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Procrastination : a review of the literature from 1974-1991

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Loyola University

Procrastination:
A Review of the Literature from 1974-1991

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By:

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Procrastination: A Review of the Literature
From 1974-1991

ABSTRACT

Several theories of procrastination exist but few have been empirically supported by research. Although some research has been done to provide greater understanding of the problem and some models have been suggested, an integrated view of procrastination is still lacking. This paper presents current models of procrastination and reviews published articles and studies from 1974-1991. Furthermore, it attempts to integrate the procrastination literature to provide further understanding of this phenomenon. The state of current research is discussed and areas for future research are proposed. Implications for therapists are also included.

VITA

Andrea Slowik was born on December 29, 1959 in Chicago, Illinois. She received a Bachelor's Degree in Nursing from Northern Illinois University in 1982.

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TABLE OF CONTENTS

CHAPTER I
PROCRASTINATION: DEFINITION AND LIMITATIONS

Procrastination has been referred to as the psychopathology of

everyday life (Silver & Sabini, 1981). Millions of people procrastinate

every day. One study found that of the 342 American university student

surveyed, approximately one-half stated that procrastination was at

least a "moderate" or severe personal problem (Solomon & Rothblum,

1984). Considering the pervasiveness of this problem, it is startling

to note that the topic of procrastination has only generated moderate

descriptive interest. Current theories of procrastination are lacking

in empirical support and few models have been developed.

Definition

In order to adequately study a phenomenon, an operational

definition of the phenomenon is necessary. One of the main difficulties

in studying the phenomenon of procrastination is that a clearly agreed

upon definition has not yet been developed. Some authors have

operationalized procrastination in terms of academic delay (Rothblum,

Solomon, & Murakami, 1986) or have not included a definition at all

(Roberts, Fulton, & Semb, 1988; Lamwers & Jazwinski, 1989; Boice, 1989).

Silver and Sabini (1981) offer a definition of exclusion. They state

that procrastination isn't or almost always isn't a result of a finite

memory or attention span; it doesn't always result from fatigue, or

epinephrine depletion, or a lesion in some hemisphere or other (p.207).

1

Typical definitions include putting off for tomorrow what you can do today, a failure to initiate or complete a task or activity by a predetermined time (Ellis and Knaus, 1977), and delay behavior related to a fear of failure or fear of success and success related consequences (Burka and Yuen, 1983; Rorer, 1983). Lay (1986) has defined procrastination as the tendency to postpone that which is necessary to reach some goal. He acknowledges that this definition understates the complexity of the concept and states that other factors need further consideration. He suggests that other concepts need to be addressed, such as whether the task is self- or other-imposed, the degree of unpleasantness of the task, how concrete and structured the task is, and the procrastinator's initial and subsequent views of what the task involves. He also suggests that the definition could include an assessment of behaviors that intervene when one is postponing an activity.

Tuckman (1990) has defined procrastination as the lack or absence of self-regulated performance, the tendency to put off or completely avoid an activity under one's control. Additionally, Solomon & Rothblum (1984) define procrastination as the act of needlessly delaying tasks to the point of experiencing subjective discomfort. Burka and Yuen (1983) touched upon the emotional complexity of the problem. They say that procrastination is a symptom of a hidden fear of conflict, a buffer that protects people from taking actions that may force them to confront painful feelings and unresolved issues. While each of these definitions touches upon aspects of the problem, none of them adequately addresses the complexity of this difficult problem.

The definition offered by Milgram, Sroloff, and Rosenbaum (1988) appears to be one of the more comprehensive definitions of procrastination. According to Milgram, et.al, procrastination represents a dysfunction of important human abilities such as the ability to establish priorities in relation to other tasks and responsibilities and the ability to perform these tasks in a conflict-free manner. Milgram's definition not only describes procrastination but includes conditions which may exist when procrastination occurs (i.e., conflict and problems with prioritization). While Milgram's, et al. definition appears to be a more comprehensive definition of procrastination, Silver's (1974) description of the procrastination process appears to be the most flexible and comprehensive account of procrastination. He states that under conditions of moderate stress, a person can experience sequencing difficulties that result in perserveration of a task and can ultimately result in delay of task initiation or completion. This description of procrastination not only suggests the conditions under which procrastination is most likely to occur but also hints at the cyclical nature of the problem.

Traditional definitions of procrastination, such as putting off for tomorrow what you can do today, are cliché and tend to minimize what for some people can be a serious problem. These definitions tend to create a picture of a procrastinator as lazy, rebellious, fearful, or disorganized and while some aspects of these descriptions can be true, lack of a clear definition of the problem can result in poor response to the individual's needs. Furthermore, lack of consistency in the definition of procrastination has created difficulties for comparison of

the phenomenon across studies and in some cases has contributed to less than adequate research designs.

Additional Limitations

In addition to the problem of definition, the fact that few reliable measures of procrastination have been developed has contributed to the under-representation of research on this pervasive problem. There have been attempts to develop a standardized tool for studying the phenomenon of procrastination but to date most of them exist in unpublished form, not readily available to the clinician or researcher. Additionally, many of these tools were utilized to test the population on which it was developed. This may result in biases which can interfere with the reliability of the tool.

The Procrastination Scale (Tuckman, 1990), the Aitken Procrastination Inventory (Aitken, 1982), the Adult Inventory of Procrastination (Johnson & McCown, 1988), Procrastination Scale--Forms A, B, and G (Lay, 1986), the Tel Aviv Procrastination Scale (Sroloff, 1983), and PASS (Solomon & Rothblum, 1984) are among the currently available inventories of procrastination. To date, only a few of these inventories (Aitken, 1982; Sroloff, 1983; Lay, 1986) have been validated on a population other than the one it was developed on and most of these inventories have been utilized primarily within populations of university students. These limitations decrease the generalizability of the findings and result in questionable reliability when utilized on other populations. Additionally, most of these inventories are self-report measures and are therefore subject to the biases that self-report measures entail. Because procrastination is a socially unacceptable

phenomenon and empirical studies have generally utilized self-report measures, its incidence may actually be under-reported.

While there are a number of empirical studies on the phenomenon of procrastination, the quality of the research is quite variable. Lack of readily available, reliable tool for measuring procrastination and lack of a consistent definition may have contributed to this problem. Additionally, there are few models available to aid the clinician in the treatment of this complex problem.

Purpose of This Review

Society tends view procrastination as a minor problem, but for some individuals it is a serious problem with significant consequences. Because it is a socially unacceptable phenomenon, individuals may be hesitant to seek help or may be poorly supported in their efforts to change. Some of this unacceptability may be due to the fact that procrastination is viewed as a self-regulation problem and under the control of the individual. Lack of understanding of procrastination has contributed to this limited view point. Upon reviewing the lituature, it was found that information on procrastination was under-represented despite the fact that it is a wide-spread problem. In addition, no articles were found that integrate the current literature.

The purpose of this paper is to integrate the literature in order to provide further understanding of the dynamics of procrastination. This analysis will focus on works from the areas of business, education, and psychology published from 1974-1991. It does not include self-help type articles, articles relating to the treatment of procrastination (of which there are few), or articles which utilize procrastinators as

subjects but are actually testing the effectiveness of a particular program or some other phenomenon. An overview of existing models of procrastination will be provided and descriptive and empirical articles will be reviewed. Integration of the literature and proposals for future research will be included.

CHAPTER II
THEORIES OF PROCRASTINATION

Several theories have been proposed and a few have been partially

supported, however none of the existing theories have adequately

explained the phenomenon of procrastination. In order to develop a

fuller understanding of this phenomenon, the following sections will

present selected theories of procrastination. Psychodynamic, cognitive,

behavioral, trait, and structural theories of procrastination will be

included in this discussion.

Psychodynamic Theory

From a psychodynamic perspective, procrastination is believed to

develop as a result of childrearing practices and unconscious

motivation. Blatt & Quinlan (1967), in their study of temporal

parameters of procrastination, argue that chronic lateness is related to

a subconscious fear of death. They propose that procrastination is an

unconscious attempt to stave off mortality by showing a contempt for

constraints of the clock. Missildine (1964) believes that the "slow,

daydreaming paralysis" that is manifest in the "procrastination

syndrome" is caused by parents who over-stress achievement. This over-

emphasis on achievement sets up unrealistic goals for the child and

links the attainment of these goals to parental approval and love.

MacIntyre (1964) agrees that childrearing practices contribute to the

development of procrastination. She asserts that parents who are too

7

permissive with their child are likely to produce a "nervous underachiever" who is too anxious to meet future self-imposed deadlines. Conversely, she points out that parents who are too strict are liable to produce an angry underachiever who exhibits his/her independence from parental figures through a subconscious rebellion of authority, especially the authority of the clock. Although childrearing practices or unconscious motivations (i.e., fear of death) may be factors in the development of procrastination, it appears that other factors that may also contribute to the development of this complex problem.

Cognitive Theories

Cognitive theorists believe that procrastination is related to irrational fears and self criticisms. Furthermore, they proposed that personality characteristics such as fear of failure, low frustration tolerance for coping with unpleasant tasks, and a passive-aggressive orientation toward life's demands underlie the procrastinating behavior (Ellis & Knaus, 1977). In addition to these characteristics, Rorer (1983) has proposed that fear of success and success related consequences contribute to procrastination. Burka and Yuen (1983) agree with both Ellis and Knaus and Rorer. They propose that problem procrastinators use their delaying tactics as a strategy to protect themselves from dealing with situations which may involve fear of failure, fear of success, fear of losing a battle, fear of separation, or fear of attachment.

Agreeing with Ellis and Knaus, Rorer (1983) states that most emotional disturbances are attributable to one or more of three

characteristics--self downing, low frustration tolerance, and hostility

and he summarizes their theory of procrastination in the following way:

- Given the belief that you must do well, and that if you don't you're no good, so it is better to procrastinate and do nothing than to risk the possibility of failure, i.e., it is better to procrastinate than to risk the possibility of finding out that you are worthless.

- Given the belief that things ought to be easy and that you can't stand the fact that they are difficult, it is better to procrastinate then to suffer the short-term frustration necessary to reach long-term goals.

- Given the belief that the world in general, and people in particular, ought to be fair and treat you well, then, if they don't, you won't try--you show them by procrastinating or doing badly. (Rorer, 1983, p. 2).

In addition to cognitions, Ellis & Knaus (1977) note that the

dynamics of procrastination involve fears of failure, rejection or

resentment, or dislike of the task itself. They focus on the task

(e.g., it might be difficult) or on the immediate consequences of the

performing the task (e.g., I might fail). Ellis and Knaus argue that

the procrastinator delays starting a task because he/she is unsure of

his/her ability to complete the task. Perfectionistic thinking

exacerbates the fear of failure and the individual believes that it is

better to procrastinate then risk the possibility of finding out that

he/she is worthless. This avoidant behavior is believed to serve an

ego-defensive function by circumventing the emotional consequences of

failure.

Following in the cognitive tradition of Ellis & Knaus (1977), Rorer

(1983) has extended their theory of procrastination. He agrees with the

notion that procrastination can result from self-downing, low

frustration tolerance, and hostility, however, he points out that while

task characteristics play a role in some forms of procrastination, procrastination can occur even when the individuals accept the difficulty or unpleasantness of the task and the possibility of failure. Rorer suggests that procrastination may have little to with the task itself but may occur as the result of secondary or tertiary consequences of the action. He suggests that fear of success and success related consequences may contribute to the development of procrastination.

Rorer states that in certain situations success increases anxiety and leads to procrastination. This is especially true in mixed reinforcement situations in which painful consequences are associated with pleasurable events. He describes four situations in which success and its related consequences can contribute to procrastination. The first situation involves success that leads to the possibility of failure. Rorer believes that people will sometimes avoid positive events in order to ward off imagined future distress. A second procrastination situation involves the notion that success leads to the possibility of greater failure. Rorer asserts that procrastinators believe it would be more catastrophic if they succeed in changing circumstances of a situation and the event they tried to avoid still occurred, than if they had made no effort at all. They therefore procrastinate in order to avoid that possibility. A third situation elaborates the notion that success entails punishment. Rorer illustrates the potentially catastrophic consequences of combining success (reinforcement) and aversive consequences (punishment). He believes, for example that a person procrastinates in initiating new relationships, not because he /she thinks he/she will fail or be

rejected, or because he /she thinks it will be difficult to do so, but because he /she fears that he/she will succeed and thereby be placed in a potentially punishing situation. Additionally, Rorer points out that specific procrastination may occur, not because individuals have been specifically punished, but because they see the task to be part of something that includes punishment. The final situation described by Rorer involves the notion that success is not success--or, at least, not the success that is desired. He suggests that individuals avoid success to avoid the fear that if they succeed in one area of their life they might find emptiness in other areas of their life.

Cognitive theories of procrastination appear to offer interesting insights into the problem of procrastination. However, while research by Solomon & Rothblum (1984), appears to indicate partial support for Ellis & Knaus'(1977) theory that procrastination is related to fear of failure, no studies could be found that specifically explored the dimensions of low frustration tolerance and passive-aggressive orientation, even though these dimensions appear to make descriptive sense. In addition, although the notion of fear of success is partially supported by Lay (1987), Rorer's assumptions related to the fear of success component of procrastination still need to be tested. While, cognitive theories of procrastination appear to make descriptive sense and have received some empirical support, more research is needed before any conclusions can be drawn concerning the comprehensive and explanatory powers of cognitive theories of procrastination.

Behavioral Theories

According to Mowrer (1947), a pattern of procrastination is developed when an aversive situation establishes an unpleasant response to a neutral stimulus associated in time and place with an originally aversive stimulus; thereafter, one continues to behave as if the original aversive episode were about to recur, and avoids performing actions associated with it. In other words, procrastination occurs as an avoidance of a particular course of action as a result of pairing stimuli in such a way that the individual procrastinates in order to avoid the potential consequences related to that course of action. For example, an individual may postpone the writing of a thesis because if the thesis is completed the individual will graduate and have to set new goals and make more decisions for him/herself. Thus the neutral stimulus of graduating becomes paired the aversive stimulus of decision making and the individual does not complete his/her thesis (i.e., procrastinates) in order to delay making decisions about one's future. Procrastination patterns are also established on the basis of their anxiety reducing properties. It is proposed that avoidant responses are less anxiety arousing than confrontation with feared events and are thereby reinforced.

Ainslie's (1975) theory of specious reward actually focuses on impulsivity and impulse control, however, his suppositions on impulse control may be highly related to the phenomenon of procrastination. He suggests that there is a strong tendency for an individual to choose short-term (specious) reward over long-term good when the short-term goal is immediately pleasurable. The procrastinator develops a feedback

loop in which behavior that is immediately pleasurable competes with behavior that would enhance self-esteem, such as goal completion. The necessity of choosing between the alternatives increases the anxiety that is associated with the task at hand and tends to further increase the likelihood of choosing the alternative of immediate pleasure (or absence of pain). This perpetuates a cycle in which continually increasing anxiety results in the tendency to choose immediate reward, which further increases anxiety.

