polarized thinking patterns interfere with the more nuanced forms of thinking that is required to analyze the failure event more fully so that planned responses can be made and rash decisions such as giving up on university averted. Before quitting on university, students need to consider more fully some of the factors that led to failure over which they might have had, and still could have, more control - from deficiencies in study skills and assertiveness, to deplorable living conditions. It may seem difficult, at such times, for someone to be able to adopt a positive self-focus, but maybe this is exactly what is required if a person is to turn personal failure into eventual success. Self-focusing will be a problem for someone whenever negative evaluations are directed at the self (Kluger & DeNisi, 1996), and the self-focusing increases negative affect (Pyszczynski & Greenberg, 1987).

A state of positive self-focus tends to promote a tendency to establish new or re-assert old internalized standards, and to engage operating processes consistent with attaining those standards (Carver & Scheier, 1998; Macrae, Bodenhausen, & Milne, 1998). Of course, this line of reasoning runs the risk of becoming circular if the individual believes that he or she has already exhausted all possible operators to achieve a standard but without success. However, two possibilities exist by which students might return to their studies: they might exchange the standard they were unprofitably pursuing



for one that offers a greater chance of achieving success, or, they might learn to use new operators to attain the standard, an issue to be explored later in this chapter. Linville (1987) reports that individuals who have greater self-complexity, or more varied self-concepts, are more likely to have behavioral alternatives that might prove useful for selecting a different behavioral standard toward which to work. This is because a negative evaluation would be confined to circumscribed aspects of a well-differentiated self so as to affect other self-aspects minimally or not at all. Failure would likely have a more catastrophic effect upon people with less differentiated self-concepts. Furthermore, Niedenthal et al. (1992) distinguish between people's current self-complexity and their possible self-complexity. They found that, whereas current self-complexity moderates the emotional effects of receiving immediate performance feedback, possible self-complexity moderates the emotional effects of receiving evaluations related to an individual's future goals. People who have more ideas concerning themselves in the future should be able to respond more adaptively to failure. This is a hopeful possibility for individuals who have failed university despite making quixotic efforts to succeed in a particular academic domain. While their current self-complexity may not be very embellished, their possible self-complexity for the future can be. Linville argues that greater self-complexity provides more extensive coping resources that can moderate the negative effects of stress and help prevent depression. However, greater self-complexity, itself, is probably not sufficient to ensure that a person will return to goal-oriented behavior. A person needs to be reasonably efficacious in selecting which specific

self-aspect the person will strive to develop in the future. As stated by Carver et al. (1994), "A person who holds too diverse a range of aspirations risks spreading his or her mental efforts and energies too thin in trying to realize those hopes" (p. 140). Success is more likely to occur when an individual can work toward attaining a specific outcome. Thus, when people who fail are able once again to have explicit thoughts and vivid images of a possible self they would like to become, they will renew self-regulated behavior toward attaining the desired state (Markus & Nurius, 1986).

While a spotlight analogy may be useful for denoting focused attention toward sources of threat, it does not adequately portray breadth of attention, whereby attentional processes may be extended to encompass positive resources in addition to threat information. Positive resources, or strengths, can include goals and, "constitute concrete, potent, and enduring evidence of self-worth" (Dodgson & Wood, 1998, p. 193). To represent breadth of attention, Derryberry and Tucker (1994) use a zoom lens metaphor to show that attentional range can be extended or reduced, as circumstances dictate, to promote more adaptive responding to threats. Thus, Oyserman and Markus (1990) maintain that people will be more successful at self-regulation in the service of achieving a desired goal when they have memory representations of both feared and desired selves to guide behavior. By this argument, university students would be most likely to achieve success when they sustain images of desired selves (PI) that help motivate behavior for reaching desired academic standards, while concomitantly retaining images of feared states that must be avoided, such as failing university. There seems little question that

success is more assured when people can attend to and harness personal resources for surmounting any threats for attaining success. Carver and Scheier (1999a) argue emphatically that people who exhibit optimism, or have reasonable expectations (PC) that desired goals can be reached, will show greater confidence and persistence in goal pursuit even when adverse circumstances exist. Meanwhile, positive emotional states (PE) are reported to be commensurate with rate of goal progress (Carver & Scheier, 1990), and tend to produce positive physiological states (PPS)(Futtermann, Kemeny, Shapiro, & Fahey, 1994). While optimists engage in more planful behavior and problem-focused coping in stressful situations, pessimists tend to disengage from goal pursuit and use emotion-focused coping that would sometimes include denying the problem, substance abuse, excessive eating or sleeping. Thus, Carver and Scheier (1999a) claim that clear benefits accrue to individuals who anticipate having positive outcomes in their lives.

Nevertheless, while optimistic thinking may be desirable, it may be unrealistic, initially, to expect students to be optimistically disposed about their prospects for future success while they are still struggling with the negativity of having failed university. For this reason the process of volitional recovery would probably be a transitional one in which students move from having a predominantly negative self-focus to developing a more equitable representational balance in working memory between threats and relieving personal resources for responding to those threats. Indeed, many people are successful when they contemplate and respond to threats as an adaptive strategy in planning for the future (Norem, 2001). People with anticipatory anxiety may especially benefit from

considering threats to goal progress along with personal strengths for attaining desired goals (Norem, 2001; Roney, Higgins, & Shah, 1995). Eventually, as personal resources continue to be harnessed successfully toward attaining goals, maintaining a positive outlook for the future should become more routine for many students. Dichotomous working memory arrangements can well represent the shift in attentional emphases. Individuals need to identify positive resources in sufficient strength to offset sometimes major impediments to achieving success. Positive thoughts (PC), images (PI), emotions (PE), and physiological states (PPS) can be instrumental in forging renewed goal-related activity for someone who has failed, and for diminishing the negative psychological milieu and possible stigma surrounding the failure.

There is ample evidence to suggest that people can become more optimistic and goal-oriented despite suffering major setbacks to their earlier aspirations. Indeed, individuals apparently have a need to resolve to their satisfaction any discrepancies that persist between their blocked states and desired states (Segal et al., 2002). Failure to do so can even have long-term health implications (Thoits, 1994). Two well-established psychological phenomena support an individual's disposition to remain aware of an important but blocked goal: the Zeigarnik effect and the Ovsiankina effect. As reported by Berkowitz (1996), the Zeigarnik effect states that people will have more salient memories for uncompleted tasks relative to completed tasks, while the Ovsiankina effect refers to a strong tendency on behalf of individuals to return to work on uncompleted tasks, if possible. This latter effect may be facilitated by people's egocentric

predispositions to want to view themselves in a positive light, and to believe that the future will hold more promise than did the past (Taylor & Brown, 1988). Thus, many people will harbor positive illusions for the promotion of subjective well-being rather than letting apparent reality dictate what actions are taken. Positive illusions can manifest in people's stories. According to Baumeister and Newman (1995), people asked to construct stories of their experiences tend to exaggerate the meanings of life events to support a particular conclusion and convey a favorable impression. In most cases, people construct personal stories that are concerned with intended goals, justifying one's actions, demonstrating efficacy, or bolstering self-worth. Such characterological stories may help individuals to reassert their personal strengths and long-term interests that may include a return to university. Other research indicates that some people engage in benefit-finding as a way of cognitively adapting to adverse situations (Charmaz, 1994; Tennen & Affleck, 1999). People often derive positive aspects from their negative experiences, or seek new insights into their lives by reinterpreting stressful events in a more positive way. Thus, students might establish more positive priorities, goals, or values in response to having failed university. Klinger (1975) argues that the last stage in coming to terms with a blocked goal is to make a new commitment to some goal in life. Even students who are discouraged with university and planning to put their academic plans on hold are probably affected by an undercurrent of psychological processes such as those indicated above. Such incipient cognitive processes might well set the stage for personal growth and a return to learning.

People endeavour to become fully functioning beings (Ryff & Singer, 1998). It should not be surprising, therefore, that many individuals would want to try again to obtain a university education. Indeed, peoples' very efforts to stop thinking about their university aspirations and experiences subsequent to failure may help explain why many might return to university. Of crucial importance, according to Wegner and Wenzlaff (1996), would be the manner in which thoughts about the failure event are framed. They can be framed in terms of approaching a desired state (approach/promotion), or in terms of avoiding an undesired state (avoidance/prevention). It would be common for someone who has failed university to have the avoidance goal of suppressing all thoughts and images of attending university, along with the sadness and possible bodily reactions that may be evoked. After all, people have to get on with their lives, and thought suppression would seem a reasonable way to stop having unpleasant thoughts about unfulfilled university aspirations that sustain a negative self-focus. In trying to avoid unwanted thoughts, the operating process would seek any information other than thoughts about the university, while the monitoring process would be vigilant for any thoughts, images, emotions, or physiological reactions that relate to university. When the operating process is interrupted, often because of stressors, the contents of the monitoring process spill over into working memory and the person is painfully reminded of not attending university. With such constant reminders, it is little wonder that failing students might decide to give university another try.

Unfortunately, the very mental control processes that kept university on students'

minds could prove to be handicapping when students get back to learning. In all likelihood, they would still set prevention goals in their coursework in a bid to avoid failing again. Research shows that this could be a big mistake (Wegner & Wenzlaff, 1996). Under stress, students who try not to fail, or who try not to think about failing, would seem destined to become preoccupied by such thoughts if they encounter difficulties in their coursework. According to Emmons and Kaiser (1996), people need personalized goals to strive toward and to direct attention away from less desirable outcomes. Having approach goals would better support more self-determined behavior toward attaining valued goals, and would minimize attending to tasks in order to avoid negative outcomes (Ryan & Deci, 1999). The advantage of approach goals over avoidance goals should even hold in the event of failure. Students who frame failure in terms of approach goals would be more likely to problem-solve their failures with a view to adopting new plans of action to succeed.

Focusing on the presence of positive outcomes rather than on the absence of negative outcomes should improve both persistence and performance on tasks for students (Carver & Scheier, 1999a; Roney et al., 1995). Indeed, the difference in ability to enlist positive resources when confronted with failure appears to be one of the qualities distinguishing individuals with high self-esteem (HSE) from those with low self-esteem (LSE)(Dodgson & Wood, 1998). Dodgson and Wood found that HSE and LSE individuals were similar in reporting the numbers of personal strengths possessed along with the weaknesses. Upon receiving success feedback, both groups showed similar

weakness-strength discrepancies in favor of possessing more strengths than weaknesses. After receiving failure feedback, however, LSE people had trouble directing their attention away from their perceived weaknesses and toward their personal strengths. As such, their negative thoughts, congruent with failing, became even more accessible to them so as to reduce original weakness-strength discrepancies. Despite this, it is noteworthy that LSE individuals still retained more access to strengths than weaknesses. In contrast, HSE individuals were able to activate positive thoughts about their personal strengths following failure that were incongruent with both failure and the negative thoughts normally associated with it. By recruiting their personal strengths, HSE people were able to increase the discrepancy between their strengths and weaknesses. Dodgson and Wood explain the increased discrepancy as, "a turning of attention away from weaknesses rather than a denial of them, and a focusing of that attention toward strengths" (p. 194). Forgas and Vargas (1998) add that HSE individuals switch off their negative thoughts more quickly than do LSE individuals. People thus seem to achieve greater success when they focus more on positive outcomes and are able to enlist personal resources for achieving desired outcomes (Roney et al., 1995; Ruvalo & Markus, 1992). In counselling settings, solution-focused brief therapy places a similar emphasis on harnessing individuals' personal resources toward finding satisfactory solutions to problems that "fit" the constraints of the situation (de Shazer et al., 1986; Miller & de Shazer, 2000).

However, there is accumulating evidence that motivated effort is required for



people to have mood-incongruent thoughts while in a negative affective state such as would exist following failure (Dodgson & Wood, 1998; Erber & Wang Erber, 1994; Forgas & Vargas, 1998; Smith & Petty, 1995). Furthermore, the ability to have mood-incongruent thoughts at such times is exactly what is required if individuals are to gain access to personal resources for responding effectively to threats. In other words, it takes a willful effort to locate and focus on one's personal strengths while that person is experiencing an attentional bias toward mood-congruent threatening information. As mentioned above, LSE people will be more challenged to accomplish this shift in attentional emphases toward personal strengths and away from weaknesses than will HSE people. However, it is useful to remember that, in the Dodgson and Wood study, LSE people seemed to have as many strengths as did HSE people, except that they did not access their strengths as readily when confronting failure. A dichotomized working memory arrangement can underscore whether an individual is being guided predominantly by prevention goals and a preoccupation with perceived weaknesses, or is being guided in goal-oriented behavior by positive promotion goals and a greater reliance on personal resources. Representing strengths and weaknesses dichotomously may be informative to students who need to establish a positive self-focus that will highlight personal strengths when facing adversity. Whenever possible, people need to have a positive asymmetry for information in working memory that favors success over failure.

The ability to employ operators successfully is critically dependent on the way in which goals are framed. It takes motivated effort to solicit the personal resources needed

to respond effectively to stressful events. This requires attentional control (Dodgson & Wood, 1998; Fredrickson, 2001; Wegner & Wenzlaff, 1996), as well as self-regulatory control over one's behaviors (Baumeister et al., 1998; Muraven et al., 1998). Both attentional capacity and the capacity for self-regulation appear to be quite limited, with attentional control generally a prerequisite for sustaining self-regulatory control. With this in mind, orienting to goals in terms of possible gains would be more conducive to performing academic tasks than would orienting to prevent possible losses. Furthermore, having more proximal sub-goals or receiving more frequent feedback about goal progress generally facilitates the attainment of positive goals, whereas they tend to interfere with the efforts of individuals who have negative goals (Cochran & Tesser, 1996). This understanding should be critical for all students, but especially for failed students returning to university who may lack confidence in their ability to use operators effectively to attain goals. Students will have more success in regulating their learning behavior if they do not feel threatened and can set proximal sub-goals to guide their efforts. Having proximal sub-goals is one way of focusing attention on what needs to be done and on how to go about it. Sub-goals can work in conjunction with goal hierarchies, whereby selecting and carrying out lower level tasks can facilitate the attainment of higher level goals (Vallacher & Wegner, 1987). In addition, students who mentally simulate the steps to reaching a sub-goal may be even more likely to succeed (Taylor, Pham, Rivkin, & Armor, 1998). Taylor et al. caution, however, that the true benefits of mental simulation occur when the process of reaching a goal can be dissected and

rehearsed through images, and not just by imagining the intended goal outcome.

Imagining positive outcomes alone appears to be less effective. In a study reported by Taylor et al. on test preparation, students who were asked to visualize in vivid detail what steps they would take to obtain an A grade (process simulation) performed significantly better on the exam one week later than did students who were asked to visualize only the outcome of actually receiving an A grade (outcome simulation). Compared to the outcome-simulation students, the process-simulation students reported reduced anxiety and increased planning that included more time spent studying. By envisioning the details of tasks, students were able to manage their emotions better and problem solve more effectively to meet the requirements of the exam.

In another exploration of self-regulatory control, Kuhl and Weiss (1994) found that people subjected to failure through experimental manipulation tended to exhibit deficits in the performance of complex tasks subsequently. They explained the performance deficits as a tendency of people to inhibit their use of volitional resources following failure. However, this self-regulatory impairment was greatly ameliorated when students were directed to use a think-aloud procedure that required them to attend more closely to the self-regulatory activities needed for carrying out the tasks. According to Muraven et al. (1998), individuals can improve in their capacity for self-regulating purposive behaviors even after setbacks. They refer to self-regulatory capacity as a strength that is temporarily depleted with each use, but which can be built up over time with practice. Self-regulatory capacity is thought to improve with repeated exertion, but

diminish when not exercised. The benefits of intermittent exertion is thought to promote a healthy disposition toward seeking and handling challenges as long as the person can recover, psychologically and physiologically, between challenges (Dienstbier, 1989). For students, regular study behavior would probably build capacity for further study, while not regulating one's study behavior would generally reduce self-regulatory capacity for further study. Thus, the self-regulatory process is one over which individuals can have a great deal of conscious control. Understanding the self-regulatory process can contribute to students becoming more resilient learners, better able to respond to the exigencies of university life. Students who fail and are discouraged can, indeed, find a way back to learning.

## Chapter 5. On Failing a Semester and Continuing University

### *Students Distracted*

For many students experiencing academic difficulty at university, the problem is not about having difficulties in goal-setting, or about being able to employ operators successfully to reach a desired goal. Rather, students sometimes fail to use operators that are readily available to them even though they have had plenty of opportunities to apply them (Baumeister & Heatherton, 1996). For these students the problem is often not an internal one in the sense that they perceive insufficient abilities or skills for carrying out tasks. As discussed in chapter 4, students who do make such internalized attributions are probably more at risk of giving up their goal interests; they would experience shame in believing that they could not control the circumstances that led to failure and may subsequently quit university (Weiner, 1984). In contrast, the students considered in this chapter would tend to make externalized attributions for failing university (e.g., people interrupting their study) or else make internalized attributions (e.g., didn't study) that would not implicate the presence of permanent impediments to achieving academic success. In essence, these students would be largely distracted from making the steady progress toward standards that would be normatively required within a university. By providing less permanent explanations for failing, these students would continue to believe that they could be successful at university even after failing a semester. It would

only be a matter of "settling down" and concentrating on their university work. In other words, they need to give more attention to monitoring their progress and rate of progress toward academic goals (Carver & Scheier, 1990, 1998). Yet, it may not be as easy for students to monitor their behavior effectively to attain goals as it might seem.

Students have to contend with many goals at university that may compete with academic goals for students' attention. For many students, a major concern is with issues of socialization within the university, with adjusting to changes in relationship to one's parents and previous social network and with establishing new interpersonal support systems (Birnie-Lefcovitch, 2000; Pascarella & Terenzini, 1991). Indeed, such concerns might even take precedence in the early stages of a university semester, and especially so for new students to campus. Grayson (1989) has identified four distinct stages in a typical university semester for students: stage one, lasting approximately two weeks, is all about making the transition to student living; stage two entails an emphasis on identity enhancement through the pursuit of personal goals that lasts until the midterm break; stage three is marked by a shift toward attending to increased academic demands while social interests still remain; stage four, during the last few weeks, is devoted more to exam preparation and completing other coursework. While this is only a general pattern, it does suggest that in the competition for students' attention, social tasks and goals will often take precedence over academic tasks and goals. The pattern also suggests that academic problems will emerge for many students, depending on course workload, as students fall progressively behind in their studies. Academic problems may completely

escalate if social goals are blocked early in the semester so as to preoccupy a student's attention. Alternatively, students who achieve popularity among peers, while underachieving academically, may increase social activities even more at the expense of academic ones. According to Yalom (1995), people tend to, "stress those traits and aspects of the self that meet with approval, and ... quell or deny those that meet with disapproval" (p.19).

While it is incumbent on students to balance their time and effort at university across academic, social and other goals, personal standards consistent with achieving academic goals are of central importance within the context of university (Marsh, 1990). Furthermore, the attainment of academic goals should bolster self-esteem and augur well for the realization of goals in other life domains (Campbell, 1990; Tafarodi, 1998). A number of researchers contend that humans are uniquely equipped to pursue the realization of self-enhancing goals (Ryan & Deci, 2001; Ryff & Singer, 1998). Kuhl (1996) comments that effective self-regulation, or volitional competence, involves, "the ability to stick to an intention and shield it against competing action tendencies" (p.61). To accomplish this, however, people have to be able to selectively filter out those environmental stimuli that could distract them from attending to goal-relevant tasks (Baumeister & Heatherton, 1996). When students do not monitor their academic activities closely enough, they tend to relinquish control over regulating their actions for attaining academic goals (Carver & Scheier, 1981, 1998). Consequently, other non-academic goals, interests, or simply distractions can take precedence over academic tasks

at such times. Indeed, research on procrastination in academic settings suggests that many procrastinative patterns may be attributable to a failure to monitor academic goal progress sufficiently (Milgram, Batori, & Mowrer, 1993; Walker & Stewart, 2000). Some students are preoccupied with a need to gain approval - whether from parents, peers, or professors - which can manifest in different styles of interaction with others that can debilitate their academic efforts (Walker & Stewart, 2000). Other students give reasons for procrastination that seem intended to preserve self-esteem, such as having poor time management skills, having an aversion to the task, or fearing failure (Milgram et al., 1993). With any of these explanations, a student would be unlikely to closely monitor his or her progress in carrying out academic activities, and would be more subject to the vagaries of distracting influences.

In people's lives, there is an ongoing competition in the moment between people's current thoughts, task-relevant information, and situational distractors. Goal-related thoughts directed at reducing negative feedback behavioral loops are not always foremost on people's minds. According to Polivy (1998), the thought (or motive) which has greatest strength, or which is most compelling in the moment, will be that which receives attention and associated action. Thus, for many, the temptation to socialize or imbibe in other distractions rather than study may often prove hard to resist, especially if the task of learning has become aversive to the individual to the extent that self-regulatory control is forfeited and self-esteem diminished (Solomon & Rothblum, 1984). The ubiquitous television (and now the internet) often competes very successfully with academic tasks,



sidelining students even as they need to attend to their studies. In many instances when self-regulatory control is lost, a distractor such as television may elicit positive emotions and thus appear rewarding, at least temporarily, while academic tasks may be perceived to be effortful, time consuming, anxiety-provoking, frustrating, or ego-involving - situational appraisals that would hardly be conducive to task involvement. Unfortunately, the substitution of pleasurable tasks for "painful" tasks can commence a behavioral cycle of work avoidance that becomes hard to break (Goldberg & Fischhoff, 2000). At such times, ironic mental control processes may routinely undermine attempts at asserting the primacy of learning goals (Wegner & Wenzlaff, 1996). In trying to suppress thoughts about watching television, for instance, difficulties with one's studies or other stressors would tend to weaken the operating process for studying and result in a resurgence of thoughts about television that the ironic monitoring process had been screening for. Gollwitzer (1999) suggests that finding ways to simply ignore the distractor rather than willfully resisting such thoughts in memory may be a more successful strategy for managing counterproductive thoughts.

The factors that influence people's decision-making for the near future are different than for the more distant future. People often have relatively stable goal orientations to guide their decision-making for the distant future but, in the near future, are more persuaded in their decision-making by the context in which the decisions are made (Trope & Liberman, 2000). That is, people may plan on doing well in a course at the outset of a semester, but find that doing the actual coursework itself becomes less

attractive as the time for study approaches and other behavioral options become more attractive. Indeed, students often register in courses out of interest, only to find it difficult to attend to the required coursework which they may regard to be boring. They might still want to do well in the course but consistently fall short of personal expectations each day. Thus, to the extent possible, it would be advantageous for individuals to become absorbed in the process of task implementation if that task is to be selected over alternative behavioral options that may be available to people. Task involvement is especially critical for sustaining goal-directed activity if the goal is relatively long term or high level. As stated by Sansone and Harackiewicz (1996), "what an individual 'feels like' doing at a given moment in time may be the more vivid and compelling determinant of present action than motivation evoked by the thought of achieving or avoiding a particular hypothetical and future outcome" (204). "Feeling like" doing a task treats the phenomenological experience of task involvement as a form of feedback which, if positive, would support further task effort, persistence and use of strategies, much as intrinsic motivation would do. It is the prevalence of such positive feelings that allows attention to the task to be sustained in the presence of distractors, and progress to be made toward the goal.