Although Ainslie was not specifically addressing the phenomenon of procrastination, impulsivity has been suggested to be correlated with procrastination (McCown, Johnson, and Petzel, 1989). While Ainslie's suppositions currently remain untested, his concept of specious reward provides interesting possibilities for future research on procrastination. Behavioral theories of procrastination as a whole remain speculative at this time as no studies could be found which utilized the notion of pairing anxiety or some other punishing situation with some previously neutral phenomenon in the development of procrastination. When one considers that procrastination is a largely behavioral phenomenon, it is surprising that little research has been produced in the behavioral tradition.

Trait Theories

Procrastination is a complex phenomenon and there are many personality traits and individual characteristics that are believed to contribute to the development and maintenance of procrastinating behavior. One of the difficulties in developing a composite picture of the procrastinating individual is the possibility that there may be more

than one type of procrastinator (see Chapter IV). In addition, lack of

a clear definition of the problem has further complicated the search for

traits characteristic of a procrastinating individual. Furthermore, it

remains unclear as to whether procrastination is a state or trait

phenomenon. Despite these limitations, researchers continue to attempt

to correlate personality characteristics with measures of

procrastination. Since many of the traits believed to be connected with

the phenomenon of procrastination are the focus of various studies which

will be reviewed later in the paper, this section will only briefly

mention some of those characteristics and factors.

Typical characterizations of a procrastinator include a individual

who is lacking energy (Solomon and Rothblum, 1984), rebellious (Lay,

1986; McCown, Johnson, & Petzel, 1987) anxious (Solomon and Rothblum,

1984; Lay, 1986, 1987; Rothblum, Solomon, & Murakami, 1986) fearful

(Solomon and Rothblum, 1984), disorganized (Lay, 1986 & 1987) and

lacking in self control (Milgram, Sroloff, & Rosenbaum, 1988). Of these

factors, anxiety is one of the most common factors to be correlated with

procrastination. Rothblum, Solomon, & Murakami's (1986) analysis of

affective measures used in their study found a significant main effect

for procrastination on state anxiety. High procrastinators were

significantly more likely to report weekly state anxiety across sessions

than were low procrastinators. Simple effects also indicated that

female high procrastinators were significantly more likely to report

weekly state anxiety than were female low procrastinators. The means

for male high and low procrastinators were not significant. Rothblum's

et. al. study, as well as others (Lay, 1986; Milgram, Sroloff, &

Rosenbaum, 1988), not only provide evidence for anxiety as a factor in procrastination but also provides support for potential gender differences in procrastinators. Additionally, while gender may be implicated as a factor in procrastination, it appears to be trait specific and may be a function of the fact that most of the studies have a greater number of female subjects and may or may not have controlled for this fact.

The characteristic of self-control (Milgram, Sroloff, and Rosenbaum, 1988) was also found to have a gender related component in relation to procrastination. Lack of self-control (Rosati, 1975; Wesp, 1986; Green, 1982) has been speculated to play a role in procrastination, however, Milgram, Sroloff, & Rosenbaum (1988) found this to only be true for men. In their study on everyday procrastination in college students they found a modest correlation between procrastination and schedule adherence with self-regulation but found no significant correlations with women on this trait.

Impulsivity is also hypothesized to be related to procrastination. McCown et al.(1989) factor analyzed personality variables and time usage in university students. A principle component analysis yielded three factors. Factor 1 loaded highly on the Psychoticism scale developed by Eysenck and accounted for 21.4% of the variance. This finding suggests that procrastination may be associated the impulsiveness that the Psychoticism factor taps. This Psychoticism factor also appears to tap the rebelliousness component believed to be related to procrastination.

In addition to impulsivity, locus of control is suspected to be correlated with procrastination. One study was found that attempted to

correlate locus of control with procrastination. In this study, Trice (1987) compared an academic-specific measure of locus of control with another locus of control measure as a predictor of completion of course requirements within a contract period. Unfortunately, this study is one that provides convergent validity for the scale and contributes nothing to the understanding of procrastination.

Interestingly, although procrastination is mentioned in the perfectionism literature (White, 1985), the perfectionism believed to be associated with procrastination has not been supported by empirical data thus far (Aitken, 1982). However, Solomon and Rothblum (1984) suggest that the fear of failure factor obtained during their factor analysis of university students taps into the evaluation anxiety, perfectionism, and low self-esteem believed to be associated with procrastination.

Procrastinators were highly correlated with neurotic disorganization and negatively correlated with organization (Lay, 1990). Neurotic disorganization refers to a personality profile of an individual who finds it difficult to focus his/her attention on the details of everyday activity. This individual is absent minded, easily distracted, and very forgetful. In addition to neurotic disorganization, Lay (1990) found that procrastinators tended to be non-screeners (Mehrabian, 1977). Whereas screeners automatically impose a hierarchy of importance on the stimuli that surround them, nonscreeners are likely to become over-aroused in high information rate situations and are more sensitive to the pleasant versus unpleasant qualities of tasks and settings.

While some authors have suggested a connection between cognitive failure and procrastination (Effert and Ferrari, 1983; Lay 1986), others have suggested a component of cognitive superiority (McCown, 1986) may contribute to the procrastination problem. McCown suggests that individuals with higher cognitive ability may postpone completion of academic tasks because they may believe that their cognitive abilities will allow them to complete the task in a shorter time frame.

Poor time perception has also been suggested to contribute to procrastination and this factor appears to receive some support (Blatt and Quinlan, 1967). Aitken (1982), in an unpublished dissertation, attempted to correlate scores on her procrastination scale with experimental measures of the passage of time. She found that procrastinators tended to under-estimate the time required to do a task, while non-procrastinators tended to over-estimate this same time period. However, as Aitken (1982) points out, interaction effects could have confounded the results because results were obtained in a group setting in which students could obtain cues from peers and even consult with fellow students about their responses. Blatt & Quinlan (1967) studied temporal factors in procrastination and found that procrastination was associated with a "present-oriented" time perspective. Procrastinating students had lower scores on the picture arrangement subtest of the WAIS which suggested that they had a decreased ability to anticipate future events. Blatt & Qunilan also found that when presented with TAT-like story stems, procrastinating students told significantly more "present-oriented" narratives while non-procrastinators typically told stories that extended "farther into the future." McCown (1986) also found that

procrastinators tended to under-estimate the time required to do a task. He correlated the estimated and actual times it took for students to complete a reading task and found a very small but statistically significant correlation. He also noted that procrastinators took less time to complete the experimental session than non-procrastinators. He suggested that this may be due to a general cognitive efficiency factor and/or a superior ability to work quickly which reinforces the procrastinating behavior. Alternatively, he suggests that this difference in the amount of time utilized by the procrastinator may also be due to the fact that procrastinators have more practice working quickly, since they routinely wait until the last minute to complete a project. In the latter case, speed of task completion would be the result of procrastination rather than a contributing factor.

Whether procrastination is a state or trait phenomenon remains unclear. The previously discussed traits and characteristics have received more empirical attention than other areas of procrastination research. All are potentially useful contributions to the existing body of knowledge. However, while trait studies have provided an understanding of the nature of procrastination, they have contributed only a small amount of information to the process of its development. Integration of these traits and individual differences into a comprehensive model could potentially increase their value as contributors to the study of procrastination.

Structural Theory of Procrastination

Procrastination is a complex phenomenon involving interactions between task variables and personality characteristics. Silver (1974)

has proposed a model which appears to be capable of integrating the complex interaction between these task variables and personality characteristics. Procrastination is a form of behavior that occurs under moderate stress and involves activities of sequencing which results in perserveration and delay of task initiation. Under conditions of moderate stress, the procrastinator through ineffective or improper sequencing finds him/herself in a situation in which a cycle of perseveration begins and the initiation of the tasks crucial to goal completion are delayed.

Silver points out that procrastination is most evident in deadline situations and takes two forms: delay of initiation of a necessary task and perserveration. Silver (1974) defines perserveration as inertially continuing one segment of a task instead of switching to another, thereby disrupting successful task completion. Sequencing is a process involving a complex interaction between task characteristics, personality variables, cognitive structuring, and choice points. It involves switching from one stage of a task to another and from the task at hand to other on-going activities and back again. Sequencing is different from prioritizing in that tasks are not necessarily done in order of importance and while it involves decision-making processes, the decisions that are made are not inherently rational. Stress, sequencing, and perserveration interact within the context of the procrastination field.

> This field is both temporal and spatial; the individual forgoes activities that take him /her physically away from the place where he must perform his task. Neither will he/she engage in alternate projects that would require too great a commitment of time...On the other hand activities that do not require large commitments of time should be engaged in even more frequently during procrastination (Silver, 1974 p. 52)

In other words, the procrastinator maintains him/herself in a state of readiness in which he/she could engage in the task at any moment and forgoes activities requiring him/her to leave the procrastination field. Furthermore, while the procrastinator will usually avoid alternatives which require large blocks of time, he/she will perserverate in activities that require only small amounts of time. The procrastinator will not go to the movies with friends because it will take too much time and removes him/her from the procrastination field, but that same person will watch television in ten minute intervals until an hour has passed. Unlike cognitive theories (Ellis & Knaus, 1977; Rorer, 1983) which argue that procrastination is the result of irrational beliefs, Silver argues that procrastination is the "arational" perseverance of a task so that initiation of tasks that are essential to goal completion are not performed. Silver's model will be discussed in more detail in the next chapter.

Conclusion

Although several theories of procrastination exist, no one theory appears to comprehensively describe the phenomenon of procrastination. While child-rearing could be an important element because of its impact on personality development, this notion fails to completely account for the development of procrastination when similar childrearing practices are used on different individuals or vice versa. Additionally,

empirical evidence for psychodynamic models is lacking. Cognitive

theories involving notions of fear of failure have received partial

empirical support, however the components of low frustration tolerance

and passive aggressive orientation toward life have yet to be

demonstrated even though they appear to make descriptive sense. Trait

theories suggest some possibilities but a combination of traits which

accurately describes procrastinating individuals remains elusive.

Unlike other theories of procrastination, Silver's structural model of

procrastination not only describes the possible process involved in the

development of procrastination, but appears to offer a way of

integrating previously existing theories into a more comprehensive view

of procrastination. Silver offers testable hypotheses (which will be

elaborated on later in this paper) and postulates the effects of

environmental factors (i.e., stress). While further empirical support

is needed for all of the cited theories of procrastination, Silver's

model appears to be capable of describing the development of

procrastination without negating elements of existing theories.

CHAPTER III
DESCRIPTIVE ANALYSIS OF PROCRASTINATION

Although descriptive accounts of procrastination are fairly numerous, many of the assumptions made are based on anecdotal data and have not been empirically substantiated in the literature. Despite the lack of empirical evidence supporting the assumptions made in many of these articles, there have been attempts at analysis that deserve attention. While there are a diversity of viewpoints expressed in these descriptive accounts of procrastination, the articles also share common ideas. This chapter will review descriptive articles on procrastination and will focus on the similarities between these articles. In addition, one qualitative study will be included in the discussion.

Models of Procrastination

Silver (1974) proposed a model of procrastination which appears to be capable of integrating the complex interaction between task variables and personality characteristics. As stated previously, procrastination is a form of behavior that occurs under moderate stress and involves activities of sequencing which result in perserveration and delay of task initiation. Stress, sequencing, and perserveration interact within the context of the procrastination field. Silver hypothesizes conditions under which procrastination is most likely to occur and discusses the impact of task characteristics on the occurrence of procrastination. He states that:

22

1. The more cognitive structuring a task requires, or the more choice points it contains, the more likely the task will be procrastinated.
2. It is more probable that an act will be procrastinated or otherwise disrupted by stress at choice points.
3. Sub-components of a task that require less cognitive structuring, or contain fewer choice points, will be more likely to be perserverated.
4. The greater the stress, the more likely an alternative will be chosen requiring less cognitive structuring. This is most likely to occur at choice points.
5. Hence, the greater the stress the more likely a task will be postponed or a sub-component of a task perserverated. (Silver, 1974, p.50).

Silver maintains that the greater the ambiguity or complexity of a task requirement, the greater the likelihood that the task will be procrastinated. Additionally, tasks that are cognitively complex and involve multiple choices by the individual are more likely to be put off than simple or highly structured ones. In essence, because the procrastinating individual may feel more control over simpler, less ambiguous tasks, he/she may be more likely to perserverate on these tasks, thereby avoiding complex, ambiguous components of the task which may make the procrastinator feels less in control.

Silver points out that although procrastinators can often state the probable long term effects of their behavior, they act only on its short term consequences.

In the short term, the aversiveness of starting a project predominates. Because the first part of a project typically requires more structuring and more decisions than other points in the project [i.e., has more choice points], this point will typically be the most aversive part of the task and will be most likely to be procrastinated. Once the project is begun, the alternatives are generally more structured by the requirements of the task so these parts are less likely to be procrastinated than when beginning the project (Silver, 1974, p. 51).

Silver emphasizes the impact of stress in the development and perpetuation of procrastinating behaviors. He proposes that stress increases perseveration on aspects of a task that are less complex. The greater the stress, the greater the tendency to perform simple, cognitively uncomplex behaviors, often at the expense of performing more complex tasks necessary for goal completion. He points out that an individual under stress would be more likely to perform over learned and habitual acts, even though they may be inappropriate. In addition to performing over learned acts, the procrastinating individual may conform to the coping behavior of others or to the commands of an immediate authority. As stress increases, the time period over which an individual processes the costs of getting down to work decreases which can contribute to errors in sequencing.

Silver's model focuses on the role of stress and sequencing in the development of procrastination and also proposes that cognitive structuring and choice points may be factors as well. Although Silver's model and hypotheses remain largely untested at this point, aspects of it have received empirical support (see Boice, 1989). One study (McCown, 1986) researched Silver's hypotheses related to cognitive complexity. In this study, subjects were asked to solve anagrams of varying difficulty in the presence of a distracting element and note the order in which each anagram was solved. Although the study failed to provide support for the cognitive complexity aspect of the model, it is possible that the design of this particular research may have contributed to the lack of support.

In a subsequent article, Silver and Sabini (1981) further
delineated the intentionality aspect of procrastination. Utilizing case
examples, they argue that procrastination is inherently "arational".
They indicate that only "agents capable of recognizing what they ought
to do are capable of
procrastinating" (p. 211). The procrastinator functions within a
"paradigm of intentionality". Procrastinators are aware of their
procrastinating behaviors and have every intention of completing a task
and yet as a result of problems with sequencing and perserveration do
not initiate the action necessary in order to complete the task. Silver
and Sabini propose that part of the irrationality of the procrastinator
may be in their failure to maintain priorities over a series of on-going
and up-coming tasks and goals. They further indicate that while under
certain circumstances rationally delaying a task may have beneficial
consequences for the individual, procrastination always has some
negative consequence for the individual.