Research by Puca and Schmalt (2001) on the relation between achievement motivation and decision-making may help to further elucidate why some individuals persevere at important tasks while others choose to do something different. An individual's attentional processes for selecting and acting upon available behavioral

options may be partitioned into those processes that operate before and those that operate after making a decision. Puca and Schmalt refer to these two "action phases" of decision-making as predecisional, or having a deliberative mindset, and postdecisional, or having an implemental mindset. When the mindset is deliberative, individuals contemplate alternative tasks or goals and choose between them; when the mindset is implemental, individuals attend to ways for achieving the selected goal. Puca and Schmalt argue that the predecisional and postdecisional action phases work differently for success-oriented and failure-oriented individuals. In general, students who are motivated to achieve success were found to be pessimistic while deliberating on which goal to pursue, but optimistic about implementing goal-relevant actions subsequently. In contrast, students motivated to avoid failure were found to be optimistic in the predecisional phase of decision-making, but pessimistic in the postdecisional phase when implementation was required. It was argued that being pessimistic in the implementation phase would not be conducive to the attainment of achievement goals. As well, being optimistic in the deliberative phase may lead failure-oriented students to select more unrealistic goals to pursue that would entail higher risks and reduced prospects for actual goal attainment (Baumeister et al., 1993; Puca & Schmalt, 2001). Unrealistic goals may impair an individual's self-regulatory efforts to such an extent that many may quit goal-oriented activity prematurely. On the other hand, being optimistic after selecting a task or goal may improve expectancies for success; postdecisional optimism is associated with having a specific plan of action for achieving the goal (Gollwitzer, 1993). Puca and

Schmalt contend that this post-decisional optimistic bias is the reason why, "success-motivated persons perform better and more persistently in achievement-related settings" (p. 307), even when facing substantial obstacles. It stands to reason that they would be better able to resist distracting influences when performing tasks.

The problem of optimistic biases in early decision-making is also indicated in a phenomenon described in the literature as the planning fallacy (Buehler, Griffin, & Ross, 1994). The planning fallacy occurs when people underestimate the time, effort and resources needed to complete tasks within specified time frames, culminating in procrastinative tendencies. In short, people routinely underestimate the difficulty of tasks and times to completion. Also, they often fail to take into consideration the possibility of encountering unforeseen obstacles to the timely completion of tasks. Many university students seem to be overly optimistic in predicting their completion times for university work. In one study, Buehler et al. reported that only 38.7% of participants had completed academic tasks within the times that they had predicted. On average, students took almost twice as long to complete tasks than they had originally estimated (10.7 days versus 5.8 days). In another study with honors students, Buehler et al. observed that only 48.7% completed their honors theses within the time that they had predicted, "assuming that everything went as *poorly* as it possibly could" (p. 369, italics added). Hence, even the more capable students were poor at predicting how long it would take to complete work. Undoubtedly, the problem of underestimating the time for completing tasks, of being unrealistically optimistic, can dupe many individuals into believing that they have

lots of time to do the work. This can have at least three negative consequences: (a) Students may rationalize that it is all right to pursue other activities and interests instead of doing academic work. Indeed, many people make harmful choices instead of healthy ones because they do not see the risks involved (e.g., not completing academic work or making a bad impression socially) when there are apparently more immediate benefits (e.g., perceived social value of drinking alcohol) for pursuing the risky behavior (Goldberg & Fischhoff, 2000); (b) They may be slow to start working on academic tasks, and delayed in finishing them (Taylor & Armor, 1997, cited in Taylor et al., 1998); and (c) They may despair near the end of the semester as they realize that much more work is required to complete tasks than they had originally predicted (Macan, Shahani, Dipboye, & Phillips, 1990).

To revisit ironic mental control processes one last time in the context of optimistic biases, overconfidence in selecting an academic goal may result in underestimating the work involved to achieve that goal. The operating process would promote an optimistic outlook by construing the goal in oversimplified terms that would include the goal's relative ease and ample time parameters for goal completion. The ironic monitoring process, however, would look for evidence that the goal is more difficult to obtain than would first appear. These thoughts are conveniently suppressed early in the semester by the presence of competing thoughts in working memory regarding alternative goals, interests, involvements, or distractions. Over time and as the person is slow to implement actions toward attaining the academic goal, the monitoring process intrudes into

awareness goal-related thoughts and self-doubt about being able to implement the relevant tasks satisfactorily for goal attainment. As risk of failure becomes more plausible, people often relinquish their achievement efforts (Thompson, 1993). Worrysome thought and diminished effort can eventuate in a self-fulfilling prophesy whereby the goal that was "a given" becomes unachievable. Baumeister et al. (1993) apply a similar rationale to the self-regulatory efforts of people with high self-esteem who often become so ego-involved in setting goals and making commitments that they exceed their performance capabilities for attaining the goal. It appears that people benefit most when they exercise caution in goal setting such that goal progress can be monitored effectively to completion. Koole and Spijker (2000) report that optimistic biases are reduced when individuals are able to establish detailed implementation intentions.

### *Dichotomous Working Memory Representations*

#### *Representing the Problem*

For many students who fail university, failure might be construed as a temporary circumstance subject to change. Most of these students would probably adhere to the view that they would be able to control academic outcomes in the future and would hence be interested in continuing with their postsecondary education. Many would know that they had not managed their time very well during the semester in question; many would even claim to have not been serious about their studies during that academic term. According to Baumeister and Heatherton (1996), self-regulatory failures are very seldom

the result of people succumbing to irresistible temptations. Rather, individuals willfully participate in alternative activities instead of attending to goal-related tasks.

Self-regulatory failures can either be demonstratively willful, or more subtle and progressive. Whereas demonstrative failures may be more likely to occur early in a semester, more subtle forms of self-regulatory failure may predominate later in a term. Students may choose to socialize, drink alcohol, play video games, or surf the net early in the semester when there is no imminent pressure on them academically. Later on in the semester, they may acquiesce in self-regulatory failure (Baumeister & Heatherton, 1996). That is, students may actively try to resist temptation, but slowly concede to it. Students attempting to study, for instance, are often distracted by the lure of the television in the next room or by other distractors in their environment. But, they will only be ultimately distracted if they give in to the television by breaking away from studying, getting up from their chairs, walking into the next room, and sitting down - each act an act of acquiescence intended to deliberately engage the distractor. When the evening has been wasted, students will often express dismay at what had transpired, as though they had been innocent victims of uncontrollable events. Yet, academic procrastination usually involves some level of active participation in the alternative, goal-irrelevant activities even as students openly acknowledge the importance of academic work left undone (Solomon & Rothblum, 1984). The process of acquiescence would seem to implicate failures of thought control (Wegner, 1997) and of behavioral inhibition (Polivy, 1998) that comes at some cost to monitoring and implementing goal-pertinent behavior. As

well, people are more likely to acquiesce in distracting activities as their self-regulatory strength for carrying out important tasks is depleted through exertion of effort that may become unpleasant or tiring (Baumeister & Heatherton, 1996; Muraven et al., 1998).

Although there are many prospective distractors within a person's environment (and intrapsychically, such as when people daydream), the choice of whether to procrastinate or not may most effectively be represented as a choice between two salient options within working memory. As such, a dichotomous depiction of information relevant to procrastinative tendencies may yield a simplified yet effective way of illuminating for students the problem that procrastination represents. Procrastination would result when an individual chooses to participate in the less goal-relevant of two options. One option would be to invest time in the pursuit of any goal-relevant task. However, the most cogent goal-related task needing attention in any given time frame may be selected by asking questions such as: "Which task, if done, would bring me closest to goal attainment?"; "Which task, if left undone, would have the greatest negative consequences for my academic well-being?"; and, "Which task, if done, would make me feel happiest? As these questions modified from Hobbs (1987) suggest, attending to the most important goal-relevant task is often recommended in time management programs. The second option would be to attend to distracting activities relative to the academic goal. Yet, working memory limitations and attentional biases would tend to result in one task or activity predominating in conscious awareness above all other distractors. When people procrastinate, this *prime distractor* succeeds in winning out over the major



goal-connected task in the competition for attentional and volitional resources and control. Thus, the working memory constituents representing the prime distractor are expressed in capital letters below to signify the essentially externalized and temporary nature of the perceived difficulty that contributed to the student's failure. In contrast, for students who fail and decide to drop out of university, internalized and permanent attributions for failing university are denoted by capital letters that are bolded, as was discussed in chapter 5. A dichotomous working memory representation of procrastinative tendencies may be shown as:

{NC, NI, NE, NPS: pc, pi, pe, pps}

This depiction perhaps most evidently illustrates the possible working memory constituents of individuals who are actively acquiescing in some distraction while remaining poignantly aware of the lapse in self-regulation of goal-related activities. For the most part, thoughts (pc), images (pi), emotions (pe), and somatic state information (pps) pertaining to goal attainment would be positively valenced if, that is, individuals were sufficiently engaged in the process of procuring a satisfactory goal outcome (Carver & Scheier, 1990, 1998). In general, people who capitulate to tempting distractors do care about and remain committed to their goals. As indicated by Trope and Liberman (2000), people who have desired goals can often envision those goals in the more distant future but are often less swayed by those goals and more swayed by prevailing contextual

circumstances as the time for task implementation approaches and distractive influences gather potency. Although the goal itself is positive, individuals frequently lose sight of this fact when they have to effortfully engage in the more immediate tasks contributing to goal attainment that may seem unpleasant (Baumeister & Heatherton, 1996). The planning fallacy and other forms of optimistic bias also suggest that people tend to view their goals positively (Buehler et al., 1994; Taylor et al., 1998). Unfortunately, goal-related optimism does not always translate into more immediate, planful activity for the realization of those goals (Koole & Spijker, 2000; Puca & Schmalt, 2001). Yet, the goals of many students who fail university do remain intact, pursued anew when students are able to return to university.

Dichotomous arrangements need to be interpreted in terms of goal pursuit - academic goal pursuit within a university setting. This can help clarify some of the apparent paradoxes that are inherent in the psychological processes of procrastination. For example, many individuals would probably report the immediate prime distractor to be preferable (e.g., socializing) to an unpleasant academic task, at least in the short run. This is evidenced in the delay of gratification literature where people often will choose a lesser positive reward available in the present moment rather than wait for the promise of a greater reward at some future date (Bembenuddy, 1999; Mischel, Shoda, & Peake, 1988). An individual may have positive cognitions, images, emotions, and physiological state feedback as a result of involvement with the distractor. However, in a dichotomous explication of procrastinative behavior, the pleasure would not last. Each major

distraction to which a student attends truncates the time remaining for accomplishing goal-relevant work. Students would be inclined to worry more about the consequences of unfinished work (NC)(Bembenutty, 1999), and sustain negative images of oneself in relation to one's goal (NI)(Mathews & Mackintosh, 1998). They would be dismayed at their forfeiture of valuable time to the distractor and experience guilt at their loss of interim self-control (NE)(Ainslie, 1996). Negative emotions such as guilt and anxiety would also be coupled with increased physiological arousal (NPS)(Chorpita & Barlow, 1998). For people enmeshed in procrastinative activities, the frustration of trying to inhibit such behavioral tendencies would underscore the real threat that distractors pose to eventual goal attainment and to self-esteem (Solomon & Rothblum, 1984).

For students who are demonstratively willful in letting themselves be distracted, there may exist a real imbalance between actions and goals initially. An individual may be thoroughly enjoying social activities while remaining very positive that plenty of time would remain to achieve high academic standards. In this context, a dichotomous working memory arrangement would highlight the false optimism that exists in the individual's goal contemplations in which goals devoid of actions are unlikely to be realized. Meanwhile, the person may be fully participating in other spheres of endeavour, readily identifiable, that would not be conducive to academic goal attainment. Such individuals will often be underprepared for writing exams (McCown & Johnson, 1991). According to Goldberg and Fischhoff (2000), people who see benefits in certain unproductive activities are likely to continue engaging in those activities; action

tendencies culminating in action are likely to recur. However, people who perceive greater risks in the apparent benefits of activities report reduced intentions for continuing the "harmful" behaviors. Students who are better able to recognize the risks involved in socializing when academic work needs urgent attention, for example, are more likely to achieve success at university.

#### *On Constructing Alternative Representations*

Inglehart (1991) defines critical life events as, "events which are inconsistent with that part of a person's worldview on which the person's attention is focused" (p. 95). She claims that individuals will try to reduce such cognitive inconsistencies. A student who fails university, therefore, will often try to reduce or eliminate the inconsistency that academic failure would represent for an individual's worldview which encompasses a university education. To accomplish this, students may initiate any of a number of psychological processes. One such process would be to reinterpret the failure in such a way that it helps to preserve self-esteem. Rhodewalt, Morf, Hazlett, and Fairfield (1991) found that students who receive feedback that they had failed at a task will show higher self-esteem and more positive affect if they do not attribute the failure to lack of ability. In this respect, they report that self-handicapping, or attributing poor performance to some impediment other than lack of ability, appears to be advantageous. Thus, students interested in continuing at university might well blame lack of effort, situational circumstances, or even illness for failing. Many will attribute failing to an external

source, or else offer an internalized, temporary (or unstable) explanation for failure that would lower mood for a short while but not diminish self-esteem (Weiner, 1985).

A related psychological process that people use to protect self-image and reduce threats to self-esteem is excuse making (Snyder & Higgins, 1988). This attributional process is also triggered when a person's actions fall below accepted standards. It would not be uncommon for students who have failed university to engage in excuse making as a way of distancing themselves from the bad event. This is accomplished, "by shifting causal attributions for negative personal outcomes from sources that are relatively more central to the person's sense of self to sources that are relatively less central" (Snyder & Higgins, 1988, p.23). Not only do people provide excuses to fit the situation (e.g., a computer malfunction prevented work from being completed), they tend to give their excuses verbally to those who would be favorably disposed toward accepting their explanations, for example, to friends and family members. According to Snyder and Higgins, excuse making thereby allows people to minimize having a negative self-focus while supporting a resumption of task-focus over which people can have more control. By deflecting attention away from a negative self-focus, a task-focus can help a person through a difficult time and promote a more positive outlook. This is not unlike Vallacher and Wegners' (1987) observation that attending to lower level actions is preferable for performing more difficult tasks, and leads to greater satisfaction and likelihood of success. Thus, excuse making can have beneficial effects in helping people retain some sense of control over problematic events in their lives. Students who fail

university need to re-focus on what they have to do to achieve success in the future, not wallow in self-blame.

Individuals will also engage in counterfactual thinking processes as a way of rebounding from a failure event, in part, because the emotions that follow a negative outcome appear to trigger counterfactual thinking (Roese, Hur, & Pennington, 1999). Counterfactual thinking is a cognitive process whereby people reconsider past outcomes in terms of "what might have been." Roese (1994) argues that the functions of counterfactual thinking are to feel better about a previous negative event, and to prepare the way for future improvement. Counterfactual thinking has directionality. Downward counterfactuals are those which describe alternative reconstructions of the past that are worse than actually occurred (e.g., If he had failed another course, he would have been required to withdraw from university). The benefit of thinking about how things could have been worse seems to be to improve mood. In contrast, upward counterfactuals present possible outcomes that are better than actually occurred (e.g., If she had studied more, she would have passed the semester). Upward counterfactuals represent a more efficacious way of reconstructing past events for facilitating a return to goal-oriented behavior. People tend to engage in upward counterfactuals when negative past events are perceived to be controllable (Roese & Olson, 1995). Presumably, such would be the case for failing students who wish to continue at university.

Counterfactuals can also be additive or subtractive, and consistent with having either promotion or prevention goals, respectively (Roese et al., 1999). An upward

additive counterfactual would describe a reconstructed past situation that is made better than actually occurred by adding some behavior (e.g., If only she had studied more). Increased studying could have averted failure by promoting a renewed emphasis on attaining an academic goal. However, an upward subtractive counterfactual might also be used by "failed" students who had been distracted much of the semester, whereby the situation might have improved if certain actions had not been taken (e.g., If only he hadn't socialized so much, he would have passed). The person would have a prevention goal of removing the behavior that had caused the failure to occur. Whereas upward additive counterfactuals might generally be preferable for promoting attention to positive goal acquisition (Roese et al., 1999), it may be more important for some students to prevent the influence of distractions on their goal-related activities (Gollwitzer, 1999). Upward subtractive counterfactuals represent one means by which this may be accomplished. According to Roese (1994), "upward alternatives may be taken as schemata for future action, making salient those scripts that are necessary to facilitate success" (p. 806). In addition, reframing the upward counterfactual from "what I could have done differently" to a future-oriented, "what I could do differently next time" may afford an individual even better control over similar events in the future (Boninger, Gleicher, & Strathman, 1994).

The end of a failed semester at university offers students an opportunity to re-evaluate their actions from the previous term so that more task appropriate actions can be taken in future terms that would be consistent with academic and other goals. There is some evidence that people will be most successful in implementing new plans when

people can use knowledge gained from similar past experiences to help guide subsequent task-relevant behavior (Buehler et al., 1994). For students who fail university, there is value in reviewing the behavioral patterns that had emerged in coursework and in other areas of involvement in the previous semester so that changes can be made. A failure experience, somewhat depressive in nature, can pave the way for students to undergo a more realistic assessment of future outcome expectancies, without the inflated optimism that might ordinarily be present (Carver & Scheier, 1998; Gollwitzer & Kinney, 1989; Schwarz & Bless, 1991). Students asked to consider an unresolved personal problem - for example, "Should I terminate my college education?", or, "Should I switch my major?" - might be expected to adopt a deliberative mindset that shows, "superior processing of information that speaks to the expected value of goal options" (Gollwitzer, Heckhausen, & Steller, 1990, p. 1123). Students need to be able to make good choices based on carefully contemplating both the proximal and distal implications of choices they might make. Such reflective thinking may set the stage for establishing an implemental mindset that articulates a reasonable course of action for reaching a desired goal. Cautious and realistic goal-setting tends to result in greater optimism that plans can be implemented successfully (Puca & Schmalt, 2001).

Positive cognitions (PC) and images (PI) for the future are elicited through such devices as self-handicapping, excuse making, counterfactual thinking, and task-appropriate mindsets. Each one entails extensive cognitive reprocessing of failure information so as to protect self-esteem and increase resolve for future goal-related



activities. Cognitively, each of these processes may be construed as an instance of dichotomizing goal-relevant information. Self-handicapping and excuse making provide alternatives to such negative self attributes as lack of ability, and may facilitate a return to goal-oriented behavior. Counterfactual thoughts and contrasting mindsets yield alternative routes to goals that an individual would surmise to be either productive or unproductive in a given context. Imagery may be used as a form of mental simulation when people reconstruct scenarios of past failure events in terms of what might have happened (McGill & Klein, 1993), or of what might still happen (Boninger et al., 1994). Such counterfactual imagery would be quite congruent with having a positive possible self as opposed to a negative possible self predominating within the working self concept and manifested in an individual's working memory (Markus & Wurf, 1987). For instance, contemplating how things could have been done differently may help students reinstate the hopeful possible self of becoming a university graduate.

Positive goal-related thoughts and images also promote positive affect (PE) and physiological states (PPS). For example, causal attributions have emotional implications (Weiner, 1985), as do possible selves (Markus & Ruvolo, 1989), excuse making (Snyder & Higgins, 1988), counterfactual thinking (Roese, 1994), and different mindsets (Puca & Schmalt, 2001). Emotions, positive or negative, change in accord with the relative success of ongoing goal-pertinent activity (Carver & Scheier, 1990). Emotions can even produce different patterns of adaptive behavior (Roseman, Wiest, & Swartz, 1994; Schwarz & Bless, 1991). For instance, someone experiencing regret would want to take

action to correct the mistake; someone experiencing guilt would want to remedy the misdeed and receive forgiveness (Roseman et al., 1994). Such actions would alleviate the negative emotions and produce more positive affect. Carver and Scheier's emotional meta-monitor, in monitoring the rate of goal progress, plays a similar role in regulating goal-oriented activity and improving affect. In reviewing some of the physiological implications of having positive or negative possible selves, Markus and Ruvolo noted that positive self-images produce physiological benefits for improving health and the performance of tasks. The critical factor in determining the physiological reactions to stressors is whether or not people can predict and reasonably respond to the stressors in their lives (Dienstbier, 1989). Students who are looking forward to returning to university often believe they can, and are able to, assert such control.

Acts of asserting control over oneself in the pursuit of a valued goal would seem to implicate the strong involvement of one's sense of self in such acts. Yet, there is a great deal of uncertainty among researchers as to whether having a self-focus while carrying out a plan of action will augment or interfere with performance. Many would claim that having a self-focus would often undermine performance (Kluger & DeNisi, 1996; Kuhl, 1996; Pyszczynski & Greenberg, 1987). However, this seems to apply when the self-focus is explicitly a negative one that is ego-involving or associated with negative affect. When the self-focus is not negative, attention to the self is likely to improve performance on the central tasks of interest. Carver and Scheier (1996, 1998) reiterate that this is because of the hierarchicality of goals. The highest level would be the person's

notion of an ideal self that provides goals at the next level down, at the level of principles or "be" goals. These, in turn, stipulate goals at the level of programs or "do" goals, and these then point to specific behavioral sequences or motor control goals. The higher order levels are generally more abstract and, because they often entail the completion of a number of lower level goals, take longer to reach. Thus, the principle "be successful academically" may initiate the program "prepare for exam", which initiates the more specific study sequence "review chapter 3". Again, the higher level self-focused goals are positively valenced, and would therefore prescribe positive goals at successively lower levels. This arrangement should promote goal-related activities in the spirit of approaching success rather than avoiding failure (Elliot & Church, 1997).

The foregoing discussion concerning hierarchical goal structure provides some insight into how an individual may manage attention effectively so as to prevent, or at least minimize, loss of self-regulatory control at university. First, even for a student who has failed university, an approach orientation based on the person's goals and a positive self-focus is much more preferable to having a failure-avoidance orientation, and possibly a negative self-focus. Second, a positive goal hierarchy requires that the individual have clear standards, or desirable longer term goals in place toward which to work. Positive longer term goals promote goal progress through the positive self-monitoring of proximal subgoals. On the other hand, regular self-monitoring of longer term goals that are framed negatively, i.e., avoiding failure, tends to interfere with goal progress (Cochran & Tesser, 1996). Third, lower level, more immediate tasks have to be seen as contributing to the

attainment of longer term, higher level goals. This helps to sustain attention and interest in the task even if the task is somewhat unpleasant (Sansone & Harackiewicz, 1996).

Fourth, as part of the working self-concept, positive goal information from different levels may be sustained in working memory in terms of its prevalent cognitive, imaginal, emotive, and physiological constituents. As stated by Markus and Ruvolo (1989), "Cognitively, affectively, somatically, the task representation and the self-representation become one, which may then serve to decrease the psychological distance between one's current state and the desired state" (p. 227). Finally, with goal information entrenched within working memory, distractive information or alternate goals that enter working memory would often be at a lower level and of lesser importance (Carver & Scheier, 1996). Hence, in the competition for an individual's attention, the more meaningful goal actions or tasks that would be connected to higher level goals would be more likely to take precedence. "Preparing for an exam" would then likely supercede the lower level "watching TV". The salience and connectedness of goal levels related to the principle "be successful academically" becomes critically important when an individual must choose between "prepare for an exam" and "socialize", two goals that may be at the same hierarchical level. "Socialize" would be a program congruent with the principle "be accepted by peers". As indicated by Polivy (1998), that which has greatest strength receives attention. At university it is necessary that academic goals regularly take precedence.

In student development models applied at the university level, the ability to make

one's own choices and to make personal commitments to valued goals is an essential part of the growth of self-identity (Chickering & Reisser, 1993; Perry, 1970). Indeed, for students who fail, committing to a goal is an important part of recovering from failure (Klinger, 1975). However, the essence of true commitment is to follow through on one's obligations and responsibilities to oneself and others. It is in this area that students often have difficulties, in part, because of conflicting goals, interests, and other distractions. According to Baumeister and Heatherton (1996), people commonly will demonstrate self-regulatory failure when they give too much attention in the moment to distractive influences, while they concomitantly attend to a goal-relevant task. More immediate situational influences do seem to draw more attention as the time approaches for doing task-relevant activities (Trope & Liberman, 2000). Baumeister and Heatherton argue that whether or not an individual gives in to the distractive alternative would depend on how long the person attends to the distractor. They claim that people will be increasingly disposed to acquiesce, or give in to the distractor, as a function of the time that distractive information resides in conscious awareness. Compounding the problem, when people elect to consciously suppress such thoughts, they typically will experience a resurgence of thought about the distractor that would further undermine efforts at mental and behavioral control (Wegner, 1997). Essentially, over time, the will weakens as the prime distractor receives more exclusive attention and is acted upon, while the goal-related task is set aside.

Two forms of attention control appear to have special utility for helping students

remain goal- and task-focused: transcendence and transformation. Baumeister and Heatherton (1996) explain transcendence as being able to focus awareness beyond the distractive influences in the immediate situation, and focus instead on one's longer term, higher order goals. The successful use of transcendence in self-regulating behavior is, therefore, predicated upon students having high level goals in the first place. Attending to more distal, desired goals or principles would have the effect of permitting individuals to reaffirm the value of the goal-related tasks that they need to perform in the present time. This should help sustain interest and foster task engagement, or greater "cognitive and affective absorption in the task" (Sansone & Harackiewicz, 1996, p. 208).

Baumeister and Heatherton suggest that attentional processes will ultimately mediate in determining which receives action, the prime distractor or the goal-related task. They strongly recommend that individuals will be relatively more successful in committing to the goal-relevant task the quicker they are able to divert their attention away from the distractor and onto aspects of the desired goal.

Being able to transcend the "perils" of the immediate situation is a process quite analogous to being able to delay gratification. In delay of gratification, an individual chooses to focus on more distant and valued rewards instead of more immediate, lesser rewards (Funder, 1998; Mischel et al., 1988). Mischel et al. found that preschool children who were better able to delay gratification received higher competency ratings by their parents ten years later than did children who had been less successful at delaying gratification. These children were rated higher on their academics and social skills, on

their verbal and reasoning abilities, and on their planfulness and ability to concentrate. More recently, research has been done on academic delay of gratification (Bembenutty, 1999; Bembenutty & Karabenick, 1996; Bembenutty, Karabenick, McKeachie, & Lin, 1998). In these studies, students were asked, for instance, whether they would choose to "Delay studying for an exam ... in order to attend a concert, play, or sporting event" or, "Stay home to study to increase your chances of getting a high grade on the exam." Bembenutty and Karabenick reported that students who said they would delay gratification by staying at home to study also indicated being more academically motivated, more likely to use metacognitive self-regulation, and more inclined to use various learning strategies - including rehearsal, elaborative, and organizational strategies - as measured by the Motivated Strategies for Learning Questionnaire (MSLQ: Pintrich, Smith, Garcia, & McKeachie, 1993). Unlike delay of gratification, the process of transcendence for effective self-regulation is a very dynamic one. For students at university, the situation is often very fluid and unfolding: distractive influences may be present and vying for attention at any given time. Ongoing attentional control is imperative if individuals are to transcend these tempting influences in order to pursue valued goals. Still, if the research on academic delay of gratification is any indication, acts of transcendence should promote engagement in academic activities for university students.

Bembenutty (1999) explored the relationship between academic delay of gratification and students' achievement goal orientations. Just as mastery learners tend to

prefer challenging and interesting tasks (Ames, 1992), so too were they found to prefer delay of gratification options, possibly because they found those alternatives to be more important and useful for achieving long-term, meaningful goals. Even though they liked the attractive alternative (e.g., a concert), they preferred to enact the valued alternative (e.g., a goal-related task). Mastery learners also reported that choosing the more immediate, attractive alternative would have worried them because of the possible negative consequences of not attending to the task. Performance-approach learners did not show a clear preference for either alternative, but those who chose the delay alternative reported doing so to attain social goals and prevent social difficulties. This would suggest the influence of others' opinions on their academic decision making. Performance-avoidance learners were found to prefer the immediate attractive alternative instead of the delay alternative, suggesting that they would have difficulty in avoiding future distractions that could imperil their studies.

Hence, students having different achievement goals make different choices; they are differentially affected by distractions. The performance-avoidance students and others who pursue achievement goals out of fear of failure generally do not fare as well academically. In academic settings, students with mastery goals (Ames, 1992), or a combination of mastery/performance-approach goals (Harackiewicz et al., 1998) seem to do better. The principle of transcendence has a distinctly approach orientation. It invites people to approach tasks for the expressed purpose of making positive gains toward self-selected goals, and to take constructive action against distractive threats to goal



progress. People can transcend tempting situations best when they have realistic and desirable long-term goals; it is incumbent upon individuals to establish such goals. In the academic delay of gratification literature, "getting a high grade on an exam" is a goal selected by researchers because it is assumed to be desirable to students. Yet, for those participating students experiencing academic difficulty, it may not have been a realistic goal. For them, the alternative, to "stay home to study", would probably not have been as valued as it was for other students.

Whereas transcendence may help an individual return to goal-pertinent tasks, cognitive transformations of those tasks may sometimes be required to secure more sustained attention to the tasks. In general, transformations of tasks promote greater interest, persistence, effort, task insight, and eventual success. In Mischel et al.'s (1988) study, children who were able to delay gratification showed a propensity for thinking differently about the rewards, either by distracting themselves from thinking about the rewards or else thinking more abstractly and neutrally about them, thereby reducing their immediate reward value. Consequently, the children were able to endure a longer wait in order to receive a greater reward. Similarly, Sansone et al. (1992) reported that people required to persist at boring tasks in which quitting was not an option, became motivated to transform the boring tasks into interesting ones. The nature of the transformation used depended on the task: finding hidden words in a matrix became viewed as a puzzle, copying scripted letters became an artistic enterprise, copying one's own hand-writing became a competition against oneself. Each task was uniquely transformed to make it

more interesting and its performance more tolerable. The ability to transform difficult or unpleasant academic tasks into more interesting ones should prove invaluable to university students.

Cognitive transformations are often required for the self-regulation of subject-matter learning. Students who showed an increased valuing of course content tended to do better with their studies (Covington, 1999). An appreciation of subject matter was even found to buffer the effects of a disappointing academic performance. In explaining these ameliorating effects, students claimed that interest in subject matter had produced alternative rewards to grades, which involved, "surpassing one's own idiosyncratic standards of excellence, the playful discovery of hidden talents, and the personal freedom to pick and choose different ways of pursuing whatever invites one's attention" (Covington, 1999, p. 133). In another study, Rabinowitz, Freeman, and Cohen (1992) reported on a categorization task in which students were given a random list of words from several categories and specifically asked to use the categorization strategy to learn the words. At a second session, one group of students were again asked to learn a similar list, but one in which the items were actually more typical of the categories from which they were drawn. This time, however, the students were not explicitly told to use categorization as a strategy, although the advantages of using such a strategy should have been self-evident. Despite this, almost half of the students abandoned the categorizing strategy entirely and reported using other strategies (46%), 23% reported using the categorizing strategy in conjunction with some other strategy, while 31% stayed

exclusively with categorizing. In performing the task in the second session, students for the most part became flexible learners, selecting from their repertoire of learning skills those skills which they believed would be necessary to perform the task effectively in addition to or in place of the categorization strategy. In general, students who are better able to self-regulate their learning will find different ways of sustaining attention on goal-related tasks through various acts of cognitive transformation (Winne, 1995).

Greater flexibility in selecting goals and learning strategies will allow individuals to construe academic and other tasks in ways that promote attention to the task and enhance the learning experience (Zimmerman, 1990). The ability to transform tasks into more meaningful and workable forms would seem to be domain specific and vary with an individual's prior knowledge, interest, and perceived competence within each domain (Alexander, 1995; Boekaerts, 1995; Brophy, 1999; Marsh, 1990). However, this does not mean that competencies cannot be developed in weaker domains (Boekaerts, 1995).

Finally, students able to self-monitor their subgoal progress outperformed other students on a final exam who had self-monitored either time spent studying or more distant goals (Morgan, 1985). While it is important to be able to monitor one's academic progress relative to longer-term desired goals and to transcend the potential disempowerment of distractors, ultimate success will reside with an individual's ability to concentrate attentional and volitional resources on the more immediate goal-relevant task.

## Chapter 6. The Model Consolidated

Attentional control processes are of crucial importance to the effective self-regulation of purposeful behavior. With reference to William James (1890), Wegner and Wenzlaff (1996) state that, "[James] elevated the notion of the 'effort of attention' to a central place in psychological theory and argued that the ability to influence one's own attentional state is the central phenomenon of will" (pp. 467-468). In the preceding chapters the argument was made that attentional control processes for achieving academic goals might be effectively conveyed in terms of dichotomous arrangements in working memory. The model that is developed builds upon the observation that students at university, especially first-year students, frequently tend to conceptualize their experiences in more or less absolute terms, or dualistically (Perry, 1970). For many of these students, the knowledge imparted by authorities is accepted with certainty as fact or truth, thereby rendering alternative explanations wrong. In learning situations, many adhere to simplistic epistemological beliefs such as "Most words have one clear meaning," "Successful students learn things quickly," and "Almost all the information you can learn from a textbook you will get during the first reading" (Schommer, 1990). Such absolute thinking was found by Schommer to result in an oversimplification of information, a condition not conducive to performing well academically. Talbot (1990) adds that students who think in such dualisms probably are at greater risk of failing or

dropping out of university. They would be more likely to make extreme interpretations of their failure experiences. For those who do not quit, both Perry (1970) and Schommer (1990) claim that students eventually move away from dualistic thinking patterns as they continue with their studies at university. Conceivably, this transition may be hastened by increasing students' awareness of dualistic thought patterns that would be counter-productive within an academic setting.

Thus, it is generally considered good when students are able to move away from dualistic right-or-wrong thinking and toward more complex, abstract, relativistic forms of thinking. Paradoxically, one way to facilitate this shift in conceptual development may be to have individuals actually identify personally meaningful dichotomies that seem to promote or prevent goal attainment in the first place. Goal-related dichotomies may be easily accommodated by students currently predisposed toward dualistic thinking. One major difference, though, is that dichotomous arrangements in working memory such as presented in this paper, are effortful, deliberate mental constructions whereas the dualistic thinking patterns discussed by Perry (1970) and Schommer (1990) are viewed as stages of intellectual development through which an individual experientially moves. Individuals seem to have different levels of conceptual complexity by which they construe their life experiences at different times in their lives, from more concrete and dualistic formulations to more abstract conceptualizations. Yet, statistically significant increases in conceptual complexity have been shown to occur even within students' first year at university. Khalili and Hood (1983) reported that students improved in conceptual

complexity by about 1.43 standard deviations over four years of university, with about half of this gain (0.72 SD) occurring in students' first year. Thus, there is good reason to believe that students can make significant strides toward more adaptive thinking at university within a reasonably short time. People who have reached the highest levels of conceptual complexity, "can generate their own criteria for organizing and evaluating their experiences" (Khalili & Hood, 1983, p.389). Perhaps others can be shown how to do the same.

This paper presents a model to convey how struggling students at university might become more successful academically. The argument made is that successful and struggling students differ in their use of attentional control processes for selecting and representing goal-relevant information dichotomously in working memory. Four student scenarios were identified: (a) those who pass university and plan to continue with their studies, (b) those who pass but plan to withdraw from the university, (c) those who fail and plan to withdraw from university, and (d) those who fail university but plan to continue anyway, if possible. The first scenario indicates how successful students might conceptually dichotomize information in working memory to achieve academic success. As such, it can serve as a template to show less successful students how they might construe goal-related information in order to succeed in future semesters. The latter three scenarios underscore particular forms of self-regulatory failure each having dichotomous expressions within working memory. When personal stressors are present, such as when a student fails university, an individual's working memory might be expected to include

representations of the self as part of the working self-concept that the person activates in response to the stressful situation (Markus & Wurf, 1987). The generic model for dichotomous working memory representations is given as:

$$\{NC, NI, NE, NPS : PC, PI, PE, PPS\}$$

Negative information, or threats to goal attainment, are shown at left; positive information, or resources for goal attainment, are shown at right. Both sides, taken together, can be used to depict the relevant sources of information that may influence a student's goal activity. Sources of working memory constituents may include pertinent cognitions (C), images (I), emotions (E), and physiological state information (PS), each valenced either positively or negatively. Specific thought content (e.g., ruminative), the vividness of mental images whether positive or negative, the type and valence of emotions, and somatic state information can all collaborate to influence an individual's behavior, for instance, whether to quit university or keep trying.

A number of working memory representations can be ascertained by which individuals self-regulate their behaviors in relation to their goal prospects. In this paper, chapters 2 to 5 elaborated on four such working memory arrangements, one for each of the four student scenarios identified above. These denote some of the more important representational possibilities for processing goal-related information that might influence a person's behavior and future enrollment decisions at that university. Negative and

positive goal information may have a range of different loadings within working memory to sway an individual's decision making and subsequent actions. Logically, five general patterns for dichotomizing negative and positive goal-pertinent information can emerge based on the “spatial” variants of the generic model (see Table 1). As explained below, these subsume the four principal working memory arrangements that were discussed at length in chapters 2 to 5. These five patterns signify a progression from the almost exclusive influence of negative goal-relevant input in determining an individual's actions, to the almost exclusive influence of positive goal-relevant input. The five patterns are indicated as follows:

*Pattern 1.* At one polar extreme are combinations of negative cognitions, images, emotions, and physiological state information which may reside in working memory to influence subsequent behavior, to the general exclusion of any countervailing positive information from the working memory representation. This would be seen, for instance, when students lack meaningful goals to direct their attention and motivate behavior (see chapter 3 for discussion).

*Pattern 2.* In *Pattern 2a*, both sides are represented in the working memory depiction, but the negative side is still more prevalent and more persuasive for regulating behavior. Such a portrayal would be apropos for someone in a pessimistic or depressive state, for example, whose efforts at learning are not yielding satisfactory results. The perceived



Table 1

*Summary of the Five Patterns of Goal-Pertinent Dichotomous Working Memory Representations and their Primary Diagnostic Implications for Students*

Pattern No.	Dichotomous Pattern	Diagnostic Implication
<u>When Threats/Weaknesses Predominate</u>		
1	{nc, ni, ne, nps : --, --, --, --}	Lacking Suitable Goals (see chapter 3)
2(a)	{ <b>NC, NI, NE, NPS</b> : pc, pi, pe, pps}	Ineffective Use of Operators (see chapter 4)
2(b)	{NC, NI, NE, NPS : pc, pi, pe, pps}	Ineffective Monitoring (see chapter 5)
<u>When Strengths/Resources Predominate</u>		
3	{NC, NI, NE, NPS : PC, PI, PE, PPS}	Defensive Pessimist (alternate)
4	{nc, ni, ne, nps : PC, PI, PE, PPS}	Cautious Optimist (preferred) (see chapter 2)
5	{--, --, --, -- : PC, PI, PE, PPS}	Optimist (alternate)

*Note.* N=Negative, P=Positive Working Memory Constituents: C=Goal-related Cognitions, I=Images, E=Emotions, PS=Physiological States; Capital Letters=Prevailing Goal-related Influence, Small Letters=Less-prevalent Influence, Bolded Lettering=Major Internalized Negative Influence.

threats overwhelm the individual's coping or problem solving resources (see chapter 4). Alternatively, in *Pattern 2b*, students who procrastinate may have an imbalance favoring negative distractive influences (from a goal-attainment perspective) to the preclusion of utilizing goal-relevant resources that would be available to the individual (see chapter 5). The distinction between these two construals is one of having either an internal or external locus of causality, respectively, for goal-related difficulties. In both cases valued goals are represented, but the negative influences predominate to adversely impact behavior.

*Pattern 3.* An equilibrating pattern may emerge for some people. Both negative and positive goal-relevant information would be more or less equally represented in working memory, with the individual vacillating between threat information and goal-related personal resources. Such a depiction might reasonably represent the working memory constituents of individuals described as defensive pessimists who are very goal-oriented and strive to do well, but by maintaining a close vigilance over the need to respond adaptively to any threats. While defensive pessimists frequently experience anticipatory anxiety, they also frequently succeed in attaining their goals.

*Pattern 4.* In this pattern, both sides are represented in the working memory depiction, but the positive, resourceful side is more prevalent and more persuasive for regulating behavior, consistent with having a positive self-concept or possible self (see chapter 2).

Such individuals might be considered to be cautiously optimistic. They are optimistic about attaining desired outcomes, but the optimism is held somewhat in check by an awareness of the need to remain attentive to goal-pertinent tasks until the goal is reached. Threats to goal progress are an acknowledged possibility. Individuals are aware that problems may emerge that could impede goal progress.

*Pattern 5.* At the other polar extreme are positive cognitions, images, emotions, and physiological state information that reside in working memory to regulate behavior. Generally absent from working memory would be any countervailing negative information that might prove useful in alerting the individual to potential difficulties. Such people tend to display unrealistic optimism about their prospects for goal attainment. They may fail to do the tasks required to realize the goal, or underestimate the work that would be necessary for goal completion.

A positive weighting of goal-relevant contents within working memory would seem to be most efficacious for sustaining task-focused activity. While cases could be made for defensive pessimism (e.g., Pattern 3) or for out-and-out optimism (e.g., Pattern 5), cautious optimism (e.g., Pattern 4) would probably yield the greatest benefits academically for the majority of students. Students who identify Patterns 1 or 2 should be challenged to find thoughts, images, emotive and physiological states more congruent with establishing a personally meaningful goal focus, and incongruent with their current

working memory construals.

Thus, dichotomous portrayals of goal-related information can allow various "shades" of attentional orienting to be delineated. Dichotomous working memory arrangements can also be represented in a multiple sense, or in tandem, to acknowledge that more than one set of pressures may be exerting a negative influence on an individual's goal-oriented behavior. For example, some students may lack a desired goal and be highly distractible; others may be highly distractible while experiencing plenty of self-doubt about being able to perform goal-pertinent tasks. A combination of thoughts, images, emotions, and physiological state information relevant to each specific problem set can be dichotomously constructed to represent the individual's goal-connected current reality. Suggestions or strategies for establishing and strengthening goal-related positive content within the individual's attentional system may then be self-initiated or tentatively recommended by a facilitator.

It is not a mistake to encourage students to construct personally meaningful dichotomous arrangements that implicate working memory processes. In any environment, students can benefit from focusing attention on perceived threats. Perhaps even more so they benefit when they seek out information and personal (and other) resources for responding appropriately to any threats. Framing goals in positive terms is more conducive to promoting proactive behavior in the pursuit of a goal. It is also helpful to elucidate whether or not people are approaching tasks for true self-enhancement purposes or in order to avoid failure. A person's ability to *actively* construct goal-related

dichotomous arrangements in working memory would thus have a number of benefits, not the least of which might be the gains in conceptual complexity that would seem so desirable. According to Harvey, Hunt, and Schroder (1961, cited in Harvey, 1966), greater personal integration proceeds through a process of increasing differentiation. They state that:

two poles must exert sufficiently strong contradictory pulls for there to emerge evaluative alternatives other than the either-or categories existent at its earlier stage. The concept, in its less differentiated form, could lead only to a bifurcated evaluation: something is all good or all bad. With further delineation of the concept into multiple facets through the reciprocal pull of the good-bad poles its engagement can, and tends to, lead to more specific evaluations from good to bad.

(p. 41-42)

By this argument, more abstract thinking occurs when individuals are able to organize and critically evaluate their own meaningful dichotomies. In Perry's (1970) schema of intellectual development, the highest levels of personal and intellectual development occur when an individual is able to make a major commitment in life amid viable alternatives and despite personal doubt. Construed as a desired goal, does not such a personal commitment set up dichotomous conditions within working memory that are presumed to be positively self-focused?

Through quality and timely retention initiatives, universities can do much to promote in students a renewed commitment to achieving valued goals at university.

Cognitive and motivational research findings can provide substantial insight into the problem of student attrition and retention at universities. As shown in Part Two of this paper, motivated attentional processes can provide the impetus for the development of programming and other interventions dedicated to the success of students at university.

**Part Two**

**The Possible University: Student Retention Reconsidered**

## Chapter 7. The Possible University: An Introduction

The purpose of Part Two of this paper is to explore ways in which student retention initiatives might be modified to improve student endeavours at university and chances for academic success. The premise is that much can be learned from the cognitive and motivational literature about student reactions to success or failure which will predispose students either to persevere or withdraw from university. In other words, a student's surmised mental state at such times can precipitate certain outcomes. Weiner (1984) thus makes reference to "cognitive functionalism" that incorporates a range of mental processes including attention, information storage and retrieval, and decision-making for determining the way in which students will behave. Weiner (1984, 1985) maintains that mental states have psychological and behavioral consequences for individuals. Of special importance are those mental processes that implicate the self (Markus & Nurius, 1986), and success or failure experiences certainly will often instigate such deeply meaningful processing of self-pertinent, self-evaluative information (Kluger & DeNisi, 1996). Failure experiences, in particular, tend to be ego-involving, especially if individuals attribute failure to some perceived personal shortcoming (Miller & Klein, 1989; Nicholls, 1990). Failure tends to be somewhat ego-involving in any case because of the stigma frequently attached to it within society (cf. Smart & Wegner, 1999). Students will sometimes withdraw effort or engage in self-handicapping behavior in a bid



to preserve self-esteem (Baumeister, 1991). Others who believe they can still achieve a desired goal may try again the following semester (Carver & Scheier, 1998). Depending on behavioral tendencies, they may or may not be successful. Then again, otherwise successful students may lose interest in continuing at university, not having any desired goal to sustain them. Indeed, how an individual construes successful and unsuccessful academic performance can determine subsequent actions, actions that impact directly on both the individual and the academic institution itself.

Part Two is therefore about redefining relationships between students and academic institutions such that both will be beneficiaries when students' mental processes are taken into consideration. This may best be done, not by promoting student retention per se, but by fostering student resilience, a state of being whereby students believe they can make the adjustments necessary to achieve eventual academic success despite earlier and significant setbacks. This view of student resilience is consistent with resilience as defined in terms of "functioning psychologically at a level far greater than expected given a person's earlier developmental experiences" (Higgins, 1994, p. 17), or as never displaying helplessness or giving up "in the face of defeat" (Seligman, 1991, p. 30).

There is much that a university can do to facilitate the transition of students to a successful academic lifestyle, for the learning endeavour denotes a reciprocal relationship. Essentially, the sum of all such relationships constitute what might be referred to as a university ecology. There is an environmental press or affordance structure in place that is the university with its programs, standards, and regulations (Corno, 1995; Strange &

Banning, 2001; Turvey & Shaw, 1979). On the other hand, there are effectancies that represent student capacities for initiating action and otherwise adaptively responding within an affordance structure. In other words, students have to be willing and able to employ operators effectively to attain accepted standards within an environment that amply supports such efforts. Strube and Yost (1993) amplify this argument in claiming that individuals are motivated to enact self-enhancing behaviors based on information they receive about their fit with the environment. As further explained by Strube, Hanson, and Fargher (1999), "self-motives are best construed as attempts to establish, uncover, and maintain opportunity niches in which skills and abilities match favorably the demands of the environment, ensuring relatively greater success than failure" (p 248).

Other research underscores the importance of a student feeling as though he or she belongs at the university (Tinto, 1997). But, as well, the university can do much to promote a sense of students belonging within working relationships in university settings, relationships in which students can experience greater success. Productive working relationships are conducive to the realization of valued outcomes and therefore contribute to psychological well-being (Ryan & Deci, 2001; Ryff & Singer, 1998). Interviews with students corroborate the importance of students having quality working relationships with professors and peers (Light, 2001). For a student-centred university, the objectives would be to promote personal growth, the development of identity and of the self (Chickering & Reisser, 1993), the establishment of quality connections to others (Baumeister & Leary, 1995; Ryff & Singer, 1998), and having a clearly defined purpose in life (Ryff & Singer,

1998).

Universities are uniquely positioned to foster personal growth by helping students establish a strong sense of purpose and sustaining commitment to that purpose (Perry, 1970). They are also superlatively positioned to facilitate students making meaningful and valued connections to others, from peers to professors. Ryff and Singer (1998) refer to "purpose in life" and "quality connections" as the "criterial goods in life". These are quite consistent with the three basic psychological needs espoused within self-determination theory: competency, relatedness, and autonomy (Ryan & Deci, 2001). Competency in carrying out certain actions is clearly related to purposive activities in the development of an individual's potential; meanwhile, relatedness is associated with having quality connections to others. Less clear is the relationship of autonomy, a dimension of wellness that was independently considered in Ryff's earlier work on psychological well-being (Ryff & Keyes, 1995). However, autonomy is implicit in the psychological well-being literature to the extent that individuals are able to freely choose which tasks to pursue that will add value to their lives, or which quality relationships with others they would wish to develop. An individual's behavior will be more or less autonomous, or more or less controlled by external factors, depending on the person's relationship to the working environment. This important issue will be explored more fully in the next chapter.