Silver and Sabini discuss the impact of confusion about the
substitutability of ends. They indicate that the procrastinating
individual may treat different types of activities as interchangeable
even though each activity may have varying degrees of consequence for
the individual. Silver and Sabini point out that treating activities as
interchangeable in this way may contribute to the fact that a
procrastinating individual will meet a lesser obligation in order to
procrastinate a more important obligation. They argue that while it is
rational for commitments to be shifted to other areas (i.e.,

sequencing), there are limits to this strategy which procrastination oversteps.

In addition to confusion about the substitutability of ends, they suggest that procrastination involves "acting on rational calculations for time intervals that are irrationally short" (p.213). They state that because of the interesting multiplicity of time intervals over which calculations can be made, the procrastinating individual is likely to find him/herself doing things that are brief and can be dropped at any moment.

> They fall prey to anything that requires a minimal commitment, doesn't take them from the scene, and isn't immediately painful. They feel the need to externalize involvement, dramatize the commitment, and exhibit tokens of sincerity by maintaining themselves within the procrastination field (Silver and Sabini, 1981, p. 216).

Silver and Sabini's discussion of procrastination focuses on the intentionality and irrationality aspects of procrastination. Their ideas of the substitutability of ends and action on rational calculations for irrationally short periods of time make a unique contribution to understanding of the phenomenon of procrastination. Although no studies have specifically addressed these aspects of the phenomenon, Lay (1986), points out that procrastinators typically lack the ability to draw accurately from past experience in judging the duration of time required to do something and it is the tendency of procrastinators to rely on an ability which they lack which makes the action of postponement irrational. Thus, Lay appears to agree with many of the suppositions put forth by Silver and Sabini.

Akerlof (1991)appears to draw some of the same conclusions about procrastination as proposed by Silver (1974) and Silver and Sabini (1981), however his suppositions focus on the salience costs involved when an individual procrastinates. In his article, he analyzes the concepts of procrastination and obedience. Akerlof describes procrastination as one of the "pathological modes of individual and group behavior" (Akerlof, 1991, p.1). He agrees with the "arationality" aspect of procrastination when he points out that individuals following the procrastination model are capable of being both maximizing and knowledgeable, and yet their decisions are not fully rational. He states that:

> In procrastination the standard assumption of rational, forward-looking utility maximizing is violated. Procrastination occurs when present costs are unduly salient in comparison with future costs, leading individuals to postpone tasks until tomorrow without foreseeing that when tomorrow comes, the required action will be delayed yet again (Akerlof, 1991, p.1).

Akerlof states that procrastinators are aware of their procrastinating behaviors and would prefer to complete tasks, but for some reason are unable to do so. He states that the principle of revealed preference (a person's externalized or obvious preference) cannot be used to assert that the options chosen must be preferred to those not chosen because procrastinating individuals possess cognitive structures of which they are less than fully aware. These cognitive structures may be influenced by salience costs, cognitive consonance/dissonance, and dynamic inconsistencies in decision making processes.

Basing his suppositions on modern cognitive psychology, Akerlof points out that procrastination provides the simplest example of a situation in which there are repeated errors of judgment due to unwarranted salience of some costs and benefits relative to others. He states that individuals attach too much weight to salient or vivid events and too little weight to non-salient events. He further points out that in order to limit the influence of salience costs and prevent errors in judgments, procrastinating individuals should have their options limited and their choices constrained. This idea extends Silver's hypothesis that individuals are more likely to procrastinate at choice points and with tasks that are more cognitively complex. Limiting options and constraining choices results in less choice points and decreases the complexity of the decision-making process such that the individual may be less likely to procrastinate.

In addition to the influence of salience costs, Akerlof asserts that dynamic inconsistency in decision making and cognitive dissonance/consonance contribute to the development of procrastination. He points out that once people have made decisions, they avoid information that does not support their decision because it is psychologically painful and therefore they may continue in a behavior (i.e., procrastination), even though they may be aware of other alternatives.

Akerlof delineates the key features of situations that result in procrastination and proposes a mathematical model to describe procrastination. He states that procrastination occurs when there is a fixed cost of action today and current costs are more salient than

future costs. The condition resulting in procrastination is @c > X. Where @ is the extra salience of the task, c is the cost of the task, and X is the rate of loss due to delay. Akerlof states that X is small if the time between decisions is short and @c is significant if there is a significant psychological lump sum cost to doing the project now rather than later (Akerlof, 1991, p. 5). He further suggests that time-inconsistent behavior is especially apt to occur when there is some fixed cost to beginning a task, the time periods between decisions are short, and the per period cost of delay is low. Applying his model to a variety of situations, Akerlof illustrates how sequences of errors, each error small at the time of the decision, can cumulate into serious mistakes.

Akerlof proposes that the salience costs related to the beginning of projects can result in procrastination. He states that "if the salience value of beginning the project increases with the intensity of the first period's work, a project may never be begun or a task may be begun at the latest possible date at which completion is feasible" (Akerlof, 1991, p. 5). In essence, cognitive complexity and increased number of choice points may result in increased salience for the procrastinating individual and procrastination will probably result unless acted upon by an outside agent (e.g., deadlines and constraints supplied by external sources). Akerlof points out that procrastination exists in work situations but is not always obvious because outside monitoring is possible. He indicates that a major function of management in organizations is to set schedules and monitor accomplishment so as to prevent procrastination.

Again agreeing with Silver, Akerlof states that undue obedience to authority may occur as a form of procrastination. However, while Silver proposes that obedience to an immediate authority occurs because of stress and the cognitive complexity of the task, he asserts that procrastination occurs if disobedience of an authority is salient and distasteful. In support of his suppositions, Akerlof utilizes examples from Milgram's (1975) experiments with punishments.

Akerlof's model of procrastination focuses on the salience costs related to the task and the cognitive structures of the individual. His conceptualization of the procrastinating individual as one who is not maximizing true utility and his utilization of the notion of revealed preference provide additional ways of looking at the phenomenon of procrastination. In addition, the introduction of a mathematical model of procrastination is significant. It is interesting to note that although their philosophical and academic backgrounds may differ, Silver (1974), Silver and Sabini (1981), and Akerlof have reached some of the same conclusions about procrastination. In addition, Akerlof's discussion of procrastination in organizations is particularly interesting because it may account somewhat for differences in procrastination in work verses academic settings.

Harris and Sutton (1983) also discuss procrastination in organizations. They focus specifically on the concept of task procrastination in organizations and present a preliminary model of procrastination for the prediction of procrastination at work. What is unique about their model is that the task is the unit of analysis not the procrastination itself. Harris and Sutton believe that attention

should be focused on aspects of the situation that prompt organization

members to avoid the completion of certain tasks. They state:

> Procrastination is not viewed as a generalized work habit or
> personality characteristic but behavior that is tied to a specific
> task...an individual with high internal work motivation and a
> challenging job may still procrastinate with respect to a specific
> task (Harris and Sutton, 1983,p.988).

Harris and Sutton attempt to identify variables that may be outside of

the individual's control that cause task procrastination. They propose

three classes of situational variables which may predict procrastination

in organizational settings. These variables include characteristics of

the focal task, the relationship between the focal task and other tasks,

and attributes of the organization.

Harris and Sutton suggest that characteristics of the focal task

such as difficulty, appeal, ambiguity, and deadline pressure influence

task procrastination independently of personal characteristics. Tasks

may be difficult because the individual lacks the skills and abilities

to carry out the task, because the appropriate technology is not

available, or because resources are not available for completing the

task. They hypothesize that it is likely the individual would put off

tasks that are difficult because these tasks may be associated with

frustration and failure. In addition, Harris and Sutton point out that

the relationship between procrastination and task difficulty is

curvilinear. People may tend to put off those tasks that are extremely

easy and extremely difficult and focus on those tasks that have a

moderate level of difficulty. In support of their suppositions, Harris

and Sutton cite the research on need achievement which demonstrates that

a behavior is most likely to occur when there is a 50/50 chance of success.

According to Harris and Sutton, task appeal and task ambiguity are factors in task procrastination. They define task appeal as the extent to which a task is interesting, specifically, the extent to which a task is not boring. Tasks providing stimuli of sufficient magnitude and variation, and affecting many senses are thought to maintain a higher level of excitation of the brain stem reticular formation, thus keeping the person interested and alert. Task ambiguity occurs when the individual receives unclear expectations about how he should carry out a task or about what the final outcome should be. In line with what was suggested earlier by Silver (1974), Harris and Sutton expect that people will put off tasks that are not clearly defined. Inconsistent or vague expectations may cause an individual to avoid the task and concentrate on less ambiguous tasks. Lack of deadline pressure also involves ambiguity and thus may increase the probability of task procrastination.

The relationship of the focal task and other tasks also plays a role in the development of task procrastination according to the model suggested by Harris and Sutton. They propose that interdependence with other tasks, the degree of residual quantitative overload experienced by the person, and the relative importance of the focal task may predict task procrastination. It is hypothesized that interdependence with other tasks is expected to be negatively related to procrastination. Putting off a task may interfere with other tasks the person is to complete and Harris and Sutton state that it is easier for the individual to put off tasks that will not interfere with his or her

other responsibilities. Residual quantitative overload is the degree that the remaining tasks expected of the person (other than the focal task) demand excessive time and energy. Harris and Sutton propose that the probability of putting off a focal task is likely to increase when remaining tasks put excessive demands on the time and energy of the focal person. The relative importance of the focal task may be determined by comparing it with other tasks. Relative to this rank-ordering are preferences held by the person responsible for the task, societal expectations about the value of the task, and rewards provided by the organization for the focal task in relation to other tasks. This conceptualization appears to be an example of the sequencing difficulty suggested by Silver and Sabini (1981) in which the procrastinating individual treats different types of activities as interchangeable resulting in situations in which the procrastinating individual will meet a lesser obligation in order to procrastinate a more important obligation.

Organizational attributes are also believed to influence task procrastination. These organizational attributes include the impact of the normative system, the reward system, and the information system. Harris and Sutton believe that "shalt and shalt nots govern actions, imply sanctions, and in time permeate the souls of the organization members" (Harris and Sutton, 1983, p. 991). Local norms may encourage members to put off certain tasks and discourage procrastination of others. Organizational norms may develop about procrastination that apply to all tasks through the use of sanctions. Harris and Sutton indicate that the probability that a focal task will be procrastinated

would be influenced by the strength and direction of these general expectations. They further point out that the organizational reward system is one mechanism for maintaining these norms. Those tasks not associated with valued rewards provided by the organization are more likely to be procrastinated than those tied to valued rewards.

Harris and Sutton suggest that because organization members learn about norms through the information systems, the information system can contribute to organizational procrastination. They hypothesize that task procrastination will be less likely when messages about a task are clear and explicit, are sent over a variety of communication channels, and are conveyed through a variety of communication media. Lack of information makes a task more difficult to predict, understand, and control. Lack of prediction, understanding, and control are thought to be a source of stress for organization members. Harris and Sutton suggest that people may avoid these sources of stress by focusing their efforts on tasks for which there is good information, and procrastinating on tasks for which there is poor information. It is interesting to note that the notions of stress and ambiguity suggested by Silver (1974) are echoed in Harris and Sutton's model.

In addition to the previously described variables, Harris and Sutton have identified a single moderator variable of task discretion. Harris and Sutton suggest that if an individual has little or no discretion, particularly with respect to pace control, he/she will simply not have the opportunity to procrastinate. This notion tends to agree with the ideas suggested by Akerlof (1990) in which

procrastinators tend to do better if their options are limited and their choices are constrained.

Harris and Sutton's focus on task characteristics is not unique except in its utilization of the task as the unit of analysis. However, the significance of their model lies in its emphasis on environmental components that contribute to the development of procrastination, at least in the work situation. Although Silver (1974) acknowledges the impact of environmental factors when he discusses stress and the procrastination field, Harris and Sutton expand the notion of environmental factors to include factors such as the communication system. They illustrate how the communication system impacts the development of procrastination, even in individuals who might not normally be considered procrastinators. It is interesting to note that many of the suppositions put forth by Harris and Sutton have some similarity with previous discussions on procrastination. Their discussion of the relationship of focal tasks to other task may be compared to discussions of sequencing by Silver (1974) and Silver and Sabini (1984) and both Akerlof (1990) and Harris and Sutton agree that it is better to limit the choices of procrastinators. Although Harris and Sutton did not specifically discuss cognitive complexity, task characteristics contribute to the cognitive complexity of a task and therefore it may be possible at some point to integrate Harris and Sutton's model and the model proposed by Silver.

A Qualitative View of Procrastination

Rennie and Brewer's (1987) qualitative study on procrastination appears to agree with the many of the core ideas presented by the

previously discussed authors in this section. Using a grounded theory method of qualitative research, they studied procrastination in the thesis writing process and coined the term "thesis blocking" to describe this phenomenon. Rennie and Brewer gathered data from sixteen individuals that were in the process of writing their thesis and used ten open ended questions to interview two categories of individuals: blockers and non-blockers. The interviews were transcribed and the data was analyzed.

The analysis went through three phases in which Rennie and Brewer identified control as an important variable in the development of procrastination. The also identified eight descriptive categories which included the concepts of independence/dependence; fear of failure/self confidence; approach/avoidance; fear of feeling overwhelmed/challenged; deadlines imposed by self/others; political know-how/naiveté; support/non-support; and meaningfulness of the thesis experience. These eight categories were carefully scrutinized to determine their saturation and overlap and control was identified as a core category which subsumed these categories. Rennie and Brewer define control as the student's feeling of mastery over the thesis. They stated that the student who felt in control was optimistic and confident, while the student who felt lack of control was unconfident, pessimistic, and dominated by the project.

Rennie and Brewer discuss the differences between blockers and non-blockers on the independence continuum. Their analysis of the data revealed that non-blockers (i.e., non-procrastinators) preferred to operate independently but knew when to seek help. Additionally, non-

blockers indicated that emotional support from others was important. Blockers were described as having difficulty shifting from dependence to independence (i.e., experienced sequencing difficulties), and therefore, their position on the dependence/independence continuum was not especially adaptive and was a source of distress. Many of the blockers experienced the thesis as larger and more complicated than any project they had encountered and had a sense of being overwhelmed. Rennie and Brewer found that blockers needed support, structure, and advice but either had difficulty acting on the need or were too easily frustrated when they did act. Additionally, some blockers assumed a stance of "inflexible independence" in which they denied themselves the kind of support and guidance that the non-blockers obtained at critical points in their projects.

Through further analysis of the data, the authors found that the information represented in the eight properties of control could be contained in a hierarchical structure. The first level consisted of the property of control and the second level contained five defining properties which were distributed within a two level structure. The first portion of this two level structure was composed of the defining properties of independence/dependence and structuring of the task. Structuring of the task was further defined by properties which included sub-categories of project meaningfulness, political sophistication in engineering their projects, and time management.

Rennie and Brewer found that in general non-blockers experienced the process of doing the thesis as meaningful. In some cases the process was experienced as even more important than the topic studied.

However this was not necessarily true for blockers. Some blockers began their thesis with a sense of meaningfulness only to lose it during the process of doing the thesis and others had no sense of meaningfulness from the beginning. Idealism was identified as having a major role in determining whether or not the thesis was experienced as meaningful.

Non-blockers, in contrast with blockers, generally had a positive attitude toward research which they believed enabled them to value the research process and it was noted that non-blockers had an attitude of pragmatism which made them able to view the thesis as part of their career development. Because of this attitude, non-blockers appeared more able to limit the goals they imposed on the thesis and were therefore more able to control it. Rennie and Brewer stated that blockers identified less with the research process and tended to be influenced by how the subject matter of the thesis satisfied their ideals. They noted that some of the blockers allowed themselves to be victimized by their ideals and tried to do projects that were too large and too complex and consequently these individuals complained of being overwhelmed by the project and process. Rennie and Brewer identified other blockers who were convinced that their thesis needed to be highly original and became disenchanted when they discovered that their thesis would break little new ground.

The committee nature of the thesis process involves a necessary level of political expertise on the part of the student. Rennie and Brewer found that non-blockers expressed an overall awareness of the issues in this area and took active steps to play the political game to their advantage. Some of the blockers were aware of the political

nature of the thesis process but felt unwilling and unable to cope with the eventualities.

Time management appeared to influence the extent to which the students felt in control of their projects and non-blockers organized their time by developing subgoals and concentrating on controlling each step. Additionally, non-blockers attached deadlines to the subgoals and adhered to them, sometimes using mental tricks to achieve the necessary commitment. Rennie and Brewer found that although blockers were aware of how to break up the thesis into components, they were unable to act on this awareness. Blockers reported that they usually felt so overwhelmed by the project that they never really got to the point of structuring the task as the non-blockers did. Some blockers were aware of the need for deadlines but diverted their concern into bids for advice and support instead of constructively progressing on the project. Additionally, it was found that blockers resented the task and had to fight between choosing alternative activities and completing the project. This was noted to occur especially when the blockers were at the height of being out of control.

Rennie and Brewer compared the defining properties of control and their analysis revealed an interdependence between the properties. Feelings of being excessively reliant on others for support were often associated with a tendency to view the thesis as meaningless, with difficulties in coming to grips with the political realities of it, and with difficulties in time management. Conversely, a tendency to manage time well was usually associated with an inclination to operate independently and to control the influence significant individuals had

over the thesis. Rennie and Brewer state that students are called upon to decipher expectations surrounding a proposed project then have to "affect a rapprochement between their own preferences and the external expectations" (p. 15). They suggest that this matching task requires strength of personality, human relations skills, and commitment to the project. It appears that non-blockers are better than blockers in meeting these requirements. Additionally, Rennie and Brewer found dependency to be related to task structuring.

One of the factors that Rennie and Brewer did not specifically discuss but suggest in their analysis was the concept of reliance on an external source to complete the projects. While they do discuss the independence/dependence continuum and the impact of deadlines, their discussion of the role of the thesis supervisor suggests that blockers tended to do better when motivated by external sources. In addition, they suggest that the students need to critically assess their idealism and to be aware of feeling overwhelmed by the project. Furthermore, Rennie and Brewer suggest that if students cannot resolve feelings of being overwhelmed on their own they need to suppress their hesitation to approach their supervisors about their difficulties.

Rennie and Brewer's research makes a unique contribution to the procrastination literature in that it was the only qualitative study done. The subjective nature of procrastination makes it well suited to this type of investigation and the exploratory/descriptive nature of qualitative research is especially noteworthy because accurate descriptions of procrastination and its sub-components remain elusive. Rennie and Brewer's research reinforces the notion of control in the

development of procrastination. In fact they identified it as a core

category which subsumed other categories. Surprisingly, although Rennie

and Brewer describe their hierarchical structure in detail, they do not

clearly indicate how all of the eight identified categories fit into the

structure they developed. It might have been helpful if they had

provided a visual representation of their model in order to clarify

this. Their notion of "inflexible independence" is intriguing and

although they never clearly defined this concept, one wonders about its

impact on the dependence/independence continuum. Rennie and Brewer's

application of grounded theory is especially interesting because it

attempts to satisfy empiricists by clearly outlining the process and

design of the study in the discussion and including quality controls

(such as cross checking categories with an individual not associated

with the project). One area of future research related to the results

obtained by Rennie and Brewer may be to analyze the strength of each of

the identified variables in contributing to the problem of

procrastination.

<u>Conclusion</u>

A clear description of the phenomenon of procrastination remains

elusive, although several authors have attempted to describe its

components. Many interesting conceptualizations have been suggested and

some areas of similarity have been identified. Several of the articles

discussed similar phenomena and many discussed concepts that could

potentially relate to the phenomenon of sequencing (e.g., task

characteristics, decision making abilities, etc.). Stress and control

also seem to be an over-riding theme within the discussions. Time

relevant factors such as time management (Rennie and Brewer, 1987), the interaction between multiplicity of time intervals and the rational/irrational calculations made upon these intervals (Silver and Sabini, 1981), and the effect of the amount of time between decisions (Akerlof, 1991) appear to be relevant to discussions of procrastination. Concepts of perserveration of related tasks (Silver, 1974), substitutability of ends (Silver and Sabini, 1981), salience costs (Akerlof, 1991), and intention (Silver and Sabini, 1981; Akerlof, 1991) provide interesting areas for further investigation into the development and perpetuation of procrastination. Future research is needed to confirm many of these suppositions so that an accurate description of procrastination can be developed.

CHAPTER IV
QUANTITATIVE STUDIES OF PROCRASTINATION

A diversity of ideas have been derived from quantitative studies of

procrastination, however, this diversity has made comparison across

studies somewhat difficult. This chapter will review quantitative

studies on the phenomenon of procrastination on an individual basis and

then discuss the similarities at the conclusion of the chapter. Studies

will be grouped into two main categories: studies which analyze

characteristics of procrastinators and/or the phenomenon of

procrastination and studies which suggest typologies. Articles

utilizing procrastinators as subjects but are actually studying another

phenomenon or research which evaluates the effectiveness of a particular

program will not be included in this discussion because they tend to

contribute little to the understanding of the procrastination

phenomenon. One program evaluation study (Green, 1982) will be included

because it utilized minority students as subjects and is one of the most

heavily cited articles in the procrastination literature. Although a

number of studies on procrastination were produced from the field of

education, they focused on evaluating the effectiveness of personalized

systems of instruction (PSI) and not the phenomenon of procrastination,

and therefore will not be included in this analysis.

Characteristics of Procrastination/Procrastinators

Various factors are believed to contribute to the development and perpetuation of procrastination. Research which attempts to correlate procrastination with personality characteristics, environmental components, and task factors will be reviewed. In addition, research that attempts to empirically explain the phenomenon of procrastination will also be included in this section.

Rothblum, Solomon, and Murakami (1986) examined the relationship between academic procrastination and academically related trait measures in an attempt to find the affective, cognitive, and behavioral differences between high and low procrastinators. They administered the Procrastination Assessment Scale--Students [PASS] (Solomon and Rothblum, 1984) and various cognitive, affective, and behavioral measurements to 379 university students enrolled in an introductory psychology course. The sample consisted of 154 subjects (117 women and 37 men) classified as high procrastinators and 224 subjects classified as low procrastinators (144 women and 80 men).

Affective measures utilized by Rothblum, et al. included a trait measure of anxiety (Sarason's Test Anxiety Scale, 1972), the state version of the Spielberger State-Trait Anxiety Inventory (1968), and a scale modified from Fenz (1967) which was used to measure anxiety related physical symptoms (i.e., muscle tension and autonomic arousal). Cognitive measures included a measure of attributions of success and failure (modified version of Russell's Causal Dimensions Scale, 1982) and an assessment of subjects' perceptions of the importance and difficulty of their exams and the degree to which subjects perceived

them to be anxiety provoking which was recorded on a 5-point Likert-like scale. In addition, a scale developed by the authors in which subjects were asked to rate (on 5-point Likert scales) the degree to which 26 items had hindered or interfered with effective midterm study during the week was included. The present study only analyzed two subscales of this scale: Fear of Failure (items reflected evaluation anxiety, perfectionism, and low self-esteem) and Task Aversivenss (items reflected laziness and perceived aversiveness of midterm exams). The behavioral measure used by Rothblum, et al. was the Rosenbaum Self-Control Schedule (1980). This schedule is utilized as trait measure of self control and assesses delay of gratification, perceived self-efficacy, and perceived control over emotional reactions. Weekly procrastination reports assessing study habits were also obtained and self-paced quizzes and course grades were utilized as outcome variables of behavior.

Of the 154 students classified as high procrastinators, 126 individuals (91 women, 34 men, and one individual who did not denote sex) were assessed at weekly intervals during a mid-term exam period on the affective variables (state anxiety and anxiety-related physical symptoms), the cognitive variables (appraisal of importance and difficulty of mid-terms and the factors that may hinder effective study), and the behavioral variables (weekly procrastination and amount of study behavior). The students selected to participate in the weekly assessment sessions were assessed the week before midterms (session I), the week during midterms (session II), and the week after mid-terms (session III).

Results of this research indicate that a large number of students are adversely affected by procrastination with more than 40% of all subjects reporting nearly always or always procrastinating on exams to the point of experiencing considerable anxiety. The analysis of the data revealed a significant relationship between self-reported procrastination on exams and delay behavior (as evidenced by delay in taking self-paced quizzes). In addition, a low but significant correlation between self-reported procrastination and grade point average was reported which the authors state may indicate that for some procrastinating individuals procrastination is related to poorer academic performance. Rothblum, et al also found that affective, cognitive, and behavioral factors contributed to procrastinating behaviors and that high and low procrastinators differed on these parameters.

Rothblum, et al. conducted repeated measures analysis of variance (ANOVAS) for Self-Reported Procrastination (high vs. low) x Gender x Session for a subsample of subjects who were assessed at weekly intervals. A significant main effect for procrastination was observed on the dependent measure, state anxiety. High procrastinators were significantly more likely to report weekly state anxiety and were significantly higher on anxiety related symptoms across sessions than were low procrastinators. Rothblum, et al. indicate that whereas low procrastinators do not report much anxiety at any time as mid-terms exams approach, high procrastinators (particularly women) report stable levels of high anxiety across sessions.

Analysis of variance for the interaction of gender and procrastination on the state anxiety measure yielded a significant effect for women. Female high procrastinators displayed the highest scores on physical symptoms across sessions. In addition, while scores of anxiety related symptoms for high procrastinating women were high during the first and third sessions, these symptoms were highest for high procrastinating males during the second session and relatively low during the first and third sessions. Low procrastinators of either sex showed relatively little change in reported physical symptoms across sessions.

Attributional factors were also considered by Rothblum, et al. They indicated that high procrastinators are more likely to attribute success on exams to more external and fleeting circumstances than are low procrastinators. Because Rothblum, et al. found no significant effect for procrastination on any attributions of failure (either internality, stability, or controllability), they speculate that some high procrastinators are attributing failure on tests to lack of effort (internal) and others are attributing failure to situational variables (external). On the basis of these findings, Rothblum et al suggest that individuals may utilize procrastination to protect themselves from a true test of their abilities.

Rothblum et al report that the weekly cognitive measures indicate that high and low procrastinators are affected by negative appraisal and hindering factors before exams. Analysis of variance indicated that there were significant main effects for the interaction of session and the weekly hindering subscales of Fear of Failure and Task Aversiveness. In addition, main effects were found for session on weekly mid-term

appraisal. Rothblum et al. speculate that the cognitions of most students (regardless of whether or not they procrastinate) are greatly affected by the proximity of upcoming exams.

Results from the behavioral measures (self-control) indicated that high procrastinators and women perceive themselves to have less delay of gratification, lower self-efficacy, and less control over emotional reactions. High procrastinators, especially female high procrastinators report more weekly procrastination. In addition, Rothblum, et al. indicate that results of the measures of actual behavioral delay (quiz taking) and academic performance (grades) demonstrate that procrastinating is associated with negative academic consequences.

The results of the study by Rothblum, et al. provide support for the notion that high procrastinators are higher in anxiety and exhibit more anxiety related symptoms than low procrastinators, at least where test taking is concerned. Both high procrastinators and women reported more test anxiety and high procrastinators were more likely to report weekly state anxiety. In addition, high procrastinators in general and female high procrastinators in particular were found to be more likely to report the presence of physical symptoms. In fact, high procrastinators experience high and stable levels of general anxiety across time and anxiety appears to be particularly salient for women. This study also reinforces the notion that high procrastinators tend to have difficulties with self control (report less self-efficacy, use fewer self-statements to overcome emotional reactions, and delay gratification less) and tend to attribute success to external and more temporary factors.

Despite the significant contributions made by this research several points need to be addressed. The authors were attempting to only study procrastination in relation to self-paced academic activity, therefore the generalizability of the results to other situations may be questionable. One of the most significant criticisms of this study is the fact that anxiety was the only affective measure analyzed. This fact is significant because other affective components, such as depression and anger, are believed to be related to procrastination and were not included in this analysis. Current research indicates that women as a whole are more prone to anxiety. While the authors analyzed the interaction of gender effects, it is possible the affective findings in this study may actually be artifact generated by the fact that the sample was largely female.

Lay (1986) conducted a three part study that was designed to examine individual and situational correlates of procrastinatory behavior. This three part study actually involved development of a procrastination scale and provision of construct and convergent validity for the scale, investigation of characteristics of procrastination in both student and non-student populations.

Part I of Lay's study involved the development of the Procrastination Scale (Form G) and the correlation of that scale with a number of behavioral measures. The twenty true-false questions which comprised Form G were derived from earlier versions of the scale (Forms A and B) and excluded items which reflected student-only type behaviors. The items from the Procrastination Scale (Form G) were embedded in Inventory G along with items from several scales: neurotic

disorganization scale from Jackson's Personality Research Form (1967); the rebelliousness scale from the Jackson Differential Personality Inventory (1967); and the organization, achievement, self-esteem, energy level, and desirability subscales of the Jackson Personality Inventory (1976). One hundred and ten students in an introductory psychology class were given the inventory with a stamped envelope addressed to the author's home and were instructed to return the inventory within 6 days. Seventy six students (15 male and 61 female) who properly completed and returned the inventory within a twenty day period were included in the study. Analysis involved correlation of the Procrastination Scale with the various behavioral measures embedded in Inventory G. Grade point average, performance on the final exam, and the time it took for the individuals to complete the final exam were also included in the analysis process.