Ryff and Singer (1998) describe positive self-regard (including self-esteem and self-respect) and mastery of one's life and environment to be important but secondary

contributors to a person's health and well-being. They reason that these latter qualities are more assured when an individual has valued interpersonal connections and a meaningful life purpose. Thus, as intrinsic virtues, positive self-regard and sense of environmental control can be actively nurtured within university settings. However, they may be best attained indirectly as byproducts of having a personally valued purpose to strive for, and quality relationships with others in the academic context. To enhance a student's self-concept and facilitate a sense of mastery and control in learning situations, the conditions need to be set for an individual to have quality engagements with learning in a truly supportive environment. For students in academic difficulty at university, sometimes the situation needs to change to secure a change in students' behavioral patterns toward realizing academic success (Mischel & Shoda, 1995). An environment that is viewed to be supportive will ameliorate the effects of stressful life events such as academic failure and prepare the way for students to regain control over their learning (Boekaerts, 1993).

### *Engineering a Successful University Environment*

To study effectively, students generally need to organize their study environment. In school settings, it has been suggested that learning environments can be engineered to produce more in-depth forms of academic engagement that many students would be unlikely to experience otherwise (Winne, 1995), or that would support more mastery-oriented learning (Ames, 1992). On a different scale, the university can organize the institutional environment to better facilitate student success and promote student retention

(Chickering & Reisser, 1993; Kuh, 1996). A university that can respond effectively to the failure experiences, real or perceived, of students stands a better chance of retaining those students. Those interventions most likely to succeed are those that can adequately address the psychological issues concerning students' past academic difficulties. This can be accomplished at a microlevel in the form of targeted programming for students who encounter academic difficulty (see chapter 8). It can also be accomplished at a macro or systemic level in the form of a university philosophy, with coincident policies, that place the well-being of students first (see chapter 9). How can the university optimize the purposive goal-related activities of students and facilitate quality relations with university faculty and staff? Even more specifically, how might this be accomplished for students in academic jeopardy? The following chapters will endeavour to provide some answers to these questions.

## Chapter 8. Targeted Programming for Student Improvement

### *Program Philosophy*

Targeted programming is intended for individuals or subpopulations of students who are experiencing or who may experience academic difficulties at university. The purpose would be to help students more specifically identify the nature of their academic difficulties and construct viable plans of action to remediate those concerns. Perhaps an opportune time to implement such a program would be following the completion of a first academic term at university. While a student improvement program might form part of a first-year orientation strategy, it would probably yield few benefits to students at that time primarily because of all that is happening that is new to incoming students during orientation, and because students would not have been exposed to the challenges that studying at a university would represent for them. They do not yet know exactly how they will respond to those challenges. By the end of the first semester, students will know much more about the many facets of student life - academically, financially, and socially - and their relative success with each. They will have a sense of how they balance their leisure time, study time, and any part-time employment they may have. From an attributional perspective, they would know about their tribulations in learning and would have internalized or externalized the reasons for their academic difficulties (Weiner, 1985). They would have made determinations about whether or not they could have

prevented the problems. They would be forming impressions of their likelihood of success in the future (Carver & Scheier, 1998; Weiner, 1985). It is, therefore, important to intervene as soon as is practicable. The end of a first semester is a good time for an intervention because any negative, internal attributions for failure that a student might make would be far more amenable to change than if such attributions were made after a student has struggled academically for several terms (Seligman, 1991). It also sends an early message to students that the university cares about them, is committed to their education, will endeavour to accommodate their needs, and believes in their eventual success. For these and other reasons, universities would do well to find ways to "tolerate" poor academic performance in a student's first semester. Students who encounter early difficulties at university need to have an opportunity to recover from making a poor start at university (Ting & Robinson, 1998).

We are living in very pragmatic times. According to an undergraduate survey reported by Levine and Cureton (1998), 70% of students endorsed the value of attending university primarily to train for an occupation, while 71% endorsed the value of attaining knowledge in a specialized field. Based on the 1993 survey, only 50% of students endorsed the value of getting a university education in order to formulate personal values and goals, while 47% endorsed the value of learning to get along with others as a reason for attending university. These latter two values are perhaps most consistent with Ryff and Singer's (1998) "criterial goods" for human flourishing and psychological well-being. Yet, as reasons for attending university, they do not rate as highly as more explicitly

career-based valuations. What do such survey results suggest for a student who experiences academic difficulty? Levine and Cureton note that 37% of the students surveyed indicated that they would no longer attend university if job opportunities seemed in doubt. This suggests that as many as one-third of students may not persevere at university when failure is perceived to threaten their immediate aspirations. For instance, some students select academic majors not out of interest but because they understand, sometimes erroneously, that jobs are available in those occupational areas. A student intending to do a business degree may switch to a private college and a two-year business diploma when difficulties are experienced at university, or they may simply give up. This may happen especially if selected goals are not in line with the individual's authentic interests (Sheldon & Elliot, 1998). A timely intervention on behalf of the university may permit such students to make more informed decisions about their prospects for the future perhaps more in line with genuine interests and abilities.

Chickering and Reisser (1993) argue that first-year students are often pressured, or feel pressured, to establish a vocational direction within university before they have solidified a sense of identity upon which to base such decisions. Such "forced" decision making is unfortunate and probably unnecessary. Lewallen (1993) reports that initial career or academic major indecision does not reduce a student's likelihood of persisting at university. This accords with other research indicating that students' ability to identify an intended vocation at the start of university bears no relationship to academic performance after one semester (Gehlert, Timberlake, & Wagner, 1992) or to their likelihood of



persisting with their university studies three years later (Blinne & Johnston, 1998).

However, Blinne and Johnston did find a strong relationship between indicators of academic achievement at the start of year 1 and persistence at university three years later, when the persistence rate of the original first-term sample was down to 68.7%. It is possible that the academic achievement-university persistence relationship reported by Blinne and Johnston was due, at least in part, to the more academically successful students having desired academic goals that were congruent with personal values they possessed. As argued by Sheldon and Elliot (1999), goals are considered to be autonomous to the degree that they are self-concordant, or internalized as part of an individual's own values. Furthermore, students are more likely to engage in sustained effort to attain goals and to be successful if the goals are concordant with personal values (Sheldon & Elliot, 1998, 1999; Sheldon & Kasser, 1998). As valued needs are met, students are more likely to experience increased psychological well-being (Sheldon & Elliot, 1999; Sheldon & Kasser, 1995).

The academic environment is crucial to helping ensure that students can identify and attain valued goals. For a student, life at university constitutes a dynamic psychological space as well as physical space, or what Lewin (1951) would call the life space that includes the person and environment in one "field" that operates in the present time but includes the psychological past and future as a dimension of that life space. It is a complex psychosocial environment in which a person's goals, interests, and values intermix with professors' (and university's) standards, interests, and values, along with

other university support structures and other students. These relationships are more or less effective depending on what motivates a student's behaviors with respect to this student-university interface and the boundary conditions that are set for striving toward goals. Ryan and Deci (1999) argue that, across individuals and situations, students vary in the extent to which they feel able to self-regulate learning and other behaviors for reaching goals. In agreement with Sheldon and Elliot (1999), they argue that the effectiveness of goal pursuit depends critically on the nature or content of those goals. It is not enough to have a goal, a goal is most effective when it is pursued out of intrinsic interest and its attainment fulfills one or more basic needs of the person. Yet, at university, course requirements and evaluation schemes make it difficult if not impossible for a student to strive for a valued goal out of intrinsic interest alone (Ryan & Deci, 2000b). Ryan and Deci present a model that distinguishes between different forms of extrinsic motivation in the regulation of behavior commonly seen in educational settings (Deci & Ryan, 2000; Ryan & Deci, 1999, 2000a, 2000b). They claim that the key determinant in which type of external motivation prevails is the individual's "perceived locus of causality" which ranges from more autonomously determined to more controlled by external influences (see Table 2). More autonomous self-regulation occurs either when the individual is able to "identify" the behavior as being personally important, or is able to actually "integrate" or assimilate the behavior into one's sense of self. On the other hand, when environmental contingencies are presumed to be the cause of behavior, the behavior would effectively be "externally regulated" or controlled. Alternatively,

Table 2

*The Relative Autonomy of Types of Motivation, Approach/Avoidance Behavior, and Dichotomous Working Memory Representations*

Behavioral Control	Types of Motivation	Regulatory Processes	Goal/Task Orientation	Dichotomous WM Representation
Non-Control	<u>Amotivation</u>	Nonvaluing, Low Competence	Nil	{nc, ni, ne, nps : --, --, --, --}
<hr/>				
<u>Extrinsic Motivation</u>				
Other Control	External Regulation	External Rewards	Approach/Avoidance	{nc, ni, ne, nps : pc, pi, pe, pps}
		External Punishments	Avoidance	{NC, NI, NE, NPS : pc, pi, pe, pps}
	<hr/>			
	Introjection	Internal Rewards	Approach/Avoidance	{nc, ni, ne, nps : pc, pi, pe, pps}
		Avoid Guilt/Anxiety	Avoidance	{NC, NI, NE, NPS : pc, pi, pe, pps}
	<hr/>			
Self Control	Identification	Conscious Goal-valuing	Approach	{nc, ni, ne, nps : PC, PI, PE, PPS}
		Avoid Temptation	Approach/Avoidance	{NC, NI, NE, NPS : PC, PI, PE, PPS}
	<hr/>			
	Integration	Synthesis With Self	Approach	{nc, ni, ne, nps : PC, PI, PE, PPS}

(Continued)

Table 2 (continued).

Behavioral Control	Types of Motivation	Regulatory Processes	Goal/Task Orientation	Dichotomous WM Representation
Autonomous Control	<u>Intrinsic Motivation</u>	Inherent Satisfaction, Interest	Approach	{nc, ni, ne, nps : PC, PI, PE, PPS}

*Note.* N=Negative, P=Positive Working Memory Constituents: C= Goal-related Cognitions, I=Images, E=Emotions, PS=Physiological States; Capital Letters=Prevailing Goal-related Influence, Small Letters=Less-prevalent Influence, Bolded Lettering= Major Internalized Negative Influence.

through a process of "introjection," an individual may feel coerced by external influences to implement behaviors out of guilt or shame and in order to maintain self-esteem.

A program intended to help failing students needs to consider motivational determinants of goal-directed behavior in the academic setting. Need for autonomy should be recognized as an important contributor to eventual student success. Autonomy has an internal locus of causality, but one that is connected to personal values so that it tends to produce more sustained goal-related activity (Sheldon & Elliot, 1998). Having a valued purpose and quality connections to others are desirable conditions for promoting more autonomous behavior, goal attainment, and personal well-being (Ryff & Singer, 1998). When such conditions exist, competency and positive self-regard are also enhanced. It is the professor's (and university's) responsibility as guardians and purveyors of knowledge to ensure that interested students can make valued connections to domain-specific knowledge as partners in learning. It is the student's responsibility to ensure that his or her basic needs for autonomy, competency in purposive pursuit, and relatedness to others are met by the university. For students in academic difficulty, a programmatic intervention may help elucidate many of the motivational issues that may have had an adverse impact on their academic efforts at university. It can also open the door to more empowered learning.

### *Features of a Targeted Program*

The primary strategy of this program in targeting failing university students is to

assist them in adopting an approach orientation to their studies, and to support their endeavours. As extrapolated from the work of Deci and Ryan (2000), some students who fail a semester may be amotivational, and lack a sense of direction or control over what happens to them. Many other students will be prone to having an avoidance orientation to direct their studies following failure in an attempt to avoid further failure. As evidenced in Table 2, avoidance orientations tend to occur as a result of external regulation or through introjection. The perception of being externally regulated through evaluative processes can result in some students working to avoid further punishment in subsequent semesters. On the other hand, many might contemplate withdrawal from university as a means of avoiding the discomfort of additional negative evaluative judgments in future academic terms. Through introjection, fear of punishment may be more fully internalized as a motivator of student behavior. Many students returning to university may work to alleviate or avoid the guilt and anxiety they have come to associate with inadequate academic performance. Having avoidance goals impedes goal progress and diminishes well-being (Elliot & Sheldon, 1997). Students whose behavior is motivated by a concern over possible negative consequences may be less likely to persist when confronted with obstacles (Gollwitzer, 1990). They may determine that their goals are not feasible. An avoidance motive should be readily identifiable through focused discussion with students. To the extent possible, such an outlook needs to be identified and challenged.

Other students will have goal orientations that may be described as approach/avoidance (see Table 2). In most instances, these too may be considered to be directed

more by external influences than by the self. External regulation may occur to meet an external requirement or attain an external reward. Ryan and Deci (1999) refer to such motivated behavior as being of an approach nature insofar as an individual works to attain tangible rewards made available by others. However, rewards may also have an avoidance component when there are negative consequences to the individual for their non- attainment. This is a common scenario at universities when a person's academic performance falls below some acceptable standard. With introjected regulation, people are often motivated by rewards that they have internalized such as wanting to win a competition (Reeve & Deci, 1996) or otherwise believing that they "ought" to perform in a certain manner to receive a particular reward (Higgins et al., 1994). While there is an approach component to such behavior, there is also an avoidance component. As stated by Carver, Lawrence, and Scheier (1996), ought goals entail a sense of obligation, or doing something "so as to avoid disapproval" (p. 42).

A third type of approach/avoidance motivation appears to be more self-regulated rather than other-controlled, in which people accept the value of what they are doing through identification. In this respect, the pursuit of goals is more internalized, personally meaningful and valued. However certain very real threats to goal attainment may remain that must be addressed. As an example, Ryan and Deci (1999) explain that an alcoholic seeking sobriety will be more successful if he or she avoids situations in which alcohol is readily available. Similarly, students valuing their studies who are nonetheless prone to distractive influences may choose to avoid sources of distraction in order to study

effectively (Gollwitzer, 1999).

With the possible exception of the aforementioned approach/avoidance behavior based upon self-identification with the value of certain behaviors, the regulation of behavior to avoid negative outcomes, as externally derived, does not generally support more effective and sustained goal-oriented behavior, nor is it conducive to fostering student well-being (Sheldon & Elliot, 1999). Furthermore, each of the above avoidance or approach/avoidance goal orientations can be more systematically uncovered by bringing to light the active goal-relevant contents in students' working memories that help to motivate their future actions. Goal-pertinent working memory representations are thus depicted in Table 2, as they are conjectured to correspond to the motivational regulatory styles of Ryan and Deci (1999, 2000a, 2000b). The present model uses dichotomous working memory representations to highlight goal-connected information upon which people act or intend to act. This model is briefly recapitulated below to show its usefulness for assessing and potentially modifying students' behavioral motives.

From a goal-orientation perspective, working memory contents are presumed to be dichotomously arranged to reflect the prevalent positive and negative influences that contribute to or detract from a person's goal-relevant behavior. As shown in Table 2, negative goal-related information is depicted to the left of the colon in the working memory representation. Positive goal-connected information completes the dipolar arrangement on the right side of the colon. In each representation, memory content, positive or negative, may consist of cognitions, images, emotions, and/or physiological



state information. Capitalized letters in each memory depiction signify the relative strength of those memory contents in behavioral regulation, whose influence in directing behavior is more pervasive than those memory constituents indicated by small letters. Additionally, when individuals adopt avoidance orientations in order to reach goals, that which is being avoided is denoted by capital letters to signify the centrality of perceived threats in directing goal-connected activities. In such instances, the strengths of the goals themselves (i.e., on the right side of the colon) are not as strong as are the threats to goal attainment (i.e., to the left of the colon) in dictating purposive action. Bolded letters signify negative memory contents whose impact on the individual indicate that the perceived threats they represent have been more internalized and pose even greater threats to the person's self-concept. This would make goal progress more difficult even as the person tries to avoid such threats as shame, guilt, and feelings of low self-worth by pursuing goals.

It is clear that a program intended to improve students' chances of succeeding at university should endeavour to inculcate in students an approach orientation to learning. Three types of distinctly approach orientations are espoused by Ryan and Deci (1999, 2000a, 2000b), each one gaining somewhat in autonomous, self-regulated behavioral control over the preceding one. First, through identification, students who are able to identify with the value of a behavior or goal are more likely to self-regulate goal-relevant activities. Second, with integration, behavior is presumed to be even more self-determined as the individual is able to more fully integrate behaviors and goals into the

person's value system and with other aspects of self. Behaviors and goals become truly valued and desired for their congruence with an individual's self-concept. As such, the regulation of behavior based on its full integration with personal values represents the highest form of extrinsic motivation, being the most autonomous form. Third and separate from the various forms of extrinsic motivation is intrinsic motivation, representing the most autonomous form of behavioral regulatory pattern in which activities are undertaken purely because they have inherent interest for the individual. Interest and enjoyment of the task is the reward; no other separate outcomes are necessary or anticipated. It is this distinction that separates integrated motivation from intrinsic motivation. Ryan and Deci (2000a) regard the integrated regulation of behavior to be very similar to intrinsic motivation, except that separate external outcomes are also desired as a result of integrated behavioral regulation. In university settings, extrinsic motivation via integration is perhaps to be preferred for students. Intrinsic motivation, although most autonomous, may not always be most beneficial for students. For instance, in selecting a topic for a term paper, it is useful within course parameters to let interest determine which topic is chosen. However, to continue out of interest in reading text materials that are irrelevant to the selected topic would be to invite disaster.

Again with reference to Table 2, each of the three approach orientations discussed above are depicted as dichotomous working memory representations. It is noteworthy that, as depicted, each of these three representations have the same form and are indistinguishable from one another. Each approach representation has positive

goal-relevant working memory content (in capital letters on the right side of colon) having a more pervasive influence on behavior than does any negative goal-relevant content in working memory (in small letters at the left of the colon). All three implicate the self in some meaningful manner, whether the goal is identified with, integrated into, or intrinsically emanated out of one's sense of self in an effort to fulfill basic psychological needs. Ryan and Deci (2000a) point out that, "identified, integrated, and intrinsic forms of regulation have been combined [in some studies] to form an autonomous motivation composite" (p. 73). The similarity of representations may also be appropriate as it may not be easy to discern between the three forms of approach orientation based on early information received from students. In addition, it may be enough that students can identify with goals initially; in most instances, full integration of goals into an individual's set of values may take some time. Yet, it is an important step toward individuals more fully living lives of purpose and is to be encouraged (Ryff & Singer, 1998). This is where relatedness or maintaining quality relationships with others in valued goal-oriented activities can be important. Ryan and Deci note that a sense of belongingness can greatly facilitate the internalization of goals.

It should thus be possible to work with students who have failed university to elucidate the negative and positive working memory content that had contributed to their academic difficulties. It should then be possible to help students identify and develop their own goal-approach profiles that would be more conducive to their attainment of valued goals, using worksheets for that purpose (see Appendix A). For many students

who have failed university, this will require them to reconfigure their working memory representations so that they will be able to respond in ways that are incongruent with their previous, unproductive patterns of goal-related behavior (Dodgson & Wood, 1998; Forgas, 2002). Students having external or introjected rewards in mind as approach/avoidance goals should be encouraged to identify and adopt less threatening and more valued personal goals. Again, the support of others in this enterprise may be crucial, especially since people often will revert to a former style of coping when distressed by an increased cognitive load in the performance of tasks (Dodgson & Wood, 1998). A positive approach orientation to goals is recommended because it tends to promote persistence and performance on tasks (Carver & Scheier, 1999a; Roney, Higgins, & Shah, 1995; Ruvolo & Markus, 1992). As people work more autonomously to attain valued goals, they are more likely to respond favorably to positive feedback by showing even greater interest in the relevant task (Ryan, Koestner, & Deci, 1991). They also report greater energy or subjective vitality (Nix, Ryan, Manly, & Deci, 1999). Thus, need for autonomy is more than being about self-regulation: it is about putting self-organization and order into one's life as well (Deci & Ryan, 2000). For this reason it would be beneficial if the goals pursued are selected by individuals for their self-relevancy and personal value. It is important for students to know why they are pursuing goals, why those goals have value for them (Ryan & Deci, 1999).

For the most part, students in academic difficulty probably do process goal-pertinent information differently than do students experiencing academic success.

However, they can choose to think differently and act differently in order to be successful at university. They can substitute more productive activities for less productive ones. This requires that students have (a) an awareness of the need to change one's way of processing goal-relevant information, and (b) knowledge about how to make desired changes in one's goal orientation that would be enduring and produce results. Both of these objectives can be facilitated with the help of supportive individuals at the university. With respect to meeting the first objective, students who fail university are likely to be somewhat aware of the need to make changes of some kind. Being invited to participate in a university program intended to redirect the paths of failing students would help reinforce this point. As well, being informed about the benefits of adopting an approach orientation instead of an avoidance orientation for realizing valued goals should prove useful in raising the awareness of many students of the need to make changes. With respect to the second objective, a systematic exploration of how an individual construes goal-related information following failure, perhaps through discussion and worksheets (see Appendix A), should indeed help clarify some of the motivational issues that had previously impacted upon the student. Each student can then be encouraged or guided by a facilitator to find new ways of construing goals (ideally, valued goals) so that these goals may be realized (see Appendix B).

The present model proposes that students create alternative dichotomous working memory representations to those surmised to accompany their failure experiences. The interesting thing about reconfiguring such working memory patterns, through discussion

and on paper, is that the model explicitly predicts which pattern would likely be most fruitful for students to adopt. Specifically, it is the pattern that portrays goal-relevant working memory content in the following form:

$$\{nc, ni, ne, nps : PC, PI, PE, PPS\}$$

With this standard in place, students (and facilitators) can have some idea about when an efficacious dichotomous working memory arrangement has been established for regulating goal-oriented behavior. Furthermore, it can serve as a basis by which students may periodically evaluate the adequacy of their goal progress. The usefulness of this model is further implicated when the goal-relevant construals of unsuccessful students are compared to those of successful students (see Table 3). Table 3 also helps to illuminate many of the motivational obstacles that can defeat students' efforts at university. These may need to be considered if students are to sustain a satisfactory approach orientation to their studies. The issues in Table 3 are briefly elaborated below according to theme, the bracketed letters in text corresponding to points in the Table. The emphasis is on having students maintain an approach orientation to academic work as may be dichotomously represented. Themes are as follows:

Table 3

*A Summary of Student Dispositions that Prevent/Promote More Resilient Efforts to Succeed Academically at University (Highlights from Part One)*

The Unsuccessful Student	The Successful Student
Dichotomous Working Memory Representations (Goals/Monitors)	
a) Maintaining counterproductive dichotomies - e.g., bad/good; THREATS/resources	a) Creating goal-pertinent dichotomies - e.g., threats/GOAL RESOURCES
b) Negative working self-concept prevalent	b) Positive working self-concept prevalent
c) Negative self-focus/task-focus	c) Positive self-focus/task-focus
d) Achievement-avoidance orientation - working to avoid failure	d) Mastery/achievement-approach orientation - working to approach success
e) Ought goals/Maladaptive evaluative concerns - high social comparison	e) Personal standards/valued goals - minimize social comparison
f) Focusing on weaknesses/self-worth protection	f) Focusing on strengths/personal resources
g) Negative cognitions, ruminations, worry	g) Positive cognitions
h) Negative images	h) Positive, vivid images for self and goal
i) Negative emotions/inadequate goal progress	i) Positive emotions/acceptable goal progress
j) Negative physiological state information	j) Positive physiological state information
k) Acquiescing in negative thoughts, images, emotions, somatic states through goal-relevant behavioral inaction	k) Enlisting positive thoughts, images, emotions, somatic states through goal-relevant behavioral action
l) Trying to directly control negative thoughts, images, emotions, somatic states, behaviors	l) Focusing on positive thoughts, images, emotions, somatic states, behaviors
m) Thought suppression	m) Accepting, expressing unwanted thoughts
n) Uncompleted intentions - no closure	n) Completed intentions - achieve closure
o) Lack of proximal goals and goal monitoring	o) Setting proximal goals/goal monitoring

(Continued)

Table 3 (continued).