In examining the data, Lay found that procrastinators tended to score high on the neurotic disorganization scale. Scores on the rebelliousness scale were also positively correlated with the procrastination scores, while scores on the organization and desirability scales were negatively correlated with procrastination. Scores on the procrastination scale were unrelated to need achievement, self-esteem, and energy level. Lay's analysis of final exams and G.P.A. revealed that procrastination scores were not related to G.P.A., the final exam, or the time it took to complete the final exam. Based on these findings, Lay concludes that not only is need achievement unrelated to procrastinating behavior but actual academic achievement is unrelated as well. Lay cautions however, that these results may be due

to the structure of the setting and that in other situations in which deadlines are self-imposed, or non-existent, a negative link might be observed between a predisposition to procrastinate and actual achievement.

In part II of this study, Lay examined the on-going personal projects of subjects identified as procrastinators and compared them with the personal projects of non-procrastinators. Out of an original 161 students enrolled in four sections of an Introductory Psychology course, 119 completed the inventory developed in part I. Ninety-seven of the 119 students also completed a version of Little's Personal Projects Analysis (1983). In a 10 minute period, subjects completing the projects questionnaire were asked to list as many on-going projects as they could. Subjects then narrowed or expanded the list to 10 items and rated each of the ten items on a scale of 0 through 10, based on the following dimensions: importance, enjoyment, difficulty, visibility, control, initiation, stress, amount of time spent, time adequacy, likelihood of successful outcome, how typical of them, others' view of importance, positive impact on other projects, negative impact, progress, likelihood of completion, challenge, and absorption.

Analysis of the data revealed differences in the way high and low procrastinators dealt with projects. Lay reported six of the fourteen significant comparisons involved the "stress" dimension. He found high procrastinators had no correlation or negligible correlations between stress and challenge, time spent, positive impact, and absorption. Low procrastinators had positive correlations between stress and these dimensions. Lay found for high procrastinators, the higher the stress

dimension the lower the rating on the likelihood of completion

dimension. Also, with increased stress high procrastinators viewed the

project as less connected to their self-identity. Negligible

correlations were found between the stress dimension and the dimensions

of self-identity and the likelihood of completion for low

procrastinators.

In addition to the stress dimension, other parameters were found to

have significant correlations which differed between high and low

procrastinators. Lay indicated for high procrastinators the view of

others close to the respondent regarding the importance of the project

had no correlation with the amount of time spent on a project, the

adequacy of the time spent, progress made on the project and the degree

of absorption with the project. Low procrastinators were found to have

high positive correlations between the view of others dimension and

dimensions of time spent, adequacy, progress, and absorption.

Furthermore, the visibility of the project was correlated with positive

impact and challenge in the high procrastinator but unrelated in the low

procrastinator. Lay also found high procrastinators spent more time on

enjoyable projects and rated these projects as more representative of

themselves (self-identity dimension) then low procrastinators.

According to Lay, procrastinators appear to be more sensitive to the

visibility of their projects than low procrastinators, but at the same

time are less willing to integrate the views of others.

In Part II, Lay also analyzed data concerning the types of on-going

projects listed by subjects. Results indicated that high

procrastinators listed a greater number of hobby projects and a greater

frequency of vocational projects (such as choosing a career). Lay
stated that high procrastinators were more likely to be very concerned
about what they were going to do with their lives, less involved with
their family, and more likely to be engaged in hobbies. Low
procrastinators declared more estate projects (such as cleaning the
house) and indicated a greater number of family oriented projects (such
as visiting relatives). In addition, high procrastinators indicated
that they spent less time and allotted less adequate time for working on
their projects. Also, Lay points out that procrastinators appeared to
be aware of their tendency toward poor time management on projects.

Part III of Lay's study involved examination of the cognitive
disorganization which is believed to contribute to the development of
procrastination. Passengers waiting at an airport (57 males and 29
females) were administered Inventory G2. Inventory G2 was a compilation
of Procrastination Scale (Form G) developed in study I, a breadth of
interest scale from the Jackson Personality Inventory (1976), and a
variation of Broadbent's Cognitive Failures Questionnaire (replacing the
neurotic disorganization scale used in Part I and II). After completing
the inventory, subjects were given an envelope by a separate interviewer
who claimed to be studying the efficiency of the postal service and were
asked to mail it back to the researchers on a designated day.

Lay found that the airport sample of respondents averaged
considerably less on procrastination scale scores than samples of
university students. Additionally, the correlations between
procrastination scale and cognitive failures scale were much lower than
the correlations with the neurotic disorganization scale used previously

in Part I and II. No significant main effects or interactions were found when subjects were distinguished in terms of their cognitive failure scores. Lay suggests this may indicate that the cognitive failures scale does not parallel the neurotic disorganization scale as much as anticipated. However, Lay points out this finding must be viewed with caution because of the difference in composition of this sample from other samples under investigation in Parts I and II.

In analyzing the results of Part III, Lay found that whereas procrastinators tended to err more than non-procrastinators in mailing back the envelope on the designated day, he found no correlation between cognitive failures and failure to return the envelope on the appropriate day. The possibility of intervening variables was analyzed and it was found that the duration of the flight related positively to the degree of error in returning the envelope. Analysis of the time between receiving the envelope and the designated date to mail it back did not affect inaccuracy scores, nor did the duration of time variable interact with "procrastination" or "cognitive failure" scores. Because of these findings, Lay suggests that in future research of this nature, distinctions between remembering to do something and actually doing it must be made.

Lay's research on procrastination has addressed several issues relating to procrastination. The development of a procrastination scale in Part I is particularly significant in that there are few such tools available, especially ones that are not primarily academic in nature. In Part II, Lay claims to provide construct validity for the procrastination scale by comparing it with a personal projects scale.

He states that "Considering the wide differences in method between the true-false personality inventory and the personal projects questionnaire, these results provided good support for the construct validity of the procrastination scale" (Lay, 1986, p. 482). However, it remains somewhat unclear how this conclusion was derived based on what was presented in the research.

Part II provides additional characteristics defining the high procrastinator. Lay found that while both high and low procrastinators were responsive to the stress dimension of their projects, high procrastinators were additionally influenced by the enjoyment and visibility factors. Furthermore, Lay found high procrastinators to be less sensitive to what others think they ought to do while low procrastinators where more sensitive to the views of others. Choices of activities differed with the high procrastinator focusing more on hobbies and vocational projects and low procrastinators focusing on family and estate oriented activities. Finally in Part III, Lay found that cognitive failure may not be not related to procrastination as previously believed. Overall this research by Lay contributes to the existing body of knowledge on procrastination, however, these results need to be viewed with caution because the research designs in Part I and III need further examination to determine if they are actually testing procrastination or some other element of memory.

McCown, Petzel, and Rupert (1987) looked at several parameters of procrastination utilizing a 2x2 research design (procrastination x sex) to test the procrastination of 200 undergraduate volunteers (111 women and 90 men). The students were administered the Aitken procrastination

inventory (to identify procrastinators) and the Eysenck Personality Questionnaire-Revised. Subjects were also asked to solve anagrams of varying difficulty. They were informed that they could solve the anagrams in any order but they would be required to specify the order they would prefer to solve the anagrams in advance. Additionally, subjects were asked to inspect a brief reading passage and estimate how long it would take them to complete the passage. This was utilized as a measure of the individuals' ability to estimate the time necessary to complete a task.

The results of this study indicated that procrastinators and non-procrastinators differ from one another and from less punctually extreme students along the neuroticism and extroversion dimensions of Eysenck's fundamental personality types. McCown, et al. found a significant correlation between procrastination scores and extroversion. Additionally, a strong nonlinear, U-shaped, relationship was found between neuroticism and procrastination. Based on this finding, McCown, et al. proposed that while high neuroticism seems to foster procrastination, it can also foster a behavioral defense against procrastination. McCown, et al. suggested a moderating variable of extroversion may be responsible for the difference between procrastinating and non-procrastinating individuals who scored high on the neuroticism scale. Eysenck hypothesized that increased sociability, need for frequent and varied stimuli, and greater impulsiveness are characteristic of individuals who score high on the extroversion scale. McCown, et al. suggested that these factors appear to put individuals

who score high on the neuroticism scale at a higher risk for procrastination.

In addition to the personality influences discussed above, cognitive factors appear to have a role in procrastination. In analyzing the results of the brief reading and the anagrams completed by subjects, McCown, et al. found that procrastination is related to the tendency to fail to allocate sufficient time to complete a task. Furthermore, they indicated that procrastination is related to a cognitive style associated with beginning a task with easier portions first, possibly at the expense of more difficult components of the task.

This study by McCown, et al. sheds light on the possible personality and cognitive factors which can contribute to the development of procrastination. These findings are especially interesting because of the implications for assessment and treatment of this complex phenomenon. As a whole this study was well designed, however, replication of these results is necessary to confirm their findings and investigation of discrepancy between total subjects (200) and subject breakdown (111 women and 90 men) is warranted.

Milgram, Sroloff, and Rosenbaum (1988) attempted to investigate procrastination in routine life tasks by analyzing two conceptually different aspects of procrastination--time of task performance and scheduling of tasks and adherence to the schedule. Three other personality correlates were investigated: learned resourcefulness, the Type A behavior pattern, and life satisfaction.

The subjects were 314 undergraduate students in psychology and education from two universities in the metropolitan Tel Aviv area. The

sample was two thirds female and one third male. Fifty percent of the individuals included in this study had parents from Israel, Asia, and Africa. The other 50% had parents from other Western countries. Subjects were administered Sroloff's Tel Aviv Procrastination Scale (1983), Rosenbaum's self-control scale (1980), Form C of the Jenkin's Activity Survey (assessing Type A behavior), and a version of Bachman's Life Satisfaction Scale (1967). Milgram, et al. also utilized self-ratings on schedule adherence and used person-task scales derived from serial administrations of the procrastination scale to assess dysphoric affect, covert negativism, and perceived incompetence.

Personal time frame and schedule adherence ratings were obtained on task items from the procrastination scale. In the personal time frame instruction, subjects were asked to imagine a time frame for the performance of each task and rate their characteristic behavior on a 4-point scale: T1 being prompt performance and T4 being performance at the last possible minute, if at all. In the schedule adherence instruction, subjects rated tasks with respect to promptness in scheduling and conscientiousness in doing the task on schedule on a 4-point scale: S1 being prompt scheduling and S4 being rescheduling or putting off the task. The authors converted individual state scores into a single measure of the corresponding trait. Construct validity of trait procrastination was examined by correlating composite scores of procrastination with trait measures by summing the subject's ratings on the parameter (e.g., dysphoric affect) across tasks and obtaining an overall measure of that parameter.

Based on calculations of mean scores and correlations for time frame and schedule adherence scales, Milgram, et al. found that people reported less procrastination on the schedule adherence continuum than on the time frame continuum. People rated schedule setting and schedule adherence far more stringently than they rated time frame performance. Milgram, et al. reported that individuals acknowledged that they do not do things promptly more than they acknowledged delays in scheduling when doing tasks or failing to do them on schedule.

Analysis of person-task scale correlates found perceived incompetence to be closer to the maximum score of one than dysphoric affect or covert negativism. On the basis of this analysis, Milgram, et al. indicated that although people regard routine tasks as relatively easy to do, they also regard them as relatively less pleasant or voluntary. In addition, time frame procrastination was correlated with dysphoric affect, covert negativism, and perceived incompetence. Dysphoric affect and covert negativism were implicated more than perceived incompetence in time frame procrastination. Because of high intercorrelations between dysphoric affect and covert negativism, the researchers performed a stepwise multiple regression. They discovered that dysphoric affect accounted for 33% of the variance in procrastination. Furthermore, the researchers found that while there was no additional contribution from other measures, had covert negativism been inserted first into the regression, it would have accounted for 25% of the variance.

Analysis of subjects' ratings on task relevancy found that the frequency of non-relevant tasks was substantial (30%). Modest

correlations were reported between relevant and non-relevant mean scores in both time frame and schedule adherence composite scores. In addition, Milgram, et al. indicated that subjects rated the tasks which they have no opportunity or necessity to do as less pleasant, less voluntary, and more difficult for them to perform than the ones they have the opportunity or the necessity to do. Furthermore, they found subjects were more likely to procrastinate on irrelevant tasks.

Milgram, et al. found that relationships between trait procrastination and the three personality measures (learned resourcefulness, the Type A behavior pattern, and life satisfaction) were significant for men only. Time frame and schedule adherence procrastination were modestly correlated with self-regulation and life satisfaction. Also, time frame procrastination was inversely related to the hard-driving factor and to the time urgency factor of the Type A scale. Milgram, et al. report sex differences favored men over women on self-regulation and on time urgency.

In summary, Milgram, et al. found measures of trait procrastination (schedule adherence and time frame performance) to be highly inversely correlated supporting their hypothesis that an inverse relationship between time related factors and procrastination exists. Additionally, Milgram, et al. reported time frame and schedule adherence correlated with self-regulation and life satisfaction, at least for male subjects. The authors point out that self-regulation is a characteristic considered adaptive in stress management and life satisfaction, factors associated with positive mental health and life adjustment. They suggest that a high level of life satisfaction enables individuals to

cope more effectively with the minor aggravation of performing routine

tasks and therefore decreases procrastination on these tasks.

Data presented by Milgram, et al suggested that dysphoric affect,

covert negativism, and perceived incompetence contribute to the

procrastination of everyday life. In addition, they indicated that

although fear of failure (related to perceived incompetence) is strongly

implicated in vacillation over major life decisions and behaviors, fear

of failure may be less implicated in the procrastination of everyday

life because the levels of task difficulty are lower in routine tasks of

everyday life. Based on current findings, Milgram, et al. speculated

that perceived task incompetence is not a sufficient cause of

procrastination because some people who lack behavioral competence may

regard a difficult task as a challenge and insist on doing it as soon as

possible in order to master it and become proficient. Also, perceived

incompetence is not a necessary cause of procrastination because people

who are highly competent on simple tasks may procrastinate for other

reasons, such as dysphoric affect or covert negativism.

The research presented by Milgram, et al. provides additional

insights into the phenomenon of procrastination. First of all, this

study is significant because it utilized individuals of varying ethnic

origin. In addition, it reinforces the notion that gender influences

may contribute in different ways to the development of procrastination.

Self-regulation and life satisfaction appear to be more influential for

men while previous research indicates that anxiety is particularly

salient for women (Rothblum, et al, 1986). Furthermore, data presented

in this study supports the notion of an affective component in

procrastination because dysphoric affect and covert negativism account for a large portion of the variance. Perceived incompetence did not play as significant a role as one might expect. Future research might investigate the role of perceived competence in the development of procrastination on tasks of varying complexity. Milgram, et al. stated that the conventional definition of procrastination refers to 'when' one performs a particular task and operationally defined 'when' by self-ratings based on a personalized time frame. In addition, they discussed 'how' one handles scheduling and adherence to one's schedule in relation to procrastination. In this discussion Milgram, et al. stated that although these two aspects of procrastination are regarded as conceptually independent, trait measures derived from these definitions will be highly correlated. However, although these statements appear to suggest the reasoning for grouping schedule adherence and promptness in scheduling into a single concept, confounding results may have occurred by combining these parameters in this way.

Effert & Ferrari (1989) examined self-reported personality factors as they related to decisional procrastination in college students. The sample consisted of 27 male and 84 female junior college students enrolled in a psychology class. Psychometric measures consisted of Mann's Decision Making Questionnaire (1982), which included a procrastination subscale; Broadbent's Cognitive Failures Inventory (1982); Rosenberg's Self-Esteem Inventory (1965); and the speed and impatience, job involvement, and competitiveness subscales of the Jenkin's Activity Survey (1979).

Effert and Ferrari found that decisional procrastination was significantly related to cognitive failures, low self-esteem, speed and impatience at tasks, and low competitiveness at tasks. The moderately strong correlation between decisional procrastination and cognitive failure found by Effert and Ferrari indicated that cognitive structuring and processing may have something to do with procrastination.

The data presented by Effert and Ferrari is consistent with previous research (Lay, 1986), however, problems with their analysis may contribute to questionable results. Since the data presented here is correlational and moderately correlated at best, these results are highly tentative. Additionally, unless there was a typographical error, the results reported by Effert and Ferrari make no descriptive sense. They found a +.392 correlation between self-esteem and decisional procrastination and yet reported in the discussion of results that decisional procrastination was related to low self-esteem. Furthermore, Effert and Ferrari did not discuss all findings with significant correlations (e.g., impatience with speed with cognitive failure) and their failure to discuss all significant correlations may have confounded results. In addition, the procrastination scale utilized in this study was reported by the authors to be only a modest predictor of self-reported procrastination. Thus, while the results of this study are interesting, they need to be viewed with caution.

Boice (1989) extends previous notions of procrastination. In his two part study, he investigated 108 faculty members hired into tenure track positions. A unique aspect of this study is that these individuals were studied over a 3 year period.

The initial part of this study looked at what procrastinators do to undermine their productivity. New faculty members were retrospectively asked to estimate their typical workweeks in relation to perceived busyness and their timeliness in carrying out activities such as lecture preparation, office hours, and research. Eighteen of the new faculty were chosen at random for more direct and repeated checks of their workweeks and for procrastinated activities. Weekly unscheduled and unannounced observations were made in order to check the reliability of subject's self-reports about time use. Additionally, participants agreed to complete daily self-tracking sheets that showed how they spent their time.

According to Boice, new faculty reported long workweeks (nearly 60-hour workweeks) and high levels of perceived busyness and stressfulness. Boice indicated that most of these new faculty did not feel in control of their work even though they expressed confidence in being able to complete established goal levels of scholarly writing on schedule. While initial reports of estimated workweeks were 60 hours, results from the repeated and observational sessions found that in actuality the subjects who were directly observed had on the average slightly more than 30 hour workweeks. Boice states that these subjects showed a remarkable lack of self-awareness about their tendencies to procrastinate. He suggested that the subjects' misperceptions could have been the result of keeping a log, observer reactivity, and memories of an unusually hectic workweek.

Two groups emerged from the analysis of the data--faculty who worked on activities nearly exclusively in binges and those who did not.

Boice suggested that bingers seemed more likely to engage in busyness displays. These busyness displays tend to discourage interruptions and encourage persistence in single-minded activities by its displayer. Boice proposed that busyness evidently convinces its displayer that he or she is working hard for long hours in ways that permit little attention to any activity but the focal activity. He found that bingers were more likely to evidence over preparation of activities, such as accumulating too much lecture material for the class time available. In addition, bingeing procrastinators seemed to make the activity that they were procrastinating an artificial high priority. Boice stated that the highest order intentions (because they tend to be unrealistic) tend to have the lowest order behavioral probabilities.

In part two of this study, Boice investigated the effects of therapeutic interventions to deal with busyness and bingeing. Subjects were 10 new tenure-track professors who were designated as procrastinators and studied in part one of this research. During usual work days on campus, subjects agreed to schedule and document brief, daily writing sessions of 15-60 minutes per day (averaging 30 minutes). As part of bi-weekly visits, subjects volunteered to allow the experimenter to prod them to continue writing, to see their charts of writing productivity, and to persist in therapeutic strategies that facilitated their writing. In addition, scheduled visits were made to their classrooms and offices where subjects were observed as they worked and were questioned during slow periods. They also agreed to participate for two semesters in a program designed to decrease their

procrastination while increasing both their productivity as writers and their effectiveness as lecturers.

Analysis of the data revealed that formerly unproductive writers established regular habits of writing and produced outputs that became manuscripts submitted for publication. In addition, procrastinators demonstrated changes in their behavior. These changes included decreases in busyness displays, bingeing, making writing an artificially high or low priority, and bingeing in lecture preparation and increases in finishing and submitting manuscripts.

As part of his analysis, Boice compared the findings of this treatment group with two other groups of new faculty who attended the workshop series mentioned previously, but who indicated an unwillingness to participate in both interventions, daily writing session and periodic observations with encouragement. One group of previously unproductive writers opted to try the regimen of writing in brief, daily sessions, but without the experimenter's bi-weekly visits. The other group of previously unproductive writers chose to persist in patterns of bingeing as writers (i.e., awaiting large blocks of undisrupted time for writing). The non-bingeing condition without follow-ups produced modest improvements but not at a level sufficient to meet campus requirements for retention/tenure/promotion. The non-intervention condition was associated with low levels of writing throughout. Boice suggests that the interventions helped lead to durable increases in writing.

Boice indicated that the individual who constantly feels pressured about the non-completion of an important task will describe him/herself as busy. He stated that busyness does not require constant work to take

on the appearance of reality; procrastinators who await large blocks of
undisturbed time may have an excess of other time potentially available.
Furthermore, Boice pointed out that "time management strategies that
dramatically reset priorities do not generally work as interventions
with bingers [because] procrastinators who binge see such re-ordering as
anxiety provoking and they traditionally resist traditional time
management approaches" (Boice, 1989, p. 610). Boice added that if
procrastinators are going to integrate important and potentially anxiety
provoking tasks into busy schedules, they may need social support to do
so.

> By giving 'control' for carrying out the task to a colleague who
> merely checks on their progress, procrastinators can evidently
> acquire time patterns of work without the aversiveness that
> accompanies traditional curatives for procrastination. Moreover,
> the social sharing of information about progress being made in
> tasks usually procrastinated helps overcome one of the inherent
> difficulties in such activities. Tasks like writing that tend to
> lend themselves to bingeing also tend to be done in isolation, with
> lessened opportunities for social support (Boice, 1989,p. 611).

Boice found that even when procrastinators were induced to accept social
support and a schedule of writing in brief, daily sessions, they did
display some resistance but this reluctance proved to be transient.

This research by Boice sheds new light on the phenomenon of
procrastination by introducing the concept of bingeing and suggesting
ways to compensate and correct for this pattern of behavior.
Furthermore, the busyness displays suggested in this study sound similar
to the sequencing difficulties and perserverative behaviors proposed by
Silver (1974). In fact, this study appears to provide support for the
existence of the procrastination field presented by Silver. Although
some interesting notions have been suggested by Boice and this research

tends to support the model proposed by Silver, the results obtained by Boice need to be viewed with caution because of the small number of subjects. Further research is needed to confirm these results.

Lay (1990) conducted a study which assessed the effects of task aversiveness and the likelihood of failure on procrastinatory behavior. Seventy-two subjects (61 females, 11 males) were obtained from a university population from various psychology courses offered in a college devoted to part-time students, who tend to hold full or part-time jobs while taking courses. The students were administered Lay's Procrastination Scale--Student version (1988) and Little's Personal Projects Questionnaire (1983). The Personal Projects Questionnaire involved rating 12 projects on dimensions such as adequacy of time spent on a project, task aversiveness, likelihood of successful outcome, and likelihood of completion. The likelihood of successful outcome and the likelihood of completion dimensions were combined as a measure of likelihood of failure. Subjects then indicated whether a project had a short term deadline (within the next two months), a long term deadline (beyond two months), or no deadline. Because of overlap, long term deadlines and no deadlines were combined into an "open deadline" category. The subjects were assessed at three week intervals for a period of twelve weeks. In these assessment periods individuals indicated whether the project was completed, ongoing, or abandoned. Subjects then noted their adherence to schedule on each project using a three point scale: 1 (behind schedule), 2 (on schedule), 3 (ahead of schedule). No assessments were made for projects which had been abandoned.

Subjects were sent follow up questionnaires which were to arrive approximately three days prior to their designated date for reassessment of projects. Subjects were instructed to indicate the date on which they completed the questionnaire. The procrastination scale administered at the first session was re-administered at the final session. Two dependent variables were assessed. The first variable was the amount of adequate time spent on each project based on the rating obtained in session one. The second variable was the degree to which work on the project was on schedule at each subsequent time period.

Results from the hierarchical regression analysis of short term projects indicated that Trait Procrastination was negatively related to Time Adequacy. Lay found that Task Aversiveness contributed significantly to the proportion of variance accounted for with in the regression. Trait Procrastination by Task Aversiveness interaction did not account for any further variance. Also, within the regression analysis, the Likelihood of Failure and the Procrastination by Failure interactions were not significant. Lay concluded that on short term projects, only Task Aversiveness added unique variance to the prediction of adequate time spent beyond the Trait Procrastination variable.

Lay found that on short term projects high procrastinators spent less adequate time on projects, especially more aversive projects. However, although high procrastinators indicated spending less than adequate time on their short term projects than low procrastinators, data indicated that procrastinators were not any more behind schedule when checked three weeks later. Lay speculated that as deadlines approached, high procrastinators may be more likely than low

procrastinators to revise their scheduling. This re-scheduling may have resulted in both groups reporting being on schedule. Unfortunately, the authors did not obtain direct assessment of re-scheduling in the present study.

On open projects, Trait Procrastination was found to be unrelated to Time Adequacy. Task Aversiveness and the Procrastination by Task Aversiveness interaction did not contribute significantly to the regression. The Likelihood of Failure variable was also unrelated on the Time Adequacy parameter, but the addition of Trait Procrastination by Failure interaction produced significant results. Lay found that high procrastinators indicated spending more adequate time on open projects likely to fail than did low procrastinators.

Regression analysis of the Adherence to Schedule variable for short-term projects at assessment Period 2 indicated that less aversive projects were more likely to be on schedule than more aversive projects. Only the regression coefficient for Likelihood of Failure was significant. Lay found that projects rated to be more likely to fail were less likely on schedule. Assessment Period 3 yielded no significant regression and Period 4 was not assessed because by definition the short-term projects were of two months duration.

For open projects on the Schedule Adherence dimension, regression analysis for assessment Period 2 revealed that Trait Procrastination was negatively related to Schedule Adherence. In addition, the Trait Procrastination by Likelihood of Failure interaction was also significant. High procrastinators reported greater adherence on open projects which were more likely to fail whereas low procrastinators

reported greater adherence to open projects more likely to succeed. At

assessment Period 3, no regression reached significance and at

assessment Period 4 the Trait Procrastination by Likelihood of Failure

interaction was again significant.

Results of the research by Lay indicated that task aversiveness is

positively related to dilatory behavior for short-term projects but

appears unrelated for open-projects. Also, Trait Procrastination was

positively related to the person-project ratings of Task Aversiveness

and Likelihood of Failure for both short-term and open projects. Based

on this finding, Lay concluded that the assumption that people postpone

work on aversive tasks applied only to projects with deadlines.

Lay found that trait procrastination did not interact with the task

characteristics of short term projects. He suggested that trait

procrastinators with short term projects may have responded to forces of

habit or situational factors independent of task dimensions (i.e.

distractions or non-agenda projects). Lay reported that high

procrastinators tended to view their projects as more aversive and more

likely to fail. He suggested that trait procrastinators may be more

prone to a negative perception of their projects rather than to the

dimensions of Task Aversiveness and the Likelihood of Failure.

Furthermore, Lay proposed that high procrastinators respond more to the

self-worth dimension and less to the likelihood of failure dimension of

a project, they are more likely to adopt a self-handicapping strategy.

In other words, self-handicappers will work less on moderately difficult

tasks to protect against the implication of failure, but because the

risk for failure is greater on difficult tasks and can be attributed to the task itself, no such self protection is needed.

Several important contributions have been made by this research. First of all, Lay differentiates procrastinatory behavior on the basis of short term projects and projects of longer duration. In addition, this study was conducted over a twelve week period and is one of the few longitudinal studies of procrastination. Finally, Lay speculated that procrastinators may be responding to a dimension of self-worth rather than likelihood of failure and deserves further consideration in the future.

The Exception

As mentioned in the introduction, this section of the paper was primarily devoted to empirical papers that contributed to the knowledge of procrastination. However, Green's study of students' self-control of procrastination was included because it is one of the most heavily cited papers on procrastination and it is the one of the few studies which utilized a minority population.

Green (1982) attempted to examine the effects of self-monitoring alone and self-monitoring plus reward on three academic and three related procrastinative behaviors. His sample consisted of 6 academically disadvantaged minority college students in a reading improvement class. Subjects consisted of two black males, two black females, one Puerto Rican female, and one white female. Outcome measures included attendance, prompt completion of assignments, studying (as defined by minutes spent on reading and study activities in a study center), grades on assignments, and a percentage of initial contract

maintenance. This percentage was based on the extent to which each subject maintained a self-reward contract and its effects beyond the initial two week period of the contract. The percentage was calculated differently for academic and procrastinative behaviors to avoid penalizing increases in academic performance and decreases in procrastinating behaviors. Also included were calculations of the percentage of accurate self-monitoring and the percentage of self-reward. Accuracy of self monitoring was cross checked by teacher and assistants' observations in class and the study center. Subjects were monitored for two weeks in the baseline, self-monitoring, and self-monitoring with self-reward conditions.

Green found that self monitoring alone did not produce significant increases in academic behaviors or decreases in procrastinative behaviors. His analysis of the data found that self-monitoring plus reward was more effective in increasing attendance, increasing prompt completion of assignments above baseline, and producing more studying than self-monitoring alone. In addition, Green indicated that self-monitoring with self-reward produced substantially more of an increase in grades than in baseline or self-monitoring conditions. Furthermore, at the end of the semester and at a 6 month follow-up, none of the subjects dropped out of school or were placed on probation. At a one year follow-up, two subjects dropped out and four graduated within three years after the intervention program. Based on the findings presented in this study, Green pointed out that minority students are able to enact several self-reward contracts for different academic behaviors and continue these self-reward contingencies simultaneously. Also, he found

that the high percentage of accurate self-monitoring suggests that most
students are able to monitor and record their academic behaviors
accurately.