The Unsuccessful Student	The Successful Student
Dichotomous Working Memory Representations (Operators/Monitors)	
p) Behavior externally controlled	p) Behavior more autonomously regulated
q) Abilities and skills viewed as innate	q) Abilities and skills viewed as acquirable
r) Lack or loss of interest in tasks	r) Task interest/transform other tasks
s) Encountering blocks and withdrawing effort	s) Viewing blocks as challenges/learning opportunities
t) Acquiescing in distractors	t) Transcending distractive situations
u) Not meeting/exceeding situational constraints	u) Working within the situational constraints
v) Effort inadequate/excessive	v) Effort to match desired outcome
w) Depleted energy	w) Strategies to retain energy

*Note.* Students failing university need to change congruent negative effects to incongruent positive effects.



*Theme 1. Students need to maintain positively skewed self- and goal-related information within working memory.* People with productive goal-relevant working memory dichotomies succeed, as much as possible, in retaining an ascendancy of valued goal-pertinent resources over perceived threats to goal attainment within working memory, which is considered to be somewhat akin to conscious awareness (Shallice, 1978)(a). According to Markus and Wurf (1987), working memory is where an individual's working self-concept has an active presence and is currently expressed within one's awareness. It is the realm in which the possible future self of an "academic failure" competes with the possible self of an "academic success" (Markus & Nurius, 1986; Oyserman & Markus, 1990), and whichever one has a greater presence in working memory is more likely to influence behavior (b). At any given time, working memory figuratively selects information from the more salient aspects of the self-concept, or else self-relevant information is "downloaded" into working memory, valenced negatively or positively to enhance or impede goal-oriented behavior. With respect to goals, having a positive self-focus should contribute to more autonomous behavior and success in the performance of goal-connected tasks (c). Considered hierarchically, Carver and Scheier (1996, 1998, 2000a) claim that higher level, positive goals relating to the self are used by individuals to specify goals and complete tasks at successively lower levels (e). Similarly, integrated behavioral regulation entails a hierarchical connectedness to an individual's values and helps to fulfill basic psychological needs for greater autonomy and competence (Deci & Ryan, 2000). Much the same can be said for people who adopt

mastery goals in learning, for whom the adage "learning for learning's sake" aptly applies (d). Mastery learners approach learning situations out of an interest in acquiring new knowledge, which they believe can be achieved through effort (Dweck & Leggett, 1988). However, mastery learners should remain cognizant of and prepare to meet externally imposed requirements (Elliot & Church, 1997; Wolters, 1998).

*Theme 2. In the ongoing regulation of goal-relevant behavior, students need to consider all forms of self- and goal-related information in working memory, both positive and negative.* Positive goal-connected cognitions are important for the maintenance of behavior (Carver & Scheier, 1998)(g). According to Carver & Scheier, such thoughts include a reference standard (or valued goal, with its relevance to the self), and information about an individual's current position relative to the standard. Other cognitions would pertain to the operation of negative discrepancy loops to reduce the distance between standard and current position. This would include bringing to awareness the requisite semantic and procedural knowledge needed for carrying out goal-relevant tasks. The individual then has to think through the successful use of operators, with monitoring, in order to complete tasks. Meanwhile, individuals should endeavour to minimize having negative thoughts about their academic performance or other goal-related activities (g). According to Martin and Tesser (1996), rumination may serve a problem-solving function in helping individuals reduce discrepancies between their current position and a reference standard. Nevertheless, people should be especially

Careful about ruminating excessively when their moods are negative and they are not making progress toward their goals (Nolen-Hoeksema, 1996). Under such conditions, people often dwell for protracted periods on their negative emotional states and problems without identifying any problem solutions. As well, too much worrisome thought about future performance can interfere with the task itself (Harackiewicz et al., 1998), and with the adequate processing of negative emotions so that more productive actions may be taken (Borkovec et al., 1998)(i). However, simply attempting to force negative thoughts out of conscious awareness, or to suppress such thoughts, seems to be a problematic strategy at best (Wegner, 1997)(m). Preferably, finding ways to think positively and constructively about goal-relevant information would seem to be a preferred way of supplanting unwanted thoughts in working memory.

Working memory content should, if possible, also include positive and vivid images of present and future self (Markus & Wurf, 1987), of goals (Locke & Latham, 1990), and of success scenarios (Bandura, 1997)(h). Any negative images concerning threats to goal attainment need to be identified and addressed. In addition, visual imagery may be used in the performance of goal-pertinent tasks through the construction and transformation of mental models for representing successive phases of tasks until their completion (Johnson-Laird, 1989). Thus, an individual's working memory may contain representations of information visuo-spatially as well as in the form of propositional thought (Richardson, 1999).

According to Carver & Scheier (1990, 1998), a person's emotions have a pivotal

role to play in the regulation of goal-pertinent behavior (i). They argue that positive emotions are an indication that an individual is making greater than expected progress toward a desired goal by engaging in productive activity aimed at reducing the goal discrepancy. In this context, negative emotions would be experienced when an individual perceives his or her rate of progress toward a goal to be insufficient. Negative emotions effectively inform the person that behavioral adjustments are required if the goal is to be satisfactorily reached. These emotions are commonly accompanied by physiological responses to task or situational demands, some of which may also register in working memory so as to be reportable and subject to modification (Endler & Kocovski, 2000)(j). Table 4 delineates plausible interactions between thoughts, images, emotions, physiological states, and their implications for goal-oriented behavior. Each can have input into regulating goal progress, and may be monitored. Obtaining and maintaining a congruence of positive representations in working memory is likely to be most conducive to the realization of valued goals (k & l).

*Theme 3. Students need to remain flexible in how they represent task information in working memory and apply themselves to tasks.* This process begins with setting subgoals and monitoring task activities toward reaching those subgoals (o). Those who monitor their subgoal progress have been found to perform better academically (Morgan, 1985). Individuals have to believe that subgoals and associated higher level goals are personally attainable, that the necessary knowledge can be gained along with the skills

Table 4

*Relationships Between an Individual's Goal-oriented Thoughts, Images, Emotions, Physiological State and Behavior*

Thoughts	Images	Emotions	Physiological State	Goal-Relevant Behavior
Positive Goal Focus	Positive	Positive	Positive	Active - Discrepancy Reducing
Ruminating - Problem Resolving	Negative or Neutral to Positive	Negative or Neutral to Positive	Negative or Neutral to Positive	Delayed - Discrepancy Reducing
Ruminating - Problem Unresolving	Negative	Negative	Negative	Inhibited - No Progress
Worry - Negative Future Focus	Negative or Inhibited	Negative or Inhibited	Negative or Inhibited	Inhibited - Little or No Progress

needed to reach valued goals (Dweck & Leggett, 1988)(q). As well, tasks pursued out of interest are likely to produce more sustained effort at those tasks (Sheldon & Elliot, 1999)(r). However, people who persist at boring tasks are usually able to mentally transform those tasks into more interesting ones so as to improve attention and performance (Sansone et al., 1992)(r). Students may use a number of creative strategies to maintain a positive self-focus and gain insight into the performance of tasks (Carver & Scheier, 2000b). For example, an individual may engage in mentally simulating, using mental images, the steps and procedures involved in attaining a goal (Kofta, 1993; Taylor et al., 1998). Implementation intentions may be clearly articulated (Gollwitzer, 1999), and think aloud procedures used to promote constructive task activity (Kuhl & Weiss, 1994). Indeed, students may employ a variety of learning strategies to manipulate information so as to derive understanding and subsequent retention of material for exams. Weinstein, Husman, and Dierking (2000) state that, "learning strategies include any thoughts, behaviors, beliefs, or emotions that facilitate the acquisition, understanding, or later transfer of new knowledge and skills" (p. 727). The effective use of such strategies can be confidence building and promote students having more autonomous behavioral control over learning situations (p). This can be especially important when students reach impasses in their learning and they have to find ways to achieve a meaningful breakthrough that may require additional effort and persistence on their part (s).

Blocks to learning can represent significant scholastic stressors that students have to find ways to surmount (s). According to Wolters (1998), as academic tasks become

more difficult, students report needing to become more cognitively engaged in the tasks to stay motivated. Otherwise, they may lose interest (r), withdraw effort (s), become prone to distraction (t), or simply become tired (w). In general, students have to apply effort and cognitive strategies appropriate to the task (v) and overall learning situation (u). They have to identify and harness their current strengths for attaining subgoals, and develop new strengths (f). Students also need to recognize that each person has a very finite amount of energy to expend in a day (w). Even one difficult academic task may consume considerable self-regulatory resources; so too may several trivial and unimportant tasks, whether or not those tasks are related to academic goals (Muraven et al., 1998). In another study, students asked to imagine themselves being autonomously motivated to succeed reported that they would have greater personal energy upon task completion than students asked to imagine that they were required to succeed (Nix et al., 1999).

Each of the above themes can be explored in some detail when individuals endeavour to depict their goal-related working memory representations (see Appendix A). In addition, the process of establishing a dichotomous working memory depiction may be self-guided or facilitated by another person. Again, Appendix B presents a sequence of questions that an individual might contemplate and respond to concerning personal goal-connected activities. These questions are intended to help elucidate some of the theme issues that have been summarized above. Presumably, because these questions represent a distillation of an individual's mental processes according to psychological research, they

may be profitably used by individuals in small group or class situations to help clarify goals of personal value to each individual. Because working memory content fluctuates, having the ability to occasionally array working memory content in relation to a valued goal should prove useful in helping a person stay focused and on task. As an individual receives feedback on his or her task efforts, the person might also engage in an attributional analysis of events in support of developing or maintaining dichotomous working arrangements that are positively valenced (see Table 5). Of course, this would be most crucial when the feedback received is negative. At such times, an incongruent response to the negative event is required. Instead of dwelling on the negative event, which is energy depleting, a student may choose to view the bad result as a temporary setback limited to that one task instantiation alone. Consistent with someone who would have a mastery achievement goal orientation, the student would then become focused on understanding what was not known before and resume goal-related activity. In essence, the person would exhibit a rebound in energy level in turning the negative event into a positive one through the implementation of an action plan (Seligman, 1991).

Different researchers highlight cognitive and motivational factors thought to contribute to student success and which may support student retention at university. For the effective self-regulation of academic goals, Randi and Corno (2000) list (a) planning, (b) monitoring and setting benchmarks, (c) evaluating goals and progress, (d) positive thinking, (e) endurance and self-reliance, (f) visualization and mental imagery, and (g) the use of internal and external resources. According to Tracey and Sedlacek (1989),



Table 5

*Causal Attributional Differences between Unproductive and Productive Students*

The Unproductive Student	The Productive Student
<ul style="list-style-type: none"> <li>• Internal negative or external locus of causality</li> <li>• Negative outcomes are stable, or permanent</li> <li>• Positive outcomes are unstable/temporary</li> <li>• Negative outcomes are global/pervasive</li> <li>• Positive outcomes are localized/specific</li> <li>• Experience of lacking control over outcomes/external locus of control</li> </ul>	<ul style="list-style-type: none"> <li>• Internal positive locus of causality</li> <li>• Negative outcomes are unstable/temporary</li> <li>• Positive outcomes are stable/permanent</li> <li>• Negative outcomes are localized/specific</li> <li>• Positive outcomes are global/pervasive</li> <li>• Experience of controlling outcomes/internal locus of control</li> </ul>

*Note.* Causal dimensions locus of causality, stability, globality, controllability based on Weiner (1984, 1985); dimensions of permanence, pervasiveness, locus of control based on Seligman (1991).

successful university students are likely to have (a) an academic self-concept that is positive, (b) an awareness of personal strengths and weaknesses, (c) a willingness to learn and improve in weak areas, (d) a preference for longer term rather than more immediate goals, and (e) one or more supportive persons to turn to when problems emerge at university. Each of the above factors must also be considered when individuals process their goal-related information in terms of dichotomous working memory arrangements. However, working memory representations allow these factors to be concentrated into a simplified model of cognitive and motivational processes that individuals can actively consider, and which are associated with productive goal-related activity.

As indicated by Randi and Corno (2000), external sources of support are important to student success. Tracey and Sedlacek (1989) make a similar claim. The program espoused in this paper would require the cooperation and involvement of other members of the university community. Students who have failed university need to have renewed hope that they can more fully participate in the university community and achieve valued goals within it. The next chapter will explore some of the roles that university leaders might adopt in helping to ensure student success, and in facilitating the program discussed herein.

## Chapter 9. University Policies for Student Improvement

### *The Philosophy*

Any of a number of social psychological theories may be used to develop policy regarding the university's ongoing relationship to its students who have failed. Two influential perspectives are control theory (Carver & Scheier, 1998) and self-determination theory (Deci & Ryan, 2000). Both theories add insight into how and why individuals regulate their goal-relevant behaviors, information which may be of value to universities trying to retain students. Aspects of both theories have been incorporated into the present model based on dichotomous working memory arrangements. In this paper, control theory was used to illuminate the manner in which people reduce discrepancies between a desired goal and their present position in relation to that goal using negative feedback loops. Ryan and Deci (1999) contrast this cybernetic view of behavior regulation with an organismic view which more closely considers the content of goals and their meanings for people. In self-determination theory, goals are valued to the extent that they help fulfill one or more of an individual's basic psychological needs for competency, relatedness, and autonomy. Ryan and Deci articulate some of the difficulties that emerge when goal-directed behavior is externally regulated by extrinsic reward structures or by other controlling influences. While both theoretical paradigms can help inform student retention efforts at university, they remain underutilized.

University leaders would readily concur with some of the motivational tenets of control theory and self-determination theory. In particular, they would have an interest in seeing that students develop the competencies they need so that they might attain academic goals and graduate. University leaders also provide rewards and punishments that are contingent upon how students perform. However, as Ryan and Deci (1999) indicate, such motivators tend to make academic tasks alienable to students and can restrict basic psychological need fulfillment. Necessarily, it seems, university leaders are more so university administrators, charged with upholding credible standards of academic performance while simultaneously trying to keep as many students at university as possible. This presents quite a quandary for university administrators. A university has to be perceived to be a quality institution offering a quality education if it is to attract the brightest students to campus. People generally equate quality programs with having high standards, and these programs appeal to aspiring students. This is a student recruitment issue, but it is also a retention issue. When students are able to meet expectations within a challenging program, the students clearly benefit and so too does the university's reputation as a good school. These students are likely to stay at university to complete their education. They need to remain satisfied with the quality of education they are getting; they need to continue to be challenged and experience success in their programs (to meet competency needs).

Students who fail also need to be challenged and experience success (Clifford, 1990). However, in a competitive environment, many of these students may perceive the

institution to be less than supportive and drop out. These are the students toward whom most retention efforts need to be directed. In one survey, despite more aggressive student retention efforts by universities between 1983 and 1992, the graduation rates from four-year academic programs actually declined from 52.6% to 46.7% (Seidman, 1996). Within most university climates, it is difficult to have a truly coordinated retention strategy that is obviously committed to students who fail and their eventual success. In addition to maintaining high standards, administrators constantly have to be concerned about academic program development, implementation, and evaluation; about faculty and staff issues; budgeting, accounting and record keeping; and about the university infrastructure, just to name some of the ever-present concerns facing university administrators. In this context, it is not as easy for administrators to be as student centred as they perhaps would like to be. From a "standards" perspective, there might even be a backlash from program administrators, faculty, and others concerned about the dilution of quality programs. Consequentially, motivational and other research on students probably has had limited impact on the management of universities (Berdie, 1972/1999).

Part of the problem may lie in the very nature of motivational theories. These theories are primarily focused on the psychological processes that motivate people's behavior, from acting to fulfill psychological needs (Ryan & Deci, 1999), to using operators to attain goals (Carver & Scheier, 1998), to reducing causal uncertainty about the contingencies between responses and outcomes in given situations (Weary et al., 1999). Motivation theories are person centred and person driven. Behavioral acts are

directed from within individuals as they dynamically interact with their environments.

For the most part, university administrators may be at a loss to figure out how they might be able to successfully intervene in such processes.

Recently, Martin (1999) has proposed a social psychological theory, called I-D Compensation Theory, that may prove very useful to university administrators contemplating how to develop policy and programming for the retention of borderline or failing students. This theory addresses many of the same motivational issues that other theories do. However, it is focused exclusively on the nature of an individual's relationship to his or her social environment in the present time, and on whether or not that person's needs are currently being met. In considering an individual's current life position, it has parallels to control theory. In ascertaining if psychological needs are being fulfilled, it has parallels to self-determination theory. In evaluating people's often uncertain relationship to their environment, it has similarities to the causal uncertainty model. Perhaps most importantly, its present time focus makes the theory a good fit for any intervention program that would recognize the role of working memory attentional processes in goal-directed behavior. Martin's theory may provide university administrators with a rationale upon which to establish a retention policy of real substance: one which could forge a greater bond with students who fail (and most others), one which could offer students renewed hope that they can reach desired goals, one which might actually improve a university's reputation and bolster student enrolment. Increasingly, universities are being held more accountable to their students and other

stakeholders (Levitz, Noel, & Richter, 1999). Students expect to procure an education in exchange for tuition dollars. For economic reasons, governments expect universities to help increase the general educational levels of the public so that the citizenry might be more productive members of society. As stated by Dennis (1998), "However illogical it may seem to hold a college or university partially accountable for a person's success in life...this trend is [not] likely to go away any time soon. Nor should it" (p. 99-100). With careful forethought and planning based on motivational principles, it may not be illogical or impractical for universities to more actively help its students to succeed after all.

What is I-D Compensation Theory? The theory proposes that individuals strive to function optimally within their immediate environment, and this is more likely to occur when they receive certain kinds of feedback from their environment. According to Martin (1999), when the immediate environment provides feedback that it is meeting an individual's needs, that person is able to function most optimally. The "I" in I-D Compensation Theory denotes those times when an individual's immediate-return needs are being satisfied, or the person receives relatively immediate and positive returns for goal-directed efforts. Martin claims that modern-day cultures evolved from more primitive hunter-gatherer systems in which people had to have their needs met from one day to the next in order to survive. Having evolved from such systems, people experience greater psychological well-being when they receive almost immediate returns for their efforts. Ryan and Couchman (1999) suggest that satisfying immediate-return needs is somewhat comparable to being able to demonstrate competence through involvement in

intrinsically motivated activities. When an individual's immediate-return needs are not being satisfied, as so often happens in contemporary cultures, the person resorts to using delayed-return abilities, the "D" in I-D Compensation. These abilities or mental processes are largely acquired in response to living in societies where people have to expend effort in the present time for only the promise of obtaining outcomes at some later time.

Delayed-return abilities include increased goal-valuing, subgoal setting, planning and organizing, learning strategies, problem solving, rehearsal, implementation intentions, talk-aloud procedures, mental simulation, mental model construction, and others.

According to the theory, each of these mental processes are employed within an individual's working memory and acted upon in an effort to return the individual to a state in which the individual's immediate-return needs are once more being satisfied. Hence, the purpose of having delayed-return abilities is to compensate for a person's inability to satisfy immediate-return needs within his or her current life circumstance. This is the "Compensation" in I-D Compensation Theory. When immediate-return needs are not being met within a person's environment, delayed-return abilities can provide more immediate feedback or evidence that people are making progress toward their goals. In effect, a delayed-return situation is transformed into an immediate-return one in which enjoyment commensurate with effort can be experienced and confidence gained in the eventuality of achieving goals.

Still, in many delayed-return situations people continue to experience uncertainty and anxiety about goal attainment. The rewards for effort are significantly delayed, if



they are received at all, and the uncertainty of a payoff makes individuals more vulnerable to a variety of "social psychological motives" (Martin, 1999). These motives are generally counterproductive and include ego defensiveness, ego inflation, unrealistic goal-setting, motives to escape the self through alcohol use or other means, the making of external attributions, anxiety buffering, self-worth protection, fear of social exclusion, and procrastination, among others. Even though these motives generally interfere with goal attainment, according to Martin they serve to return individuals to circumstances where immediate-return needs are once again being met. For example, a person who indulges in alcohol may experience a relatively immediate return with respect to mood improvement and, potentially, increased social interaction. Such apparent benefits allow individuals to exist more comfortably within their immediate situation for a time. Unfortunately, academic goals are often hindered through such actions. Social psychological motives serve to protect an individual from psychological threats to the self, and this can be tempting to someone who feels uncertain about being able to obtain favorable outcomes.

In summarizing I-D Compensation theory, Martin (1999) states that individuals function at their best, "when they are receiving frequent feedback that they are making progress toward their goals and that their efforts will pay off" (p. 197). If such feedback is not forthcoming from their immediate environment, individuals will use delayed-return abilities in an effort to obtain more immediate feedback about how well they are doing. When feedback remains uncertain or cannot be obtained, a negative working self-concept tends to emerge (in the language of Markus & Wurf, 1987), with resultant negative affect

and ruminative thought over one's questionable goal progress. At such times, fear and anxiety (avoidance) motives tend to supercede life and growth (approach) motives, increasing an individual's susceptibility to the social psychological motives (Martin, 1999). To the extent possible, universities would do well to encourage students to adopt and sustain approach motives academically. In striving to do so, university administrators could rightly be considered leaders in the education and development of university students.

### *The Policy Platform*

The tenets of I-D Compensation Theory are inherently positive, approach oriented, and apropos for the development of university policy intended to optimize students' prospects for achieving academic success. Furthermore, the theory shares many similarities with the student academic success model developed in this paper that is based on the use of dichotomous working memory representations. Table 6 highlights many of these similarities as they relate to students' academic efforts. Both the theory and model suggest that students who are motivated to succeed will tend to be intimately aware of their goal progress and favorably disposed toward believing that their goals can be reached. However, I-D Compensation Theory underscores the importance of the environment in facilitating or interfering with each student's eventual goal attainment at university. Of crucial importance is whether or not an individual's goal-pertinent needs

Table 6

*The Tenets of I-D Compensation Theory and Relevance to Discrepancy-Reducing Dichotomous Working Memory Representations*

I-D Compensation Theory (Martin, 1999)	Dichotomous Working Memory Representations
<ul style="list-style-type: none"> <li>• Current situational awareness important</li> <li>• Oriented toward growth and self-expansion</li> <li>• Desire to satisfy immediate-return needs</li> <li>• Anxiety the result of not satisfying immediate-return needs</li> <li>• Move toward self-control/autonomy</li> <li>• Use of delayed-return skills to produce more immediate returns</li> <li>• Goal blockages bring delayed-return skills to mind</li> <li>• Need evidence of goal progress</li> <li>• Need frequent feedback of goal progress to reduce uncertainty</li> <li>• Need to know that one's efforts will pay off</li> <li>• Efficacy of one's efforts self-evaluated</li> <li>• Satisfying more immediate-return needs reduces susceptibility to the social psychological motives</li> <li>• Frequent feedback that one is making progress toward goals should provide a sense of well-being</li> <li>• In immediate-return systems, acceptance is automatic; In delayed-return systems, binding commitments needed</li> </ul>	<ul style="list-style-type: none"> <li>• Current situational awareness important</li> <li>• Oriented toward positive self-focus</li> <li>• Focused awareness on immediate goal-relevant information for goal attainment</li> <li>• Negative emotions the result of making inadequate goal progress, congruent with negative thoughts, images, physiological states</li> <li>• Move toward self-control/autonomy</li> <li>• Use of operators to reduce discrepancy between current position and desired goal</li> <li>• Goal blockages an invitation to learn - flexible use of strategies for success</li> <li>• Need to monitor goal progress</li> <li>• Need to set subgoals and reach them to increase goal certainty</li> <li>• Need to know that the goal is attainable with effort</li> <li>• Transformation of tasks to sustain interest and effort</li> <li>• Increasing the value of tasks for realizing desired goals should promote attention to those tasks and away from distractive influences or the use of counterproductive coping strategies</li> <li>• Attaining valued goals should promote a sense of well-being, as would making greater than expected progress toward those goals</li> <li>• In universities, as delayed-return systems, individuals need commitments to valued goals, augmented by the support of others</li> </ul>

are being met or are capable of being met in the present time, even when there may be significant delays in the ultimate realization of the valued goal. Kuh (1996) maintains that the onus is on universities, "to create conditions that motivate and inspire students to devote time and energy to educationally purposeful activities" (p. 135) consistent with students' academic aspirations.

Institutional policies and practices can have a major impact on students' expectations that their educational efforts will prove successful. Policies and practices need to address both the immediate-return needs and delayed-return needs of students. A university that makes it easy for students to satisfy their immediate-return needs should help expedite increased student involvement at university and engagement in learning. As well, because universities are predominately delayed-return environments, institutions that can help students to develop delayed-return skills should have more success in retaining those students. While it may seem paradoxical, students will be more efficacious in acquiring delayed-return skills when academic settings can provide more immediate-return benefits for effort invested, or give students frequent indications that their academic work is progressing satisfactorily (Martin, 1999).

In creating the best conditions for motivating student productivity at university, policies on the university's commitment to its students may be couched within the guidelines for individual self-regulatory action as espoused by control theory (Carver & Scheier, 1981, 1998). That is, university policies may be arranged in terms of facilitating students' establishment of standards, use of operators, and of monitoring for goal

progress - each an important requirement for maintaining self-regulatory control in delayed-return situations. Within these parameters, a number of policy recommendations may be extrapolated from I-D Compensation Theory to encourage students to succeed academically. The main purpose of these "compensatory" policies is to effectively entrain students to the pace of doing academic work as set forth by the university so that students can make steadfast progress toward personally valued goals, and feel more confident and capable of mastering their course work. The policy recommendations below are intended to help students satisfy both their immediate- and delayed-return needs at university.

#### *On Satisfying Immediate-return Needs*

Students are more likely to persist at university if they are readily able to satisfy their immediate-return needs, both academically and socially. While both academic and social integration are important factors in the continuation of students at university, Tinto (1998) suggests that academic integration into the educational environment seems to be more important than social integration. Academic integration at university occurs as students become involved in academic activities, and interact with faculty and staff for the furtherance of academic goals (Mallette & Cabrera, 1991; Tinto, 1993). Such prosocial academic interactions are distinguishable from the peer-group affiliations and other extracurricular involvements that are usually associated with social integration. While social goals are also important, the premise is that students will experience greater self-esteem and generally enhanced self-concepts if they are adjusting well to university

academically. In addition, students who are able to keep their academic goals on track will be better positioned to more fully engage in social and other forms of rewarding goal pursuit (Pajares, 1996). Students who have high expectations that the university can fulfill their needs are likely to become more involved at university (Astin, 1996). However, meeting students' expectations is a process that must begin early to reduce the risk that students will become disenchanted with what universities can offer them (Braxton, Vesper, & Hossler, 1995). Universities need to meet the early and continuing immediate-return needs of students in order to foster their academic and social integration into the university community. The following are recommended with respect to meeting students' immediate-return needs:

*Recommendation 1. Whenever possible, university supports should be put in place that make it easier for students to satisfy, or approximate the satisfaction of, immediate-return needs.* Increasingly at universities, support structures are present that allow students to readily satisfy many of their immediate-return needs. Examples include more prompt financial assistance, ease of course registration and fees payment, availability and accessibility of textbooks for purchase, easy access to computers and the university computer network, and use of extensive library services. For incoming first-year students, a comprehensive orientation to the university's physical layout, its regulations, academic programs and student services can facilitate students making a smooth transition to university, thereby satisfying an early immediate-return need to

become familiar with campus and university life. When students encounter difficulties, quick access to academic program advising, psychological counselling, health services, or to academic help centres for remedial assistance can reduce the stress on individuals. Readily available services can help students to resolve personal concerns and reduce any uncertainties they may have about their university experiences. This can leave students with a favorable impression about the institution as offering a positive environment for them to succeed.

*Recommendation 2. Academic structures should be put in place that make it easier for students to satisfy, or approximate the satisfaction of, immediate-return needs academically.* The aim is to reduce the uncertainties in students' lives regarding academic requirements, course and program expectations. When students start a course, they need to know the method of evaluation, any deadline dates, the nature and scope of course content, and, if possible, the professor's expectations for students' mastery of the course. An early awareness of course requirements should help students set their own learning standards for the course and establish effective study regimens conducive to achieving success (Thompson, 1993). As students identify academic majors, they need to know the admissions criteria and which courses will count toward the intended degree so that their personal efforts and financial resources are not expended needlessly. Furthermore, universities should try to ensure that core courses are accessible to students who need those courses for the timely completion of their degree requirements in order to graduate.

*On Satisfying Delayed-return Needs: Standards*

A basic premise of I-D Compensation Theory is that people share in a dynamic relationship with their environment and continuously strive to have their needs met within it (Martin, 1999). In contemporary delayed-return cultures, this means that people will function at their best when they can obtain current or more immediate evidence of making goal progress. For this to occur, people have to have desired goals or standards in place toward which to work. In this respect it is not essential or even clearly advantageous for career or other high-level goals such as choice of major to be firmly established by students beginning university. Compared to students who can identify vocational interests from the outset of their studies, students unable to do so evidently are no less likely to persist with their education at the university (Blinne & Johnston, 1998; Gehlert et al., 1992; Lewallen, 1993, 1994). In addition, among first-year students, between 50% and 75% start university either undecided about career choice, or likely to alter their original career choice while at university (Lewallen, 1993). In comparison, it is important that students are able to set and meet academic goals each semester (Blinne & Johnston, 1998) and be committed to the goal of graduation (Williamson & Creamer, 1988). When academic expectations are being fulfilled at university, students experience greater academic and social integration and are more likely to persist with their studies at that institution (Braxton et al., 1995). When students are not committed to educational goals, however, they are less likely to persist at university (Stage & Rushin, 1993). While it may be unrealistic to expect all students, but especially first-year students, to have firmly



established career aspirations, it is not unreasonable to expect all students to develop academic goals each and every semester (Levitz et al., 1999).

While academic performance in a semester can have more immediate implications for a student's willingness to stay at university than vocational decisiveness, Chickering and Reisser (1993) point out that choice of major and of vocational identity becomes increasingly important as students progress through university. Not only do many students lack career direction initially, those who can identify a career of interest may have difficulty in connecting it to an appropriate choice of major (Astin, 1993). A student intent on law school, for instance, may be uncertain about which undergraduate major would improve his or her chances for gaining admission into law school. Academic performance is likely to improve when students can associate the courses they are doing with clearly identified vocational interests (Lewallen, 1994). Meanwhile, academic performance (and persistence at university) is likely to be compromised when students are blocked from gaining admittance into academic programs that lead to careers of choice (Bogenschutz, 1994). Such students may need help in selecting alternative careers consistent with their capabilities and interests if they are to achieve valued goals at that university. As stated by Barefoot and Searcy (1994), "institutions are well advised to assist first-year students with learning a process to link their personal strengths and values to an academic program and future career plan" (p.65). The following are recommended with respect to students' goals/standards:

*Recommendation 3. Universities should encourage students to establish academic goals each semester to help ensure that they can self-govern their goal progress within the semester.* While it is implicitly assumed that students would have academic goals, universities, their faculties and staff should be very proactive in seeing that students are working toward personally valued goals each term. Students will employ delayed-return skills more effectively if they are attempting to attain tangible and concrete academic goals that make it easier to monitor progress against a standard (Emmons & Kaiser, 1996).

*Recommendation 4. Universities should support students in identifying academic majors they value and can achieve.* Because enrolment in many academic programs is selective and limited, students will often be denied admission into their programs of first choice, or will have difficulty in choosing an academic major in the first place. Such students need to be treated with consideration by the university and provided assistance in developing plans of action for achieving new or revised, yet still personally valued, goals. Universities must be prepared to assist students in selecting viable academic majors commensurate with students' capabilities and interests if those students are to remain at university and successfully graduate. While university program standards must not be compromised and more students will apply to competitive programs than can be accommodated, universities that are willing to work closely with students in helping them to find favorable academic program niches will be viewed positively by current students.

Prospective students and the community at large will be more receptive to universities that are committed to helping students solidify their own academic and vocational missions within those institutions. Having clear goals should help students complete university and receive academic degrees they value.

*Recommendation 5. Universities should undertake special initiatives to recover students who fail out, or who are at risk of failing out of university.* Universities should be especially concerned with helping these students identify personally valued academic and vocational goals that they might successfully pursue, goals that can be clearly verbalized and vividly imagined, that are not abstract but feasible and concretized (Locke & Latham, 1990).

#### *On Satisfying Delayed-return Needs: Operators*

According to I-D Compensation Theory, students need to feel confident that they are making satisfactory progress toward their goals (Martin, 1999). They need to be successful in using operators to complete goal-relevant tasks so that they can remain current with course requirements and manage the workload. Unfortunately, and despite making a great deal of effort, many students are unable to understand key concepts or apply appropriate procedures central to mastery of course content. That is, they have trouble applying appropriate operators, or they lack the delayed-return abilities necessary in order to competently perform goal-pertinent tasks. When either the task or

environment becomes sufficiently unpredictable and cannot be ameliorated through mental (and behavioral) effort, students are apt to be vulnerable to the effects of "cognitive helplessness" and lowered self-esteem (Kofka, 1993). Students attribute their difficulties with using operators to different causes (Weiner, 1984, 1985), and the perceived nature of those causes can help guide university initiatives toward retaining those students at university. The following are recommended with respect to students' use of operators:

*Recommendation 6. Universities should fully support the development and employment of delayed-return skills (operators) by students so that they might attain academic goals.* A supportive academic environment would be one in which students would not be reluctant to approach faculty, staff, or other support services when they experience difficulties in understanding or applying course material. Indeed, students should be actively encouraged to seek out (and receive) any assistance they might need in timely fashion, i.e., when students first become aware of difficulties and before those difficulties can escalate into greater impediments to learning. Students should be encouraged to discover what they do not know as an "invitation to learning." The emphasis for students and faculty alike should be placed on mastery of course content rather than on academic performance, based on the presumption that performance in a course will typically reflect course mastery. Universities should do what they can to facilitate students' acquisition and use of operators to attain valued goals. In essence,

universities can help students convert delayed-return situations into immediate-return ones where there is an increased certainty of payoff for effort invested.

*Recommendation 7. For students who become "cognitively helpless" in the performance of tasks despite investing much effort, universities can encourage students to reconsider the sufficiency of their selection and use of operators to attain academic goals, and to foster a renewed engagement in learning.* Many students would conclude that they could make the necessary adjustments in the use of operators needed to succeed in required courses. According to attribution theory (Weiner, 1984, 1985), they would have attributed previous difficulties in the use of operators to factors that were unstable and personally controllable, or capable of improvement in the future. For these students, universities should promote more effective learning by providing the supports necessary for students to hone their delayed-return abilities and use of operators to accomplish tasks. Failure to have used available resources previously may have contributed to the earlier difficulties of these students.

*Recommendation 8. For others who experience "cognitive helplessness" in trying to apply operators to complete tasks, universities should encourage these students to arrange new goals that would be more commensurate with their strengths and capabilities.* Students' strengths and capabilities can differ significantly from the skills required to meet certain specified academic and career goals. For these individuals,

academic difficulties may appear to be unresolvable. These students would be inclined to attribute their insufficient use of operators to stable, uncontrollable factors unlikely to be improved in the future (Weiner, 1984, 1985). In contrast, when goals are in better alignment with abilities, students' efforts should yield greater academic success and personal satisfaction.

*On Satisfying Delayed-return Needs: Monitors*

The need to receive feedback is the central premise of I-D Compensation Theory. The theory posits that being able to monitor goal progress through receiving feedback in delayed-return situations is pivotal to goal attainment (Martin, 1999), and, thus, crucial to student success initiatives at universities. In pursuing goals, the need for monitoring is pervasive. Actually, problems with standard setting and with the use of operators, discussed above, may be considered to be special forms of monitoring. Monitoring would occur when individuals experientially test to see if the goals they desire are still realistic and valid, or in need of change; monitoring would also occur when individuals try to apply operators to the current goal-relevant task. However, more typically, monitoring involves individuals actively comparing their current position with respect to a goal against the desired end state of having that pre-determined standard or goal achieved (Carver & Scheier, 1981, 1998). Monitoring informs people as to when operators must be used to try to eliminate existent discrepancies between current and end states. Students need to be able to monitor their progress in courses if they are to compensate for any

difficulties that may arise. Delayed-return skills, or operators, are intended for demonstrating competencies or for finding solutions to problems in the present time that would contribute to the satisfaction of more distal goals. According to I-D Compensation Theory, if the goal is meaningful enough, people will "want" to monitor their progress in order to have a more immediate sense of how successful they are likely to be in reaching the goal (Martin, 1999). Such motivated attention can be facilitated by universities committed to helping their students achieve viable and valued goals. The Theory stipulates that people will be most successful in their goal-related activities when four conditions hold, each one a further proviso of the condition that preceeds it. These conditions merit closer scrutiny and are included below as policy recommendations as they have major implications for educational practice in university settings. The following are recommended with respect to students' monitoring of academic goal progress:

*Recommendation 9. Universities should provide frequent feedback to students during a semester so that students would be better able to monitor their academic efforts toward attaining valued goals.* Frequent feedback minimizes goal uncertainty by reducing the lag time between an individual's use of an operator and being able to observe its effects on goal progress (Emmons & Kaiser, 1996). According to Light (2001), students claim that they learn more in courses in which quizzes and assignments are regularly given and quick feedback is obtained about their understanding of the material,

especially if students are then given opportunities to improve their work. As well, the extent to which faculty provides feedback on written work has been positively correlated with a number of academic skills and outcomes, including an aggregate measure of "overall academic development" (Astin, 1993, p. 243). A delayed-return situation thereby becomes more of an immediate-return one, and promises a learning environment that is less anxiety provoking and more supportive of students' endeavours to succeed academically.

*Recommendation 10. Universities should provide their students with frequent feedback of a form that is discrepancy reducing and framed positively in terms of "making progress toward goals" (Martin, 1999; Schunk, 1985). To accomplish this, the feedback given should highlight positive aspects of the work already completed and suggest possible ways for making improvements (Butler, 1987). Thus, student evaluations would tend to be formative rather than summative. Students would be routinely provided with hints for improving their understanding and mastery of course material instead of receiving evaluations that are minimally informative and not conducive to making improvements (Daresh & Playko, 1995). Rather than simply evaluate students at a pre-arranged time and in written form only, formative evaluations can be given more spontaneously to students at any time and in a number of ways (e.g., verbally, via e-mails, etc.) to facilitate students' continued efforts to master course content. Clifford (1990) adds that if learning is the main objective in courses, the amount*



of time spent providing formative feedback should far exceed summative activities that emphasize grading. Whether formative or summative, the feedback given should be "effectance promoting" (Ryan & Deci, 2000b, p.58) and delivered in a clear and unambiguous manner so that it may be used by individuals to further develop their competencies (Bandura, 1997; Locke & Latham, 1990; Martin, 1999; Schunk & Swartz, 1993). Positive, unambiguous feedback reduces the possibility that students will make negative self-referenced connotations about their performance (Strube & Yost, 1993).

Whereas success feedback on an individual's academic progress helps to reinforce that individual's capabilities, failure feedback highlights personal shortcomings and should be avoided if at all possible (Bandura, 1997). A plausible explanation for this is that failure feedback diminishes an individual's level of perceived competence (Bandura, 1997; Ryan & Couchman, 1999). Furthermore, Cochran and Tesser (1996) argue that failure feedback that is frequently given only magnifies the negative effects of failure on a person. Negative evaluations tend to evoke negative self-concepts when students are led to believe that it is they who are being judged and not their understanding of course material (Kluger & DeNisi, 1996; Markus & Ruvolo, 1989). Feedback that leaves students wallowing in self-recrimination is entirely counterproductive. Feedback should not be ego-threatening but, instead, encourage students to become more self-reliant and motivated to improve their understanding of course content. Students are more likely to persist academically when they receive constructive and frequent feedback regarding the efficacy of their current efforts for attaining desired academic goals. Indeed, many

students need to receive positive competence feedback periodically in order to keep from getting discouraged (Sansone et al., 1992; Stipek, 1993). Frequent feedback of one's progress tends to promote personal well-being and more persistent effort toward longer term goals (Martin, 1999).

*Recommendation 11. Not only should students receive frequent feedback that goal progress is being made, insofar as possible, they need to be reassured "that their efforts will pay off" in terms of eventual goal attainment* (Martin, 1999). Students will gain confidence if they believe that their continued efforts are likely to yield desired results. To the extent possible, the university should present a supportive environment in which deficiencies in learning tend to be interpreted by students as signaling a need for them to improve their understanding of material (i.e., to have a mastery focus) rather than signifying a threat to their academic existence and future aspirations (i.e., have a performance focus). For students with a mastery focus, low academic performance represents a deficit in knowledge that can usually be eliminated through monitoring and the effective use of operators (Dweck & Leggett, 1988), or else through the use of external resources. Such a positive outlook regarding feedback contributes to more persistent task-oriented behavior (Pintrich, 1994). A supportive environment that permits students to learn from their mistakes should promote more mastery learning. As stated by Clifford (1990), students would probably become more involved in acts of learning if educators were to, "emphasize error tolerance, not error-free learning; reward error

correction, not error avoidance" (p. 25). Students are likely to perform better academically if they are optimistic that valued goals will be attained (Carver & Scheier, 1998). They are also less likely to be adversely affected by the social psychological motives that could impede their academic progress (Martin, 1999). A university that applies consistent campus-wide didactic practices should contribute significantly to the development of its students (Chickering & Kytle, 1999).

Benefits would even accrue to students who do not make goal progress despite receiving plenty of positive feedback, encouragement, and support. They would be in a better position to self-assess the reasons for their academic difficulties. It may be easier for students to identify locus of causality when (external) institutional variables have been more consistently and fairly applied toward enhancing student success (Weiner, 1985). Some students would need to modify their approaches to learning, while others would need to make lifestyle adjustments to better accommodate learning. Yet others would acknowledge a mismatch between their strengths and abilities and those skills required to procure the academic goals they had selected. Again, this should not be a matter of self-recrimination but of self-discovery. Universities should assist those students in identifying degree programs at the institution, or failing this training programs elsewhere, that would be congruent with students' interests and personal strengths so that academic and vocational goals can be realized. They need to gain confidence that their academic efforts will be worthwhile and yield completed goals, or closure (Thoits, 1994).

*Recommendation 12. The positive feedback given to students should make explicit that it is they who are the causal agents of their own academic successes, it is they who must "make progress toward goals" (Bauer & McAdams, 2000; Brackney & Karabenick, 1995; Martin, 1999; Thompson, 1993). It is only through students' own efforts, persistence, and strategy use that desired academic goals can be obtained. The responsibility for learning outcomes ultimately resides with them. Any feedback on goal progress should serve as a guide to self-corrective task behavior as individuals become more adroit at using their delayed-return abilities to make goal progress, even in those times when goals may seem blocked (Martin, 1999). Universities that provide regular feedback to students on their use of operators and goal progress would do much to help students acquire such self-regulatory capabilities. To some extent, academic self-regulatory capability would be learned implicitly, as students become entrained to completing tasks in a timely manner and to receiving prompt feedback on goal progress (Corno, 1995). With frequent and positive feedback, students should become more agentive in active goal-setting and planning, in monitoring and evaluating individual effort, and in regulating emotions to accomplish tasks (Pintrich & De Groot, 1990; Randi & Corno, 2000). Students who become proficient in the use of delayed-return abilities would learn to more autonomously take feedback directly from tasks to increase competencies in ways more analogous to using discovery learning methods. They would be able to rely less on receiving feedback from professors, although they would not be reluctant to seek help if necessary (Brackney & Karabenick, 1995). They might also*

exhibit greater social responsibility in academic settings, such as engaging in collaborative endeavours with other students on term projects (Wentzel, 1996). Again, improvements in self-regulated learning would be most likely to occur in academic environments that students perceive to be supportive of their efforts to succeed (Boekaerts, 1993) and that are free from humiliating evaluations (Ryan & Deci, 2000b). When such conditions do not prevail and students engage in fear-based learning to avoid failure rather than achieve success, task-pertinent feedback may be used by students as a crutch only to avert failure (cf. Kluger & DeNisi, 1996). At such times, an individual's attention would tend to be directed negatively toward perceived threats to the self rather than constructively toward mastering elements of the task.

Students will be most successful academically if the academic setting affords students the opportunity to autonomously self-organize their learning experiences in accord with desired goals (Sheldon & Elliot, 1999). To accomplish this, students need to take responsibility for monitoring their more immediate or short-term progress toward academic goals (Morgan, 1985; Sheldon & Kasser, 1998). When students are able to set proximal goals they are better able to self-monitor and use operators to regulate their goal progress. Setting proximal goals that are achievable allows individuals to receive regular feedback regarding their level of mastery of tasks (Stipek, 1993). Hence, the setting of proximal goals is the self-regulatory equivalent of periodically receiving goal-progress feedback from others, except that the student becomes more clearly the causal agent of academic outcomes.

The ability to break long-term goals into subgoals and to break tasks into component parts is essential for effective self-regulation academically because of limited self-regulatory and attentional resources. Self-regulatory exertions are typically followed by fatigue, a situation that improves with self-regulatory practice (Muraven et al., 1998). Similarly, the emotional swings of many creative people may reflect an alternation between vigorous task involvement and mental exhaustion (Kofta, 1993). Meanwhile, attempts at concerted problem solving are often best followed by periods of detachment and reflection (Entwistle, 1998). Whereas the concerted problem-solving phase involves a narrowing of attention toward the task, the detached reflective phase entails a broadening of attention to possibly encompass additional information that could be useful for solving the problem. These are time-consuming, distinct phases that are sometimes important for effective task management (Boice, 1997). Derryberry and Tucker (1994) articulate similar attentional phases in delineating focus of attention and breadth of attention for adapting to stressful life circumstances. Indeed, there may be negative physiological and other health consequences when stressful situations subject individuals to heightened physiological arousal over extended periods of time, especially if those individuals are unable to satisfactorily pace themselves to achieve their goals so as to reduce the level of physiological arousal (Dienstbier, 1989). According to Dienstbier (1989), performance will improve on stressful tasks if individuals are able to recover from the previous stressor or apply operators to reduce their level of physiological arousal with respect to that stressor prior to being challenged by another stressor. Perhaps this is why

it is important that the number of academic stressors or challenges facing a student not exceed a student's capacity for coming to terms with them. Being able to acquire periodic feedback on goal progress can help students distribute and manage their learning challenges more equitably to permit more empowered learning to take place. To achieve personal well-being - cognitively, emotionally, physiologically, and behaviorally - it is crucial that students develop the self-regulatory skills necessary to succeed academically.

It has been argued that individuals have a natural desire to learn. University policies that are purposefully established to motivate student involvement at university and augment that desire to learn should prove beneficial to students at any point in their academic programs. However, such policies could be particularly beneficial to students who are new to the university. Student-supportive policies can set the stage for students to begin early to adopt approach goals for learning rather than adopting avoidance goals (Carver & Scheier, 1999b; Elliot & Sheldon, 1997), and to work toward personally-valued standards (Sheldon & Elliot, 1999). Indeed, there is now evidence that the benefit of receiving positive performance feedback is moderated by an individual's self-regulatory focus (Idson & Higgins, 2000; Kluger & DeNisi, 1998). According to Idson and Higgins (2000), success feedback is most effective at improving performance over time when individuals are focused on achieving personally valued or ideal goals. It is less effective when people focus on goals out of obligation or to avoid negative consequences. Environments that are perceived to be supportive tend individuals toward more

self-determined, autonomous behavior congruent with attaining valued goals; environments that are perceived to be coercive tend people toward performing only to fulfill the perceived obligation and avoid undesirable outcomes (Kluger & DeNisi, 1998). Often these latter individuals would not persist at trying to improve their performance once the obligated standard has been reached.