These results need to be viewed with caution. The low number of
subjects and composition of the population may interfere with the
generalizability of the results. However, because of the ipsative
design of the study these results may still be valid. This study
appears to analyze the effectiveness of a treatment strategy not the
understanding of procrastinatory behaviors.   In addition, no measure of
procrastination was included to define the subjects as procrastinators.

Typologies

Procrastination is a complex phenomenon consisting of the
interaction of task variables and personality characteristics. One
factor that may contribute to the complexity of the problem is the
possible existence of more than one type of procrastinator.
Procrastination studies that have identified typologies will now be
discussed.

Solomon and Rothblum (1984) were the first authors to suggest a
difference in types of procrastinators. Their study investigated the
frequency of college students' procrastination on academic tasks and the
reasons for the procrastinating behavior. Solomon and Rothblum
administered a procrastination scale (PASS, 1984)and a questionnaire
battery to 342 college students (101 males, 222 females, with 19
subjects not denoting sex) taking an introductory psychology course.
The questionnaire battery included the following measures: self-esteem
(Rosenberg Self-Esteem Scale, 1965); anxiety (trait version of

Spielberger's State Trait Anxiety Inventory, 1968); punctuality and
organized study habits (the Delay Avoidance scale of the Survey of Study
Habits and Attitudes; Brown and Holtzman 1966); assertion (The College
Self Expression Scale; Galassi, DeLo, Galassi, and Bastien, 1974);
depression (Beck Depression Inventory, 1974); and irrational cognitions
(Ellis Scale of Irrational Cognition; MacDonald and Games, 1972). Self-
paced quizzes and course grades were utilized as behavioral measures of
level of procrastination. Solomon and Rothblum factor analyzed their
results utilizing a principal axis solution with squared correlations on
the diagonals followed by a varimax rotation of these factors with Eigen
values greater than one.

The principal axis solution utilized by the authors yielded two
primary independent reasons for procrastination. The first factor found
accounted for 49.4% of the variance and appeared to reflect a Fear of
Failure. Solomon and Rothblum postulated that this factor taps items
related to anxiety about meeting others' expectations (i.e. evaluation
anxiety), concern about meeting one's own standards(i.e. perfectionism),
and lack of self confidence (i.e. low self-esteem). They also found a
significant positive correlation between Fear of Failure, as an
antecedent of procrastination, and trait anxiety.

The second factor that Solomon and Rothblum identified was labeled
Task Aversiveness. This factor accounted for 18% of the variance and
related to aversiveness of the task and laziness. Items relating to
this factor reflected lack of energy and task unpleasantness. Task
Aversiveness did not correlate significantly with trait anxiety.
Analysis of variance of sex differences on Task Aversiveness and Fear of

Failure yielded a significant difference for the Fear of Failure factor only. Females were significantly more likely to endorse items that reflected the Fear of Failure factor than males.

Frequency tabulations for each item presented were constructed by the authors in order to determine the percentage of subjects who highly endorsed each item. The results of this analysis indicated that there are two groups of procrastinators. The first group was a relatively homogeneous group of students who reported procrastination as a result of Fear of Failure. Fear of Failure accounted for almost 50% of the variance, although, Solomon and Rothblum indicated that only 6 to 14% of the students endorsed items constituting the factor as highly representative of why they procrastinate. Additionally, they stated that students who endorsed items constituting the Fear of Failure factor tended to endorse these items exclusively. Solomon and Rothblum correlated the Fear of Failure factor with the self-report measures and found significant positive correlations with depression, irrational cognitions, and anxiety. Also, Fear of Failure had significant negative correlations with punctuality, self-esteem, and assertion.

The second group of procrastinators identified by Solomon and Rothblum consisted of a large, relatively heterogeneous group reporting procrastinating as a result of Task Aversiveness. The Aversiveness of the Task factor items relate to a dislike of engaging in academic activities and a lack of energy. Solomon and Rothblum indicated that students who endorsed these items also endorsed items that reflected difficulty in making decisions and time management. They correlated the Task Aversiveness factor with the self-report measures and found a

significant positive correlation with depression and irrational beliefs.
A significant negative correlation with punctuality and organized study
habits was also found. Additionally, Solomon and Rothblum reported a
small but significant correlation with self-esteem and no significant
correlation with anxiety. They found that while both types of
procrastinators were correlated with study habits, they were correlated
with a number of cognitive and affective measures as well. Based on
these findings, Solomon and Rothblum concluded that procrastination
should be regarded as a cognitive, behavioral, and affective phenomenon.

Solomon and Rothblum noted that one difference between the Fear of
Failure group and the Task Aversiveness group is that the Fear of
Failure group also reported high anxiety and low self-esteem. It may be
argued that the correlation of high procrastination with negative
characteristics (i.e., depression, irrational cognitions) may be due to
a negative response set or social desirability, however, high
procrastinators on both groups would have to endorse anxiety and low
self esteem for this were true. While items constituting time
management were highly endorsed, students simultaneously endorsed other
cognitive, affective, and behavioral reasons for procrastinating.
Therefore, time management is not an independent factor that explains
procrastinating behavior.

The research by Solomon and Rothblum indicated the possibility that
there may be more than one type of procrastinator. Furthermore, the
data they presented empirically supported the notion that some
procrastinators may be more influenced by personality variables while
others may be more influenced by task characteristics. The results of

this study reflect the complexity of the problem and significantly contribute to the existing knowledge of procrastination. Not only have they introduced the notion of typologies, they have indicated possible sex differences in procrastinators. Interestingly, females were more likely to endorse Fear of Failure items and this finding warrants further research. The results of gender differences between procrastinators need to be viewed with caution because the sample utilized in this study was largely female by over a 2:1 ratio.

Lay (1987) conducted a two part study which attempted to identify and describe types of procrastinators. Lay utilized a modal profile analysis procedure to examine a procrastination scale and several trait scales. Variables with T-scores one standard deviation or more from the mean of 50 were viewed as descriptive of the profile.

In part one of this study, Lay utilized data taken from a previous study (Lay, 1986). He re-analyzed the responses of 30 male and 64 females to a true-false questionnaire which contained versions of the following scales:
Procrastination--Form G (Lay, 1986); the neurotic disorganization and rebelliousness scales (Jackson, 1967); organization, self-esteem scale, and energy level scales (Jackson 1976), and achievement scale (Jackson, 1984). In addition, subjects completed a version of Little's Personal Projects Questionnaire (1983).

The results of this analysis revealed four profiles. Two of these profiles were defined by high scores on procrastination. Procrastinators in profile I were identified as scoring high on the neurotic disorganization scale and high in the rebelliousness scale.

Additionally, these individuals had personal projects which were characterized by high stress, high difficulty, and low progress. These individuals also reported to have spent less than adequate time on these projects. Lay noted that given the absence of need achievement and energy level parameters on this profile, the level of difficulty and stress may have been reason enough to spend less than adequate time and might have made the individual's progress on projects slower. He also stated that this would only be true if high procrastinators actually had more difficult and stressful tasks. However, Lay suggested it is more likely that this type of procrastinator tends to perceive the tasks at hand as more difficult and stressful. Lay also proposed that high scores on the rebelliousness scale may indicate that profile I procrastinators may spend less than adequate time on projects and may make less progress on them as an act of rebellion.

Procrastinators which fell into profile II were also identified as neurotically disorganized, however, in contrast to those individuals in profile I, they were also identified as low in organization, energy level, and need achievement. Additionally, these individuals had projects that were low in difficulty and stress, and high in progress. Lay suggested that this type of procrastinator appeared to resemble the classic "non-achievement syndrome underachiever" or possibly a broader type of underachiever. He described this type of underachiever as characterized by a pattern of selective forgetting and distractibility. Lay further described these individuals as "conveying a sense of comfort or contentment about themselves, as coasting or cruising through life, and as overestimating how they are actually doing academically" (Lay,

1987, p.708). Interestingly, this characterization of the profile II procrastinator appeared to agree with what is traditionally described as a "typical" procrastinator. However, Lay warned that connecting the underachiever with this type of procrastinator may confound an accurate description of the procrastinator and shift attention away from the affective and cognitive components of the problem.

In Part II, Lay utilized the seven personality scales that were included in Part I and a fear of success scale (Zuckerman and Allison, 1976), a sensitivity to rejection scale (Mehrabian, 1970), a cognitive failures questionnaire (Broadbent, Cooper, Fitzgerald, and Parkes, 1982), a self-monitoring scale (Briggs, Cheek, and Buss, 1980), a stimulus screening scale (Mehrabian, 1977), a private self-consciousness and public self-consciousness scale (Fenigstein, Scheier, and Buss, 1975), and a breadth of interest scale (Jackson, 1976). Subjects were 122 male and 215 females who ranged in age from late teens to middle fifties. Subjects were obtained from a senior high school sample, full and part-time university students, and two groups of non-students contacted through the companies they worked for. Correlation coefficients were calculated for males and females.

Again using a modal analysis procedure, Lay analyzed the data obtained in this portion of the study by gender. He found that based on an examination of the Eugene values, four profiles were obtained for male subjects and these profiles accounted for 56% of the variance. Three profiles were derived from analysis of the female data and these profiles accounted for 48% of the variance. These seven profiles

yielded two types of male procrastinators and one type of female procrastinator.

The first profile of male procrastinator was characterized by neurotic disorganization and forgetfulness and tended to lack aspects of organization such as planfulness and systematization. This type of procrastinator scored high on neurotic disorganization and other-directed self-monitoring. In addition, this procrastinator scored low on organization, stimulus screening, and sensitivity to rejection. Lay pointed out that this type of procrastinator was a non-screener, a factor which he believes may contribute to the disorganized tendencies. He found procrastinators in this profile were less sensitive to rejection despite the fact that individuals within this profile are especially responsive to the particular situation they are in and to the particular presence of others (high self-monitoring).

The second profile of male procrastinator was characterized as high on breadth of interest and private self consciousness. These procrastinators were low on organization and low on other-directed self-monitoring. They were also non-screeners. This profile suggests that this procrastinator is someone who is self-engaged and independent. Lay described this type of procrastinator as intellectually curious (high on breadth of interest), self-reflective (high on private self-consciousness), and autonomous with low self-monitoring. These procrastinators also tended to be low on organization--lacking planfulness and systematization. Lay suggested that self-engagement coupled with disorganization produced procrastinatory tendencies.

Analysis of the female data yielded one profile high on procrastination. This profile described an individual who has a high level of neurotic disorganization and cognitive failures. In addition, this procrastinator is characterized as low in organization, energy level, and self-esteem. Like other procrastinator profiles, female procrastinators tend to be non-screeners with neurotic disorganization who lack planfulness and systematization. Unlike other procrastinators, these characteristics tended to be linked with low energy level, low self-esteem, and low achievement. Based on these findings, Lay proposed that procrastination in females may reflect sex differences in achievement motivation and self-concept. He also suggested that procrastination in this group may be a manifestation of non-achievement coupled with a lack of organization. Furthermore, Lay stated that women typically defend their egos through dissociation and lack of commitment and this may contribute to the problem.

In general, Lay found that procrastinators tended to score higher on measures reflecting neurotic disorganization, cognitive failure, rebelliousness, and fear of success and lower on organization, sensitivity to rejection, and stimulus screening (tended to be non-screeners). Each of the three profiles in part II exhibited these characteristics to varying degrees. In addition, Lay found procrastinators, especially the female procrastinators, to be non-screeners in relation to stimulus screening. While procrastinators as a whole tended to score high on the cognitive failures and fear of success scales, female procrastinators scored highest of the three profiles on these scales. Although Lay reported low correlations between

procrastination and sensitivity to rejection, self-esteem, achievement, and energy level in male subjects, female procrastinators tended to correlate higher with these dimensions. In addition, female procrastinators tended to score lower on breadth of interest scales. These findings tend to further support the notion that procrastinators may vary by gender as well as by sub-type.

The results of the research conducted by Lay further supports the notion that there may in fact be more than one type of procrastinator. Furthermore, the results of the second study provide additional evidence for the notion of sex differences between procrastinators.

McCown, Johnson, and Petzel (1989) conducted a study which reinforces the possibility that there may be different types of procrastinators. Utilizing a principle component analysis, McCown, et al. factor analyzed data obtained from a sample of 227 chronic academic procrastinators. The students completed the Aitken Procrastination Inventory (1982) and the Adult Inventory of Procrastination (Johnson and McCown, 1988). Subjects also completed a battery of tests which included: the Eysenck Personality Questionnaire-Revised (EPQ-R, 1985), the Beck Depression Inventory (1972), the student version of the Jenkin's Activity Survey (1979), and the experimental Time Diagnosis scales from the Adult Inventory of Procrastination (Johnson and McCown, 1988).

McCown, et al. found three principal components which are believed to suggest orthogonal personality variables associated with different types of procrastination. The three principal components which were identified by McCown, et al. accounted for 55% of the total variance.

The first principle component accounted for 21.4% of the variance and loads highly on the Psychoticism scale from the EPQ-R. McCown, et al. noted that this sub-type represented the largest group of procrastinators found in this study. The Psychoticism factor is believed to be associated with characteristics such as impulsiveness, preoccupation with one's own inner world to the exclusion of completing tasks on time, a tough-minded absence of response to social pressures, and thought disordered mental status. McCown, et al. proposed that these characteristics coupled with lower anxiety levels (evidenced by low scores on the Neuroticism sub-scale) combine to result in this type of procrastinating individual. Additionally, McCown, et al. indicated that individuals that fit this sub-type may suffer from naive denial about their behavior, as evidenced by the moderate loading of the Lie scale from the EPQ-R on this principle component. Subjects of this sub-type may also experience the subjective feeling that time was moving too much out of control to finish tasks as this component loaded highly on the Time Loss Scale.

The second principle component identified in this study accounted for 18.4% of the variance and McCown, et al. labeled this type of procrastinator as the "neurotic extrovert." This type of procrastinator loaded highly on the Extroversion and Neuroticism scales of the EPQ-R and loaded very highly on the Jenkin's Activity Survey. McCown, et al. suggested that this principle component appears to represent the category of individuals who are outgoing, energetic, slightly nervous, and who just take on too much to complete any of their numerous self-imposed tasks. Interestingly, the Time Management sub-scale of the

Adult Inventory of Procrastination failed to load significantly on the

Neurotic Extrovert sub-type and therefore McCown, et al. caution its

interpretive use.

The final principle component which accounted for 16.1% of the

variance could be identified as the depressed procrastinator.

Individuals identified as falling within this sub-type loaded on the

depression inventory, the Neuroticism scale, and the Time Loss Scale.