Just as surely as people have a propensity for learning, people like to receive feedback on how their learning is progressing. Positive feedback, in particular, is reassuring to individuals (cf. Kluger & DeNisi, 1996). Frequent, positive feedback produces positive emotions and is associated with psychological well-being to the extent that it is indicative of the competency-building purposive actions of individuals (Ryan & Deci, 2001; Ryff & Singer, 1998). Universities need to create the conditions that will promote in students a sense of vitality for achieving valued academic goals (Nix et al., 1999). The nature of feedback that students receive while at university can therefore have a major impact on their learning processes and eventual learning outcomes (Knapper, 1995). In their meta-analysis of 131 studies that investigated the effects of giving feedback on performance, Kluger and DeNisi (1996) surmised that feedback would likely contribute to improved performance when certain conditions existed. They suggested that feedback that draws attention to the discrepancies between an individual's current task performance and an identified standard, that provides information on how to improve learning, and that does not incite a heightened (usually negative) self-awareness, would likely lead to, "impressive gains in performance, possibly exceeding 1 *SD*" (p. 278). The



policy recommendations in this paper specify feedback conditions that are similar to those suggested by Kluger and DeNisi (1996), but add other conditions deemed important to facilitate student learning and that could enhance student performance even more. These include increasing the frequency with which students receive positive feedback, and encouraging students to self-select valued goals toward which to strive. These conditions can be used by students to help them maintain an acceptable rate of making progress toward anticipated goals (Carver & Scheier, 1990). They also challenge students to be able to use operators competently and otherwise regulate their behaviors to reach academic milestones in courses. However, most importantly, an institution that applies consistent practices to support students in their learning would be viewed positively by its students. A supportive learning environment would encourage students to engage more fully in their learning and to work with others, including faculty, staff, classmates, and other peers, to achieve valued academic goals (Astin, 1993).

#### *From University Policies to Classroom Practices*

Campus-wide retention policy initiatives would require a general buy-in on behalf of all stakeholders, including administrators, faculty and staff (Moxley, Najor-Durack, & Dumbrigue, 2001). For many at university, an attitude change would be required. A "sink-or-swim" attitude regarding student endeavours is far too prevalent at many universities and could interfere with the establishment of an academic environment more conducive to student success (Levitz et al., 1999). However, it seems clear that professors

have a choice as to the role that they play in the classroom and the image they present to students. They can be viewed as authorities who disseminate information to students using more traditional teaching methods such as the lecture method, and who grade students' work (Moore, 1994). Alternatively, they can be viewed as collaborators, who use teaching practices that encourage students to be active participants in the creation of new understanding, thereby setting the conditions for students to have mastery goals in learning. After all, the aforementioned policy recommendations are intended to promote more quality interactions between students and various university facilitators, but especially with professors. The idea is that this relatedness, or student-professor joint investment in learning, would do much to help students develop their academic competencies (Light, 2001). Students will be more successful academically if they can maintain an approach orientation toward attaining valued goals, and this is best accomplished in "autonomy supportive contexts" (Ryan & Deci, 2000b, p. 64). Thus, professors have a pivotal role to play in providing facilitative contexts in which students can satisfy their basic psychological needs for competency, autonomy, and relatedness at university. Without professor participation, a sweeping university policy committed to students' learning would not work.

Professors place high value on being able to satisfy their own psychological needs for competency, autonomy, and relatedness within the universities that employ them. Professors especially relish their autonomy or academic freedom; they would be suspicious of any policies or administrative interventions that would be perceived by them

as controlling, or that would limit their freedom to choose what topic they might research or what they might teach (Boice, 1997). As such, any student-centred policies intended for implementation in the classroom should not interfere with professors' freedom to teach the curriculum that they, as content experts, would select. The policy recommendations proposed in this paper do not dictate what course content should be taught, how it should be taught, or even the method(s) of course evaluation to be used. Each of these instructional variables are best left to the content experts. What the policy recommendations do propose is to influence or strengthen professors' relationships to their students through means that promote greater student involvement in learning. The policy stipulates that competence feedback be provided to students with some regularity, and that the feedback given possess certain attributes that would conduce students toward developing their skills further and improving their learning. Policy guidelines would help ensure that any feedback given would not be deleterious to students' efforts to succeed academically. However, professors would still be able to exercise considerable discretion in choosing the actual frequency and form of the feedback that they could give students. One possibility would be to ask students to share in determining the quantity and kinds of competence feedback that the students believe they would need in order to realize their goals. This would be a positive step toward giving students greater autonomy and encouraging cooperation. As always, professors should try to be accessible to students, but they could also arrange other ways for students to receive prompt feedback on their progress, such as by using teaching assistants, organizing study support groups among

class members, or by setting up chatrooms. In other words, there would be various ways by which professors could comply with the spirit and intent of university policy to improve students' learning, without compromising their own autonomy. From a learning perspective, they would have even more opportunity to positively influence the lives of students academically.

In general, professors take it for granted that they have the requisite knowledge to teach designated university courses competently. In their enthusiasm for their areas of expertise, many cover course material too rapidly and fail to recognize the mounting difficulties that many of the students may be having with the material (Brookfield, 1996). As explained by Brookfield, many professors would not have, "lived through [students'] experience of being blocked and unable to grasp the fundamentals of [the] discipline" (p. 5). Professors may be competent in the knowledge of their own discipline, but to become competent in their teaching, they have to have knowledge of how students are actually experiencing their learning within the discipline and what strategies might help students persist (Boice, 1997; Brookfield, 1996; Entwistle, 1998). A policy of monitoring student progress more closely and providing useful feedback can help professors identify with and constructively respond to many of the difficulties that students might be having in their courses. It can help professors develop "student-sensitive" teaching practices that would be more conducive to students' development of competencies in the pursuit of valued goals.

Competency development is a two-way street that works best when students can

learn from professors as professors learn from them. Professors might consider the development of student competencies in terms of inculcating in students the standards, operators, and monitors that would be conducive to achieving success in the respective disciplines. A consideration of standards, operators, and monitors can also help professors to teach more effectively at university. To inspire students to establish their own academic goals and standards, professors should set the "teaching standard" of communicating to students how professionals within their discipline would think about important topics of relevance to their chosen field (Light, 2001). Students sometimes need help to find value in the material being learned so that they might construct meaningful representations of their learning (Nicholls, 1990). According to Light (2001), the professors most respected by students are those who help students find ways to connect the subject matter being taught to students' own values and personal experiences. To further empower students to learn, professors might also convey to students some of the learning strategies or operators that they personally would use to learn material in their areas of specialization (Knapper, 1995).

Professors can employ various practices, or "teaching operators," to promote active learning in the classroom. Chickering and Gamson (1987, cited in Chickering & Kytle, 1999) recommend that professors set high expectations, increase contact with students, promote greater student cooperation, encourage more on-task behavior, show respect for individual talents and approaches to learning, and provide quick feedback to increase student involvement in learning. Other classroom practices a professor might

use include encouraging open classroom discussion, accepting and valuing students' opinions, providing adequate time for students to try out ideas, and encouraging problem solving around real issues (Davis, 1993). Many of these are autonomy-supportive teaching practices that encourage students to think more independently and collaboratively about their coursework. However, such practices would be likely to diminish in effectiveness within competitive settings as the learning gap increases between successful and struggling students. Struggling students may be less inclined to interact with others and to stay task-focused if they know that they lag behind classmates, a problem which they might attribute either to lack of effort or lack of skills (Weiner, 1985). Many would feel ego-threatened by continued interaction with more successful others and would begin to avoid such contacts (Covington, 2000). Others may even feel blamed by professors or peers for falling behind in work (Weiner, 1993). The proposed policy is intended to improve students' efforts to learn, develop academic skills, and offer students ego protection. Table 7 provides a list of teaching practices that would be more fully congruent with the policy recommendations espoused in the present paper. They would help ensure that students find their learning experiences at university to be manageable and rewarding. In mirroring policy, teaching practices should reflect a commitment to supporting students in their efforts to develop the knowledge and skills they need to succeed academically. Teaching practices such as those in Table 7 would facilitate students being able to maintain approach orientations to their learning so that they might persist with their studies and attain valued goals.

Table 7

*Classroom Practices that Foster Increased Student Involvement with Learning*

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- Encourage students to set academic goals early. Goals can allow students to evaluate any feedback they receive in terms of goal progress (Carver & Scheier, 1998; Kluger & DeNisi, 1996). Encourage students to strive toward achieving personal standards of excellence (Dunkley et al., 2000).
- Care must be taken to ensure that course workloads are manageable. Students often do not have enough time to receive and process feedback before they are inundated with other work. Reducing the density of information that is taught in courses would allow students to focus more on what is really important to know (Nelson, 2001).
- Allow adequate time for students to learn difficult tasks to promote accuracy as opposed to speed, reduce the cognitive load (Davidson & Henderson, 2000), and facilitate the development of physiological toughness (Dienstbier, 1989).
- Give students challenging tasks while fostering opportunities for students to gain control of their learning (Clifford, 1990; Middleton & Toluk, 1999).
- When feasible, promote the principle of equifinality; offer students greater flexibility in the selection of academic tasks and learning strategies used to promote attention to tasks and goal attainment (Deci & Ryan, 2000; Knapper, 1995; Zimmerman, 1990).
- Help students identify “an abundance of payoffs for learning” that they might receive for their efforts - both extrinsic and intrinsic (Covington, 2000).
- Actively arrange or encourage students to arrange study groups to promote academic and prosocial involvement in substantive academic coursework. However, each person should be held individually accountable when the work is evaluated (Light, 2001). Pintrich (1994) suggests having a “cooperative goal structure” when students work at tasks, but an “individualistic reward structure” when evaluating students’ work.

(Continued)

Table 7 (continued).

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- Set the conditions for students to compete within themselves to improve their learning rather than compete with other students. Arrange evaluative conditions in courses so that grade competition is minimized or eliminated altogether (Light, 2001). Norm-referenced learning occurs at the risk of diminishing students' accomplishments, whereas task-referenced learning promotes individual improvement (Covington, 1984, cited in Thompson, 1993). Competition and normative evaluations tend to make individuals ego-focused which can be detrimental to performance (Graham & Golan, 1991). Competitive settings also tend to interfere with the development of positive professor-student relations as students feel more pressured to perform (Covington, 2000).
  - Give students frequent, positive feedback regarding their goal progress (Cochran & Tesser, 1996; Martin, 1999). The feedback given should focus on the work successfully completed and suggest possibilities for making improvements (Ames, 1992). Informational feedback tends to improve learning and yield an increased sense of competency (Clifford, 1990).
  - Avoid giving feedback that raises maladaptive evaluative concerns in students (Dunkley et al., 2000). Feedback should not trigger negative attention to the self, or even positive attention to the self (e.g., giving praise) if it is not contingent upon progress that students have made (Kluger & DeNisi, 1996; Shoham & Rohrbaugh, 1997). Feedback needs to encourage greater task involvement and not ego involvement (Butler, 1987).
  - Allow students to have multiple test/study opportunities to attain an academic standard within a supportive environment that rewards individual effort and task persistence. Students can risk making mistakes in order to improve their learning (Ames, 1992).
  - Seek anonymous input from students to gage their level of understanding of course material and to ascertain where students might be confused about the material (Brookfield, 1996; Light, 2001). Respond promptly and constructively to any feedback from students concerning their experiences with the course, and any difficulties they may be encountering with it.
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As a "teaching operator," the provision of timely and informative feedback by professors is highly recommended in order to improve student learning (Astin, 1996; Light, 2001; Moore, 1994; Schunk, 1985). Used as a "teaching monitor", feedback from students may be used by professors to gauge how well students are grasping the course material (Brookfield, 1996; Light, 2001; Tiberius, 1995). For example, Light discusses a procedure whereby students could anonymously write a brief expose just prior to the conclusion of each class. Students would be asked to identify the main idea and their point of greatest confusion from the class, if any. The comments would be dropped in a box at the classroom entrance as students leave. As Light indicates, students' comments would provide professors with valuable insight about, "exactly what the students understood, what wasn't so clear to them, and [produce] some good ideas about how to begin [the] next class" (p. 67). Hilsen (2000) mentions several other ways in which professors may solicit feedback from students on their understanding of the course. With student-initiated feedback, professors can more readily identify deficiencies in learning and respond to student needs with greater alacrity.

The implementation of student-supportive policy would have to be a systemic one that originates from the top and permeates throughout the teaching function at the institution (Kezar & Eckel, 2002; Moxley et al., 2001). This would be necessary to circumvent the competing interests of all parties concerned that could easily derail such student-focused initiatives (Chickering & Kytle, 1999). Vice-presidents, deans, department heads, established professors who are primarily research-oriented, newer

professors feeling pressured to earn tenure, and sessional lecturers all would view the centrality and role of teaching at university differently (Watson, 1997). A published policy would lend added weight to the priority that the institution places on the education of its students, and make more transparent the university's commitment to the graduation of its students. Furthermore, published policy on student-supportive practices in the classroom would help clarify the position that teaching at university is considered by the university administration to be a nontrivial, important responsibility. It could even form the impetus for allocating resources, such as providing better student support mechanisms to assist sessional lecturers or professors who teach larger classes of students. University calendars are replete with policies that stipulate admissions and continuance criteria, grading schemes, and other competitive indicators of a student's normative success academically. They also include policy on punitive measures to be taken in the event of academic dishonesty. Students need to be aware of such university policies to guide their behavior appropriately. However, notably absent from university calendars are policies specifically dedicated to supporting students in their efforts to achieve academic goals. They would be valuable additions in helping universities fulfill their educational mandates to students.

Opponents to establishing a student facilitative policy on campus might argue that there could be legal ramifications to making such public commitments to students when students do not reach their goals. But universities already possess an abundance of regulations declaring that academic standards must be upheld. A student supportive

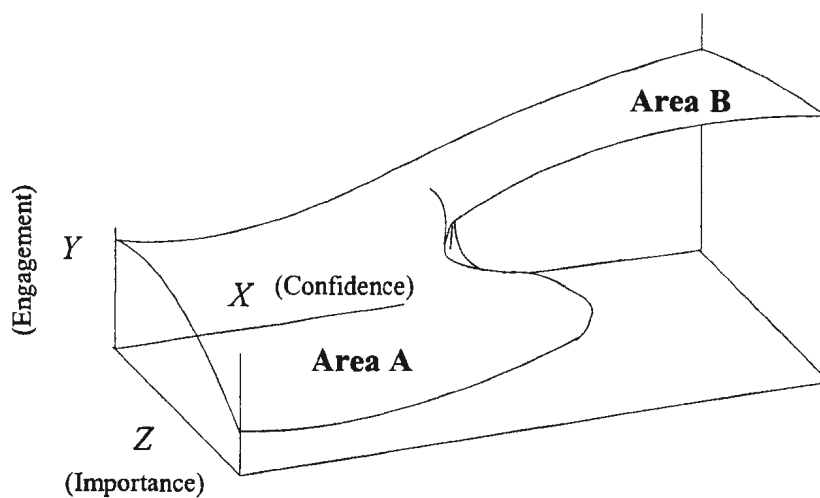
policy would merely articulate a university's commitment to helping students succeed within its limited capability for doing so. A commitment to facilitating students' efforts to succeed is not a guarantee that students will be successful, any more than a health care system committed to providing quality health care cannot guarantee health. Yet, the policy proposed would help to spur success and would be consistent with principles for ethical practice such as those adopted by the Canadian Psychological Association (Sinclair & Pettifor, 1992). The four ethical principles of respect for the dignity of persons, responsible caring, integrity in relationships, and responsibility to society could apply just as well within university classroom settings as they apply in counsellor-client relationships. For instance, the principle of respect for the dignity of persons requires an acceptance of and approach to students that would confirm their innate worth as human beings. The principle of responsible caring would aim to maximize benefit and minimize harm to students. Many of the proposed policy recommendations seek to accomplish just this by identifying ways in which universities can work proactively with students to help them find satisfactory academic alternatives more congruent with students' strengths when their academic efforts are not successful. This is not unlike what would occur in therapeutic relationships. However, as in therapeutic relationships, ultimate responsibility for the success of students must rest with each individual student, a point that is unequivocally made in the 12th policy recommendation proposed. A university's commitment to student success is not equivalent to being obligated to ensure that students' succeed irrespective of their efforts or capabilities.

## Chapter 10. On Academic Continuities and Discontinuities - A Conclusion

This paper has explored many of the cognitive and motivational issues involved when students persist in their academic pursuits at university or when they disengage from such pursuits. Students will often experience academic difficulties when they do not establish viable academic goals, when they do not implement operators successfully in the performance of tasks, or when they do not satisfactorily monitor their goal progress (Carver & Scheier, 1998). When academic difficulties are extensive or protracted enough, students may fail university or simply lose interest in continuing with their education. Students who do not return to university, in many cases, represent missed opportunities for both students and universities alike (Woodard, Mallory, & De Luca, 2001). When a university's educational mandate is convergent upon meeting students' needs for competency and relatedness to others in an academic context (along with fostering autonomy), it should be more successful in retaining its students (cf. Ryan & Deci, 2000b). What is important is the nature of the dynamic relationship that exists between student and university. Whether a student succeeds or not may be critically dependent on this relationship, and the extent to which a student can use academic standards, operators, and monitors to achieve success. These "academic dynamics" effectively constitute a student's academic life space, a three-dimensional space conceptually, that can lend itself to a dynamical systems interpretation of student effort at

university, or lack thereof. The following dynamical systems analysis draws together the central academic concerns that contribute to students' decisions to persist or withdraw from university. Framed within the discussion is the active role that universities can play in fostering the sustained goal-oriented activity of students and in shaping their academic performance.

According to Vallacher and Nowak (1997), a dynamical system is, "a set of interconnected elements that undergoes change ... [and has] the ability to evolve in time" (p. 74). That is, the relationship between elements within a system, whether that system be an individual or societal institution, serves to regulate the system's behavior. As the relationship between elements change, so too does the system's behavior. This phenomenon has been aptly described by Carver and Scheier (1998, 1999b) who discuss behavioral self-regulation using a particular dynamical system called a cusp catastrophe (see Figure 1). As shown in Figure 1, while some people fall short of regulating their behavior effectively within a given context (i.e., they are in Area A), others are quite successful at behavioral self-regulation (i.e., they are in Area B). However, the "cusp" in cusp catastrophe denotes those times when success or failure is far from certain (i.e., people are in the mid-region between Areas A and B), and a relatively small change along one behavioral dimension can produce a demonstrative change in outcome along another behavioral dimension. The term "catastrophe" underscores the tremendous rift that can eventuate between successful and unsuccessful individuals, the result of differences between people that may be initially marginal (although the initial differences between



*Figure 1.* The Cusp Catastrophe, indicating a bifurcation in academic performance between struggling students (Area A) and successful students (Area B), where *Y* denotes students' engagement in learning as a function of task importance (*Z*) and task confidence (*X*).

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*Note.* Adapted from *On the Self-Regulation of Behavior* (p. 297), by C. S. Carver and M. F. Scheier, 1998, New York: Cambridge University Press.

some other people may be large to begin with). A cusp catastrophe can help bring to light the major variables and interactions between variables that contribute to successful or unsuccessful behavioral self-regulation in particular settings. It can illuminate those variables within the academic life space of each student that impact upon, or are predictive of, that student's engagement with learning at university.

As an "academic" cusp catastrophe, Figure 1 effectively captures a range of circumstances that contribute to student success or failure, which has been the focus of much of this paper. The three variables or parameters identified in the figure are the same as those listed by Carver and Scheier (1998, 1999b), and include one dependent variable or behavioral outcome, and two control parameters that can affect the outcome. The dependent variable, labelled Engagement, resides along the y-axis and corresponds to the kinds of academic outcome that researchers of student retention, arguably, need to measure - persistence at university, sustained student effort, mastery of tasks, the effective use of operators. The control parameters include Importance, on the z-axis, and Confidence, on the x-axis. The Importance parameter may subsume any of a number of related variables that reflect the importance of a task to an individual. Tasks are often considered important when they relate to an academic standard or valued goal, but they may also be viewed as important when tasks are perceived to be difficult to perform but necessary to complete. Carver and Scheier (1999b) maintain that important tasks tend to require additional mental resources, thereby increasing the mental load and stress upon individuals. They add that tasks can seem more important when increased pressure is

applied through such means as social pressure, time pressure, or greater task demands. The pressure can also be self-imposed when people have performance goals (Elliot & Harackiewicz, 1996) or perfectionistic tendencies (Frost et al., 1995). The Confidence control parameter would indicate an individual's confidence that a task can be performed satisfactorily, or that the person is making steady and acceptable progress toward a standard or valued goal. This would be possible through regular self-monitoring or the receipt of periodic feedback. To a great degree, the control parameters determine the extent to which students are academically engaged - whether they will persist with their learning and succeed (i.e., they are in Area B of Figure 1), or withdraw effort and exhibit substandard performance (i.e., they are in Area A). Because each control parameter contributes uniquely to student outcomes, universities should try to ensure the success of students with respect to each.

The influence of the Importance parameter on a student's engagement in learning appears to be somewhat counterintuitive. While it may seem apparent that a student would try harder to succeed as the perceived importance of a goal or task increases, such is not always the case. As stated above, the importance of a goal is often manifested in terms of how difficult it is to attain. Clifford (1990) claims that people are more likely to maximize learning opportunities when tasks are moderately challenging and not too easy. However, as tasks are perceived to increase in difficulty, concerns about possible failure will often lead to a debilitation in task performance or to a withdrawal from doing the tasks altogether (Dweck & Leggett, 1988; Elliot & Harackiewicz, 1996). Witness the



difficulties that many graduate students have in completing their dissertations, for whom the term "ABD" has come to mean "all but dead" rather than the intended "all but dissertation." While it may seem reasonable to think that there would be an increase in effort when such valued goals are pursued (Sheldon & Elliot, 1998, 1999), as failure becomes a distinct possibility, the pertinent tasks can become ego-threatening and interfere with a student's engagement in learning (Elliot & Sheldon, 1997). The switch from approaching success to avoiding failure can have disastrous consequences for individuals. As shown in Figure 1, when the demands of a task make it more difficult to perform, a bifurcation emerges in which some people will continue to engage the task (i.e., they are at the front edge of Area B) while others discontinue or otherwise debilitate their efforts to succeed (i.e., they are at the front edge of Area A). The main problem for this latter group, according to Carver and Scheier (1999b), is that the goal or task is perceived to be too important such that people become overly concerned and anxious about how they might do. In other words, they question their personal efficacy and confidence for reaching the goal (Bandura, 1988; Boice, 1997; Carver & Scheier, 1999b).

One solution would be to try to have individuals' goals "matter less" in order to minimize threats to self-efficacy and goal attainment (Carver & Scheier, 1999b). The idea would be to move people away from the front edge of Area A in Figure 1, toward the back edge of the lower catastrophe plane. As this is done, the relationship between Importance (along the z-axis) and Engagement (along the y-axis) changes from one of reduced engagement to one of increased engagement. Thus, from an academic

perspective, it may be best to think of the Importance control parameter as changing from a region of high difficulty on the front edge of the plane to a region of moderate difficulty along the back edge, thereby excluding goals that would pose little or no challenge whatsoever. Again, students may not be very motivated to persist at tasks that they would regard as too easy. Universities must endeavour to ensure that students are striving for valued goals that are challenging but nonetheless achievable. This means lending adequate support to those students who are indecisive about their academic goals or who have set unrealistic goals, so that students can identify and successfully pursue goals they consider worthwhile and personally gratifying. Universities must then back up this commitment by providing learning environments that are reasonably non-threatening to students, environments that are conducive to students' being successful academically (Covington, 1999).

Students are also more likely to remain engaged in learning if they have reasons to be confident that they can succeed in their ongoing goal-related activities. Carver and Scheier (1999b) posit that positive changes in the Confidence parameter (along the x-axis of Figure 1) will lead to increases in Engagement (along the y-axis). However, the nature of this relationship is contingent upon the goal's importance, or perceived difficulty, such that a two-way interaction does exist between the control parameters of Importance and Confidence. When goals are of moderate importance, toward the back edge of the catastrophe plane, incremental increases in an individual's confidence for performing a task will lead to incremental increases in task engagement. The relationship between

Confidence and Engagement will be roughly linear. When goals become more challenging and tasks more difficult to perform, toward the front edge of the plane, a cusp emerges that more clearly demarcates those who will continue with their learning from those who will not. In this cusp region, the relationship between Confidence and Engagement essentially becomes a dichotomous one, where changes in confidence can profoundly impact engagement in goal-relevant activities. Students who doubt that they can complete important tasks will tend to withdraw effort (i.e., remain in Area A of Figure 1) while confident students will tend to persist academically (i.e., remain in Area B). Students are more likely to remain engaged in learning when universities can provide effective and responsive student-centred policies and programmes that are confidence building and dedicated to retaining students. For students who withdraw effort, it would take a considerable increase in confidence for them to successfully re-engage in goal pursuit (i.e., shift from Area A to Area B).

Universities have a responsibility to strengthen in students the confidence that they can succeed academically (King & Baxter Magolda, 1996). Improvements in student confidence and effort are possible, even for difficult tasks, when universities adopt policies that are dedicated to the academic success of students (Kuh, 1996). Effective student-supportive policies would help ensure the establishment of quality connections between students and the faculty and staff of the university so that more concerted and beneficial learning might occur (Light, 2001; Strange & Banning, 2001). Such quality connections are needed if students are to remain involved in their learning when

difficulties arise in the performance of tasks. For many students, the confidence to use operators effectively, complete tasks, and reach valued goals would critically depend on the receipt of timely, frequent, and positive feedback concerning their goal progress (Martin, 1999). The dissemination of negative feedback that evokes negative self-concepts should be avoided (Bandura, 1997; Kluger & DeNisi, 1996; Markus & Ruvolo, 1989; Strube & Yost, 1993). Supportive feedback would promote corrective learning and continued task engagement (Bandura, 1997; Locke & Latham, 1990; Schunk & Swartz, 1993). It would be an important way to reduce the pressure on students as they try to achieve academic success. Performance anxieties would be ameliorated as students feel more assured that their efforts will yield positive results (Martin, 1999). They would be encouraged to adopt approach rather than avoidance orientations to their learning (Ryan & Deci, 2000b). According to Woodard et al. (2001), the use of academic good practices at universities may distinguish between those institutions that are more successful at graduating its students and those that are not. Student-centred policies intended to enhance learning at universities should lead to a reduction in student attrition rates. However, too many students will still discontinue their studies for academic (and other) reasons, a concern that universities must continue to address (Blinne & Johnston, 1998; Tinto, 1998).

The end of an academic term at university represents a crucial juncture in the lives of students, with many having to decide whether or not they will continue in pursuit of a university degree. At semester's end, academic success or failure often signify critical life

events that require students to challenge or modify their worldviews (Inglehart, 1991), as well as their own current and prospective places in the world (Markus & Nurius, 1986). This is when a university can reaffirm its commitment to supporting and retaining students. It is an opportune time for an institution to introduce specific motivational programming that would target those students who have been experiencing difficulties at university so that they might persist academically. To be effective, such programming would have to influence the manner in which individuals mentally process or construe such focal life events as passing or failing a semester (Lyubomirsky, 2001; Weiner, 1984), since the content of such construals factor significantly into students' decisions to continue or withdraw from university.

The present paper identified four student decision-making scenarios: (a) students who will pass the semester and decide to continue at university, (b) students who will pass the semester but decide to withdraw, (c) students who will fail and decide to withdraw, and (d) students who will fail but still decide to continue at university if permitted. Control theory (Carver & Scheier, 1981; 1998) and attribution theory (Weiner, 1984, 1985) then provided the rationale for categorically assigning cognitive and motivational explanations for why students would choose to continue or withdraw from university. From a programming perspective, the four scenarios would seem to have diagnostic and remedial utility for retaining students at university.

The causal explanations that are given for each of the four scenarios are summarized below and with reference to the cusp catastrophe that was shown in Figure 1.

In Scenario 1 the argument was made that successful students who plan on continuing at university are likely to believe they are reasonably efficacious in setting standards, in using operators to complete discrepancy-reducing tasks, and in monitoring their goal progress. Scenario 1 thus prescribes that set of circumstances most conducive to students remaining at university and achieving academic success. In general, students in Scenario 1 would be in Area B of Figure 1, where standards are represented by the Importance parameter, use of operators by the Engagement variable, monitoring and feedback by the Confidence parameter. In all likelihood these students would be suitably engaged in tasks and confident that valued goals can be reached. Scenario 2 students would lack the personally meaningful academic goals needed to keep them engaged at the institution. Lacking a reason to continue, they would essentially "drop off" the catastrophe plane at the back edge of Area A in Figure 1. Scenario 3 and Scenario 4 students meanwhile, in failing a semester, would be distinguished by their relative placements within Area A. Scenario 3 students would be depicted as nearer to the cusp at the front edge of Area A while Scenario 4 students would be nearer to the back edge of Area A. As the cusp would suggest, Scenario 3 students would be inclined to drop out of university, attributing their academic difficulties to personal handicaps or to being unable to use operators effectively to complete required tasks. They would have already worked hard in a bid to ensure that their efforts would pay off, only to experience academic failure despite those efforts. To return to learning, they would require a substantial boost in confidence that they could master the necessary tasks in order to make the shift from Area A to Area B in Figure 1.

Scenario 4 students, nearer to the back edge of Area A, would be more likely to attribute academic failure to extrinsic factors such as other people or interests. Despite failing, these students would remain confident that they could become more engaged in their studies to achieve academic success in the following semester. For them, academic improvement would appear to be simply a matter of monitoring their academic efforts and goal progress more closely to bring about changes toward a standard through a process of successive approximation.

Modest and incremental improvements are assumed to be the norm in most learning, developmental and behavioral situations (Miller & C'deBaca, 1994). Most students are likely to believe, with some justification, that the path to achieving academic success lies in being able to make steady improvements in learning by systematically ironing out difficulties one task at a time. Yet, it is evident that the retention of students at universities is often more about students being able to make precipitous and major changes to their academic (and personal) lives rather than modest changes, changes that Miller and C'deBaca would refer to as quantum changes. After all, the Scenario 2 and Scenario 3 students are to the point of contemplating withdrawal from university and redirecting the course of their lives. These students would be doubtful that any further benefit would accrue from remaining at university. Focused programming may keep these students from "dropping off" the plane of academic engagement, as it were, or from perceiving apparent cusp situations at university to be insurmountable.

The programmed intervention proposed in this paper highlights the importance of

attentional processes in determining whether individuals will persist or withdraw effort at university. The model that is developed represents goal-relevant information dichotomously and in a self-referenced manner within working memory. The argument was made that dichotomous working memory representations can be efficacious in productively harnessing the common tendency of people to engage in dualistic reasoning patterns when processing information. Students in their first few years at university are particularly prone to adopting dualistic thinking patterns for meaningfully construing events (Baxter Magolda, 1992; Perry, 1970; Schommer, 1990). This dualistic tendency extends to perceptions of self as being either a success or failure in any prospective social situation (Markus & Nurius, 1986). The basic premise of the model is that personal and situational information would tend to be actively processed by students as either threatening to or supportive of reaching desired standards or goals, creating dichotomous patterns of goal-related information that can readily be identified. The processed information in working memory could consist of negative and positive cognitions (NC, PC), images (NI, PI), emotions (NE, PE), or physiological state information (NPS, PPS), and be represented in some variant of the form:

$$\{NC, NI, NE, NPS : PC, PI, PE, PPS\}$$

For students in Scenarios 2, 3 and 4, negative goal-connected and personally meaningful information (conveyed to the left of the colon) would receive greater attention and



predominate within the working memories of those individuals, potentially to influence their subsequent behavior. In contrast, students in Scenario 1 would be likely to have a predominance of positive goal-pertinent information (conveyed to the right of the colon) residing in their working memories to guide their future actions. They would be better able to maintain approach orientations to their learning and persist at tasks relevant to attaining valued goals (Carver & Scheier, 1998).

Dichotomous working memory representations thus denote a critical divide between the personal strengths and resources needed to be successful academically, and the perceived weaknesses and threats that could curtail effective goal pursuit. In essence, the colon in the dichotomous working memory representation shown above is not unlike the cusp in Figure 1, where the cusp separates doubtful from confident individuals. A prevalence of negative or positive influences within an individual's working memory would have corresponding negative or positive effects on the person's engagement in learning. However, the colon perhaps more optimistically signifies that change is possible, largely because working memory content can be rebalanced; an individual can learn to have positive goal-relevant information supercede negative information in working memory and, for the most part, to sustain that change as academic goals are pursued. The creation of positive dichotomous working memory representations would underscore the undesirability of maintaining negative construals of goal-relevant events in memory to sway that person's behaviors.

At semester's end, academic non-reward can quite literally represent a catastrophe

in the lives of many students, manifested in the form of negative cognitions, images, emotions, and physiological states. Nevertheless, the predominance of negative goal-relevant content in working memory can be agentive in providing the impetus for individuals to make constructive changes in their lives, i.e., to re-engage in goal pursuit at that same university (as viewed from a student retention perspective). In particular, William James (1902/1994) lent early credibility to the agency of emotions in facilitating change by proclaiming that, "Both thought and feeling are determinants of conduct" (p. 548). It has even been argued that people are most likely to make significant positive changes in their lives after being emotionally distraught (Miller & C'deBaca, 1994). Strong negative emotions can lead individuals to analyze their current difficulties and consider better ways of adapting to their environments (Hayes & Strauss, 1998; Karniol & Ross, 1996; Mahoney, 1991). As negative affect increases, individuals may be motivated to selectively attend to more positive information that reduces the negative affect and facilitates more productive behavior (Forgas & Vargas, 1998). Heatherton and Nichols (1994a) add that, "important emotional, motivational, cognitive, and interpersonal processes" (p. 14) typically act in concert to produce life changes. For many students, this would indicate that ineffectual patterns of functioning at university would need to be destabilized in tandem, including, "well-organized patterns of cognitive, affective, behavioral, and somatic functioning" (Hayes & Strauss, 1998, p. 940). Powerful focal experiences such as academic uncertainty could have such a destabilizing influence on people and motivate them to make positive changes in their lives, especially if the

environment fully supports such transitions (Heatherton & Nichols, 1994b; Miller & C'deBaca, 1994). The confluence of information on the left side of the dichotomous working memory representation can provide the necessary impetus for students to make such meaningful changes. The negative self-referent goal-pertinent information in an individual's working memory can precipitate, "a major and enduring reorganization of behaviors triggered by highly significant discrepancies, involving goals that are central to meaning and identity" (Miller & C'deBaca, 1994, p. 273).

Such a reorganization of behaviors (and reorientation toward university activities) would reflect a similar reorganization within an individual's working memory. While negative working memory content can spur change, positive goal-relevant information would need to gain ascendancy within a person's working memory to guide subsequent decision-making and promote sustained goal-oriented behavior. To shift the memorial emphases from negative to positive, a student in distress would need to expand his or her breadth of attention to encompass valued goals and identify personal strengths or other supportive resources that would facilitate goal attainment (Derryberry & Tucker, 1994). In short, students need to experience a confluence of positive goal-related thoughts, images, emotions, and physiological states that support their goal-oriented actions, and that can displace or offset any negative goal-connected information in working memory. Positive goal-oriented thoughts and images can facilitate goal attainment (Locke & Latham, 1990), as can positive emotions (Carver & Scheier, 1990) and physiological states (Bandura, 1997). Fredrickson (2001) contends that the regular experience of

having positive emotions can even allow individuals to build lasting personal resources for responding more adaptively and satisfactorily to subsequent challenges in life. In her broaden-and-build theory of positive emotions, Fredrickson states that positive emotions can help to build useful resources by, "broaden[ing] people's momentary thought-action repertoires, widening the array of the thoughts and actions that come to mind" (p. 220). Positive emotions act to expand a person's breadth of attention, thereby increasing that person's awareness of viable response options so that appropriate action can be taken. Fredrickson further claims that the existence of positive emotions can undo any unwanted effects that previous negative emotions may have had on behavior. Positive emotions may also promote physical health, personal well-being, and increased planning for the future (Salovey et al., 2000).

Ideally, a program that targets students in jeopardy of dropping out of university would be implemented as soon as feasible to help prevent premature student departures. A prompt intervention could help students to construe academic difficulties not so much as personal losses, but rather as costs that are incurred to adjust successfully to university (Lyubomirsky, 2001). A program designed to help students establish positive dichotomous working memory arrangements with respect to desired goals should encourage students to remain at university and succeed. As an added bonus, such a program could serve to better inform the university's academic staff about the myriad challenges that face students, and possibly increase their commitment to ensuring positive student outcomes. More than disseminators of knowledge, university personnel would

become active collaborators in assuring the development and intellectual growth of their students. Such involvement would be concordant with any campus-wide policy initiatives dedicated to the academic success of students.

In conclusion, one student retention goal of universities is to help tentative students decide to stay at those institutions. For this to happen, universities need to offer doubtful students greater hope that they can succeed in their academic endeavours and attain valued goals. Students would need to be reasonably confident that they could eliminate any perceived discrepancies between their current states of preparedness and any future academic standards or goals they may establish at university. In therapeutic practice, goal-based discrepancies have also been described as important for motivating people to make positive and substantive changes in their lives (Miller & Rollnick, 2002). However, for such changes to occur, Miller and Rollnick contend that two antecedent conditions must hold: Individuals must view the need for change to be *important* to their lives, and they must be *confident* that they can make those rather significant life changes, if they really try. Thus, both importance and confidence are considered integral parts of the intrinsic motivation needed for people to make positive life changes (Miller & Rollnick, 2002). In a non-coercive setting, clients receiving one-to-one counselling would be encouraged to freely choose and pursue therapeutic goals that they would value and believe they could achieve. Similarly, the student retention program developed in this paper attempts to accomplish the same result for conflicted university students: provide an autonomy-supportive context in which students can freely and systematically explore,

with assistance as required, those issues that had impeded their academic progress, and those that would support continued effort at university, including the elucidation of realistic and valued academic goals. As stated by Moxley et al. (2001), "retention really does involve assisting one student at a time ... in embracing and performing the role of student successfully and effectively" (p. 30). When a university can provide an "opportunity-rich environment" (Strange & Banning, 2001, p. 87), it can better sustain the academic transformation of students who previously had struggled at university.

A second student retention goal of universities, then, is to create an institutional culture that supports a great many students making academic progress and achieving success. From an attributional perspective, universities can confer a sense of stability to student-university relationships by adopting university-wide policies that clearly articulate the commitment of universities to the academic success of their students. In such a student-supportive setting, positive events (and approach orientations to learning) would tend to be construed as typical or stable occurrences, while negative events (and avoidance orientations to learning) would tend to be construed as atypical, temporary occurrences. Stable learning environments dedicated to meeting the academic needs of students (e.g., by providing prompt and positive feedback on goal progress) should encourage students to maintain positive outlooks and approach orientations toward academic tasks so that worthwhile goals may be realized. Students could expect to have greater control over their academic outcomes and experience less uncertainty over their futures (Martin, 1999; Weiner, 1984). The general well-being of students would be

promoted as students are able to establish quality relationships with professors and others at university, and carve out purposeful existences that include the development of academic competencies (Ryan & Deci, 2000b; Ryff & Singer, 1998).

A combination of campus-wide retention policy and targeted programming should help ensure that students contemplating withdrawal from university would remain to successfully complete their degree programs. Furthermore, a university policy dedicated to meeting students' academic needs when they arise should help all students to perform more optimally. As stated by Cochrane (1978), "Raising failing students to the average is emphatically not more important than raising average students to the excellent" (p. 205). In the final analysis, the possible university discussed in this paper is about firmly establishing the positive possible selves that students can be. All students should have ample opportunities to work to their potential. A university that provides those opportunities should enjoy a high rate of student retention.

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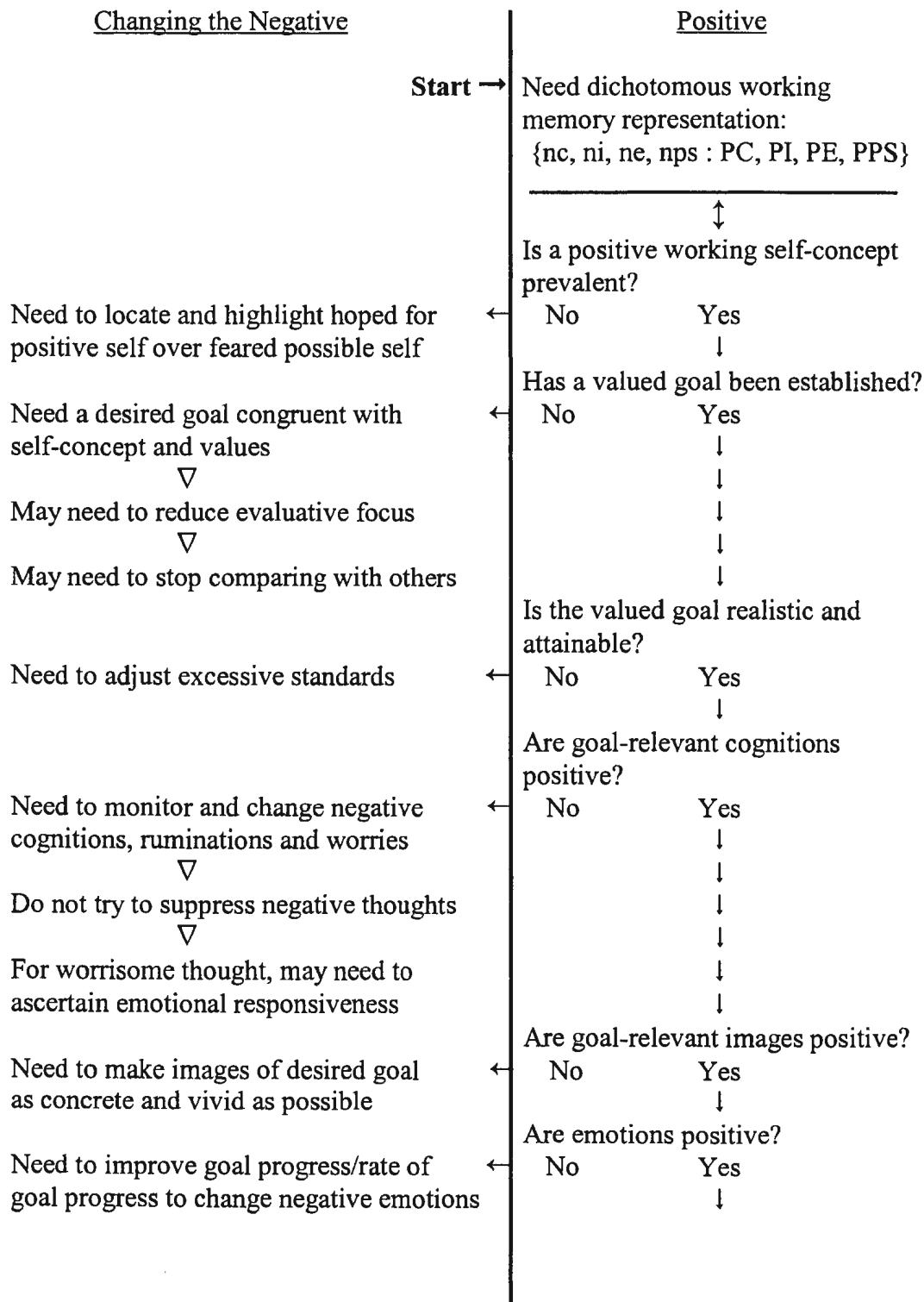
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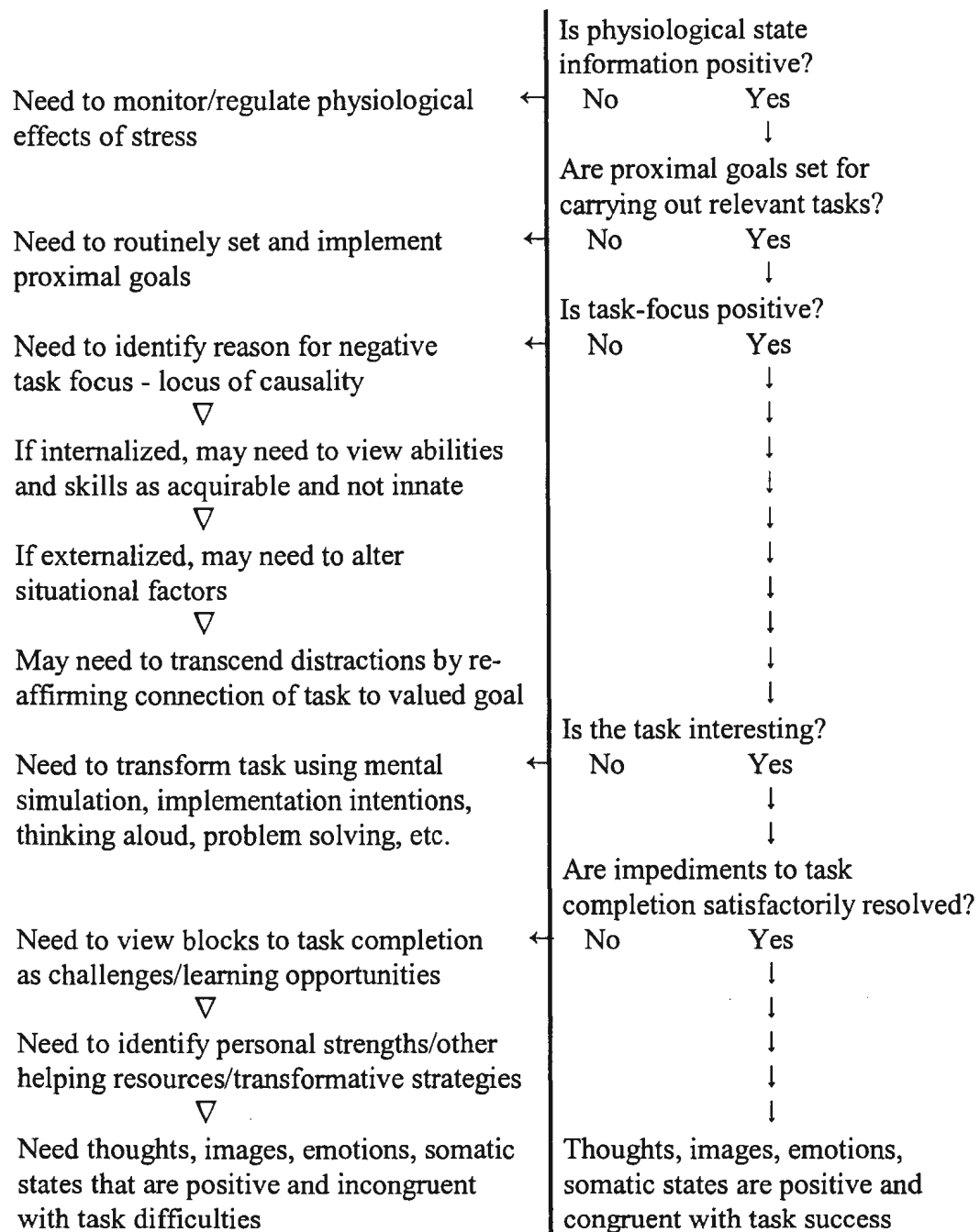
Appendix A  
Sample Worksheet for Denoting Dichotomous Working Memory Representations

Negative <u>Goal-Relevant</u> Cognitions	Positive <u>Goal-Relevant</u> Cognitions
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Negative Images	Positive Images
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Negative Emotions	Positive Emotions
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Negative Physiological State	Positive Physiological State
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

## Appendix B

## Questions for Establishing/Maintaining Dichotomous Working Memory Representations





**→**      Completed goal-related intentions      **←**  
 Achieve Closure