McCown, et al. indicated that these individuals appeared to be suffering

from sub-clinical depression, or perhaps a sub-clinical variant of

depression where they would tend to be preoccupied, socially isolative,

and ignorant of time cues. This principle component appears to tap a

low energy level which may result from or be caused by not completing

tasks on time. McCown, et al. noted that although the depressed

procrastinator and the procrastinator scoring high on the Psychoticism

dimension might endorse similar items relating time 'flying' out of

their control, they did so for different reasons.

Conclusion

The diversity of research designs and different conceptualizations

of procrastination made comparison across studies difficult. Despite

these difficulties, evidence generally suggests that time factors,

stress, personality characteristics, and task factors all influence the

development of procrastination.

In addition, several of the studies discussed in this section provide

compelling evidence for the notion of typologies in the study of

procrastination. Furthermore, several studies indicated the possibility

of gender differences that may contribute to the development of

procrastination. The significance of these findings cannot be underestimated. If in fact there are different types of procrastinators and gender differences, then research designs need to take these factors into account.

A subsequent finding from the analysis of the typology studies was that the number of types resulting from the data depended upon whether task characteristics or personality characteristics were considered within the research design. Two types of procrastinators resulted when task factors were taken into consideration (Solomon and Rothblum 1984; Lay, 1984 Part I) and three types of procrastinators resulted when the characteristics of the procrastinator were taken into account (Lay, 1987 Part II; McCown, Johnson, Petzel, 1989). While the empirical literature has made contributions to the existing body of knowledge on procrastination, more research is necessary to confirm these findings.

Overview

Procrastination is a complex and poorly understood phenomenon.
This review attempted to integrate the literature on procrastination so
a better understanding of this phenomenon may be developed. In the
course of this review, it was noted that some articles and studies
proposed similar ideas concerning the phenomenon of procrastination.
Conflicting ideas were also discovered and weaknesses within the
literature were observed.

Although the information provided in the descriptive articles came
from diverse fields (education, business, and economics), many of the
conceptualizations were similar. Within descriptive accounts of
procrastination, stress (Silver, 1974; Harris and Sutton, 1983) and
control (Rennie and Brewer, 1987) appear to be significant dimensions in
procrastination. Even when authors did not specifically address
concepts of stress and control, their presence was evident. In
addition, the notion of sequencing suggested by Silver (1974) appeared
to be an overarching concept which incorporated concepts such as
cognitive structures (Akerlof, 1991), difficulty shifting from dependent
to independent activities (Rennie and Brewer, 1987), impact of deadlines
(Harris and Sutton, 1983; Rennie and Brewer, 1987; Akerlof, 1991),
choice points (Silver, 1974) substitutability of ends (Silver and

Sabini, 1981), task structuring (Rennie and Brewer, 1987) and task
characteristics (Silver, 1974; Harris and Sutton, 1983). Time relevant
factors were suggested to be involved in the development of
procrastination. These factors included time management (Rennie and
Brewer, 1987), the interaction between multiplicity of time intervals
and the rational/irrational calculations made upon these intervals
(Silver and Sabini, 1981), and the effect of the amount of time between
decisions (Akerlof, 1991). The contextual nature of procrastination was
addressed in both the discussion of the procrastination field (Silver,
1974) and organizational attributes (Harris and Sutton, 1983). Despite
the conceptual similarities found in the descriptive literature, a clear
picture of procrastination and its process remains elusive. Even though
review of the descriptive articles on procrastination did not yield a
composite account of procrastination, it did provide avenues for future
research as many of the suppositions suggested by the authors remain
untested.

Analysis of the empirical literature on procrastination revealed
great diversity in research designs and a variety of conceptualizations
on procrastination. This variance within the literature has made
comparisons across studies difficult. Despite this difficulty, a few
general conclusions were reached.

Several studies indicated that procrastination has cognitive,
behavioral, and affective components (Solomon and Rothblum, 1984;
Rothblum, et al, 1986; McCown, et al, 1987). How much each component
contributes to procrastination remains unclear. In addition, agreement
on factors which constitute each of these components is lacking. When

considering the affective component, some authors suggested that anxiety may play a large role in the development of procrastination (Rothblum, et al., 1986; McCown, et al., 1989). Other authors suggested depression (McCown, et al., 1989; Solomon and Rothblum, 1984) or some other affective component may play a role (Lay, 1990; McCown, et al., 1989; Milgram et al., 1988). When considering the cognitive component, some studies have indicated that cognitive failure contributes to the development of procrastination (Effert and Ferrari, 1989; Lay, 1989; Lay 1990), while others have implicated a cognitive efficiency factor (McCown, et al, 1987). The cognitive efficiency factor allows the procrastinator to work quicker thereby increasing the tendency to wait till the last minute to begin a project.

Several authors have suggested that gender influences may impact the development of procrastination. Solomon and Rothblum (1984) and Rothblum, et al. (1986) have correlated anxiety with procrastination and found this correlation to be higher for women. Milgram, et al (1988) correlated self-regulation with procrastination but obtained significant results for men only. If these gender differences truly exist, then therapists may need to consider gender when helping clients with the problem of procrastination. However, further research is necessary to confirm the existence of gender influences.

Task factors also seem to be significant across studies. Factors such as task complexity (McCown, et al., 1987); task aversiveness (Solomon and Rothblum, 1984; Lay, 1990); and task visibility, challenge, and enjoyment (Lay, 1986 Part II) appear to be particularly salient in procrastination. Furthermore, more "types" of procrastinators resulted

when personality characteristics were derived during the analysis in typology studies than when task factors were included.

Stress or the perception of stress was also significant in the development of procrastination. Boice (1989) in his analysis of professor's workweeks stated that procrastinators reported high levels of busyness and stress. He further indicated that the individual who constantly feels pressured about the non-completion of an important task will describe him/herself as busy. Lay (1986, Part II) also found stress to be a significant component in procrastination. He found that for procrastinators the higher the stress involved, the lower the likelihood of completion of a project. In addition, Lay reported that procrastinators tended to view stressful projects as less connected to their self-identity, possibly as a defense mechanism.

Time factors also played role in procrastination. Milgram, et al. (1988) found that scheduling a task in a particular time frame and adhering to that schedule influences the likelihood of task completion. He found that tasks scheduled early in the time frame and schedule adherence correlated with lower levels of procrastinatory behavior. Lay (1990) found a difference in the way procrastinators approached short-term and open (long-term) projects in terms of time adequacy. He found that high procrastinators spent less adequate time on short term projects (especially aversive ones) and more time on open projects likely to fail. Interestingly, Lay found when checked, high procrastinators were not any more behind schedule than low procrastinators. He speculated that as deadlines approach, high

procrastinators may be more likely than low procrastinators to revise their scheduling.

One of the most interesting findings was the possible existence of typologies. Each of the studies supporting the notion of typologies found two to three types of procrastinators depending on whether task factors were considered in the analysis. The possible existence of typologies is significant because if in fact they exist, then research designs need to take into account these differences. In addition, the existence of types may help to explain inconsistent results across studies. Knowledge of types of procrastinators may aid therapists in treatment of a procrastinating individual.

Despite the contributions that empirical research has made to the understanding of the phenomenon of procrastination, several methodological factors need to be addressed. One of the most glaring difficulties in analyzing the empirical literature was that few consistencies existed in operationally defining procrastination. Some studies offered no definition at all. In addition to the problem of definition, few reliable measures of procrastination have been developed and only a few of these have been validated on a population other than on the one on which it was developed (Aitken, 1982; Lay, 1986; Sroloff, 1983). Furthermore, with few exceptions (see Lay, 1987; Boice, 1989; Lay 1990), procrastination inventories have been utilized primarily within populations of university students. While it may be argued that students are the population most likely to procrastinate, it has been suggested that procrastinating behavior is a widespread problem in the work place (Harris & Sutton, 1983). The fact that the procrastination

measures have been developed on and largely utilized within student

populations decreases the generalizability of the results and results in

questionable reliability when utilized on other populations.

An additional problem with these inventories is that they are self-

report measures and are therefore subject to the biases that self-report

measures entail. Social desirability can confound the results of self-

report measures. Because procrastination is a socially unacceptable

phenomenon and empirical studies have generally utilized self-report

measures, its incidence may actually be under-reported (Harris and

Sutton, 1983).

Another problem apparent in reviewing the literature is that most

studies have a population with a greater percentage of female than male

subjects. While several of the studies (Effert & Ferrari, 1989; Milgram

et al., 1988) indicated that the differences in sex were not

significant, the typology studies indicated that this may not be the

case (Solomon & Rothblum, 1984; McCown et al., 1989; Lay, 1990).

Minority studies are also under-represented in the literature. In fact,

only one study (Green, 1982) was found and the results of that study are

not generalizable due to a small sample size (n=6). Although another

study (Milgram et al., 1989) had a population with international

parentage, this data was not analyzed according to ethnic breakdown.

Further research is clearly needed in the area of procrastination in

minority populations.

Finally, the empirical literature needs to address whether

procrastination is to be viewed as a state or trait phenomenon. Most of

the studies reviewed appeared to utilized procrastination as a state

phenomenon. Milgram, et al.(1988) and Lay (1990) conducted the only

studies which clearly indicated that procrastination was being studied

as a trait phenomenon. Few longitudinal studies were found (Milgram et

al, 1988; Boice, 1989; Lay, 1990). More longitudinal studies are needed

to determine if procrastination is a trait that is stable over time.

Limitations

One of the difficulties in conducting a review of this nature is

that not all articles were available. In addition, several

dissertations and unpublished works exist that may contribute to the

understanding of procrastination, however, only published works were

included in this analysis. Despite these limitations, a fairly complete

sampling of the procrastination literature was included in this review.

While articles dealing with the treatment of procrastination were

not the focus of this review, several points need to be addressed on

this topic. One of the reasons that articles of this nature were not

included is that few articles have been published that focus on

treatment. Although several of the articles reviewed offered

suggestions for treatment of procrastination based on their conclusions

(McCown, et al., 1989; Solomon and Rothblum, 1984; Rorer, 1983), only

one study actually implemented a treatment regimen and tested its

effectiveness (Boice, 1989). An interesting unpublished work by Milgram

(1987) summarizes treatment strategies from the psychodynamic,

behaviorist, and cognitive-behavioral perspectives. In his paper, he

constructed a model which suggests the best approach to take when

dealing with a client who procrastinates. Further research is needed to

test the effectiveness of this model, but Milgram provides an

interesting way for therapists to match the most effective modality with the procrastinating individual.

Implications for Counselors

Although popular writings appear to have many self-help type suggestions for dealing with the problem of procrastination, only a small portion of the professional literature has addressed treatment of procrastination. This leaves the therapist with few options to choose from when dealing with the complex problem. Conclusions drawn from this review have significant implications for the counselor. One of the most significant findings that can have direct impact is the possible existence of typologies. If in fact, as the literature suggests, there are different types of procrastinators, then counselors need to take this into consideration when tailoring sessions to meet the needs of the procrastinating individual (see McCown, et al., 1989). At some point, the counselor may even possibly utilize the Eysenck Personality Questionnaire-Revised as an assessment tool to help differentiate which type of procrastinator the counselor is dealing with. This suggestion needs to be viewed with caution however, because further research is necessary to confirm the findings reported by McCown, et al. (1989).

An additional finding of this analysis that can have implications for counseling is the notion of gender differences among procrastinators. As suggested earlier in this review, female procrastinators were reported to have higher more stable levels of anxiety (Rothblum, et al., 1986) and men were reported to respond more to the dimension of self-regulation (Milgram, et al., 1988). These findings suggest that counselors dealing with female procrastinators may

need to address the anxiety aspect of the individual's procrastination
and counselors dealing with male procrastinators may need to address the
self-regulation component.

Therapists may also utilize Silver's model (1974) in the treatment
of procrastination. Silver suggests that under conditions of moderate
stress an individual experiences sequencing difficulties that result in
perserveration of task(s) and procrastination. He further suggested
that cognitive complexity of the task and choice points contribute to
the development of procrastination. The counselor may look at the way
the procrastinating individual "sequences" his/her activities in
relation to other activities. As Boice (1989) suggests, procrastinating
individuals are aware of time management techniques but tend to resist
them. Therefore, rather than suggest time management techniques, the
therapist may seek to "diagnose" factors within the individual or
environment that contribute to sequencing difficulties. In addition,
cognitively complex portions of a task and choice points (which tend to
be cognitively complex) appear to be problem areas for the
procrastinator and counselors may be able to focus on teaching
techniques to the procrastinator which will help them at these critical
points. One of the techniques that was suggested is to limit the
choices of the procrastinating individual (Akerlof, 1991; Silver, 1974).
It is possible that the procrastinator may already be limiting his/her
choices by not allowing a reasonable time frame for activities. The
counselor must attempt to help the procrastinator find more constructive
ways of dealing with choice points and cognitive complexity.

Conclusion

Despite the diversity of viewpoints expressed in the descriptive

and quantitative literature on procrastination, several common factors

emerged when the literature was analyzed. Stress, sequencing, and time

elements appeared to be the main factors significant for the development

of procrastination. In addition, it appears that many of the articles

agree that procrastination is an extremely complex phenomenon consisting

of cognitive, affective, and behavioral components. While many of the

articles agreed on the complexity of the problem, a concise definition

of the phenomenon of procrastination was lacking.

One of the purposes of this article was to integrate the literature

on procrastination in order to provide a better understanding of the

procrastination phenomenon. One further way to possibly integrate the

information on procrastination is to provide a flexible model which

incorporates many of the ideas put forth in this paper. An adaptation

of Silver's (1974) model of procrastination has heuristic as well as

hypothesis generating capabilities. This model appears capable of

integrating the existing theories and research. Silver suggests that

under conditions of moderate stress an individual experiences sequencing

difficulties that result in perserveration of task(s) and

procrastination. Although not elaborated on by Silver, the sequencing

element of this model may encompass the personality variables and task

factors suggested in the empirical research. In addition, the

environmental factors and contextual nature of procrastination may be

incorporated into the "procrastination field" concept suggested by

Silver. Furthermore, the study of the cognitive complexity and choice

points elements suggested by Silver may provide possible avenues for counseling interventions.

While Silver's model of procrastination presents a parsimonious representation of a complex process, further refinements are necessary to enhance its explanatory powers. In addition, research is needed to more accurately define the processes of sequencing and perserveration. In general, because of the lack of research on procrastination there are many possible avenues to pursue in studying this phenomenon. A clearer and more consistent definition of procrastination is needed. Further validation of Silver's model of procrastination and development of a validated and reliable tool for assessing procrastination are also productive areas for further research.

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The final copies have been examined by the director of the thesis
and the signature which appears below verifies the fact that any
necessary changes have been incorporated and that the tesis is now
given final approval by the Commitiee with reference to content
and form.

The thesis is, therefore, accepted in partial fulfillment of the
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