PROCRASTINATION, THESIS WRITING AND JUNGIAN PERSONALITY TYPE

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This study sought to examine the relationship between the procrastination involved in thesis writing and Jungian personality type.

A sample of 50 graduate students enrolled in the Department of Counselling Psychology at the University of British Columbia participated in the study. These individuals were classified into one of two groups: those who procrastinated while writing their thesis and those who did not. Procrastination was measured using length of time taken to complete the thesis coupled with self-report. The 50 subjects were then administered the Myers-Briggs Type Indicator which measures Jungian personality type. These two groups were then compared to determine if significant differences in personality type existed between the procrastinating and non-procrastinating groups.

Five hypotheses were tested. A t-test (two tailed) was performed using the continuous scores of the four scales of the MBTI to test the first four hypotheses to determine if a statistical difference could be found between these two groups on these dimensions. No differences were found on the first three scales (extraversion-introversion; sensation-intuition; thinking-feeling), but a significant difference was found on the judging-perceiving index (p=.008). Procrastinators tended to score toward the perceiving end of the scale while non-procrastinators scored toward the judging end of the continuum.

A chi-square analysis using the dichotomous scores of the MBTI was performed to test the fifth hypothesis which predicted that a
significantly higher number of NFP types would be procrastinators than non-procrastinators. This hypothesis was accepted (p=.0017) indicating that specific personality variables do tend to correlate with procrastination.
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To all, I express my thanks.
CHAPTER ONE

INTRODUCTION

Procrastination, the act of deferring or delaying necessary action, is a psychopathology of everyday life. While the severity of the discomfort resulting from procrastination can range from mild irritation with oneself to a major affective disorder, it is a phenomenon with which everyone can identify. Beyond the expressed subjective discomfort which accompanies procrastination, very real objective consequences—sometimes devastating—can result from its presence in a person's life. Consider the adolescent female who puts off acquiring a means of birth control, or the married couple who remains unhappily wedded for thirty years, or the business executive who is fired for failing to keep up his or her accounts. The examples are myriad. Clearly, the practice of procrastination can wreak havoc in people's lives. This is a study of one particular form of procrastination which is especially costly in academic settings: the act of delaying the completion of the final paper (either thesis or major paper) required for a Master's degree.

Rationale for the Study

Procrastination exacts a considerable price in academic settings. Ellis and Knaus (1977) have estimated that 95 percent of all college students engage in procrastination. Course withdrawal, poor grades and academic underachievement are all results of procrastination.
Semb, Glick, & Spencer (1979). The tendency for students to procrastinate appears to increase the longer students are in college. Semb, Glick and Spencer (1979) found that freshmen procrastinate the least and seniors the most. Procrastination at the graduate level reaches near epic proportions, especially as it relates to the final paper (thesis or dissertation). Less than 50 percent of those who begin graduate school with the intention of earning a degree actually do so (Creager, 1965; Knox, 1970; Sells, 1973). Statistics are not available to indicate how much of this attrition rate is due to failure to complete the final paper, but anecdotal data from procrastinators and their committees indicate that the problem of completing this final paper is widespread among otherwise competent and highly functioning graduate students. While graduate student folklore abounds with stories regarding the procrastination involved in thesis writing, there has been very little research conducted on this topic. Clearly, this is a problematic area in the academic world that has received little attention from researchers.

Statement of the Problem

Procrastination is a mysterious behavior both to those who endure it as well as those who would explain it. As Sabini and Silver (1982) point out, the procrastinator is someone who knows what he or she wants to do, appears capable of doing it, is often in some sense trying to do it—yet does not do it. Various reasons have been postulated to explain the phenomenon: fear of failure, evaluation anxiety, problems in decision making, rebellion against control, fear
of success, perfectionism, low self-esteem and perceived aversiveness of the task (Burka & Yuen, 1982). The relatively sparse research pertaining to procrastination is reflected in Solomon and Rothblum's point that prior to their study in 1984, no one had attempted a systematic study of the reasons for procrastination. Most studies have confined themselves to seeing procrastination as a time management problem or a deficit in study skills (Miller, Weaver, & Semb, 1974; Ziesat, Rosenthal, & White, 1978). Solomon and Rothblum (1984) found, however, that procrastination involves a complicated interaction among behavioral, cognitive and affective components. Blatt and Quinlan (1967) concluded from their research that nothing short of a total personality theory should be applied to the study of procrastinators and non-procrastinators because of the fundamental differences they found between the two groups. This may be an important key to the understanding of procrastination. While it is a practice which cuts across all socio-economic levels and affects all ethnic groups, all ages, all occupations and both genders (Burka & Yuen, 1984), there may be certain individuals who are more prone to procrastination than others because of personality factors. Myers and McCaulley (1985) suggest that procrastination is a result of the way certain personality types process information. There have, however, been no studies published to date which investigate the relationship between procrastination and personality type. This study explored this relationship and sought to answer the question, "Do those who procrastinate on the thesis and those who do not differ significantly in personality type?".
Theoretical Perspective

Carl Jung postulated a theory of personality type (1921) based on his clinical observations and advocated that it be used as a tool for empirical research. In 1962, Myers made this possible by publishing an instrument, the Myers-Briggs Type Indicator (MBTI). It was designed to implement Jung's theory so that the ideas of type could be tested and put to practical use.

Jung hypothesized that human beings relate to the world with one of two fundamentally different modes or "attitudes". Some (those he termed "extraverts") get their psychic energy from the outer world of people and things while others ("introverts") are clearly more comfortable relating to their inner world of ideas. In the extraverted attitude, psychic energy flows outward toward the outer world or object. The introverted attitude is characterized by a psychic flow of energy inward with concentration on subjective factors and inner responses. A second "attitude" he observed was the way in which individuals relate to the outer world. Some function primarily by perceiving the world while others tend to make conclusions about the world. How they do this perceiving or judging will be determined by which "functions" they prefer to utilize. One can perceive either intuitively or with the senses but not both simultaneously. One judges or makes decisions using either logic or values, but either thinking or feeling will inevitably have to be suspended for a conclusion to be made. Intuition and sensation are the two mutually
exclusive "irrational" functions and thinking and feeling comprise the two "rational" functions, according to his model.

The MBTI seeks to measure these preferred ways of dealing with both the world and subjective experiences. The results of the MBTI indicate people's personality type by stating their preferred orientation to life: extraversion (E) or introversion (I), their preferred perceptive function: sensing (S) or intuiting (N), and their preferred judgment function: thinking (T) or feeling (F). In addition, to clarify further the differences that occur in the psychological types developed by Jung, Myers added a fourth preference which distinguishes preferred attitudes or ways of managing the outer world (i.e., work habits): judgment (J) or perception (P). Those who prefer perceiving (either S or N) will score P, whereas those who favor judging (either T or F) when dealing with the external environment will score J.

Type theory assumes that children are born with a predisposition to prefer certain functions and attitudes over others and that they will develop these functions as long as the environment does not impede or hamper this development. While the preferred function is developed, there is a relative neglect of the opposite pole of the same preference. In other words, if one prefers thinking when making conclusions about the world, the feeling function will be neglected. If one utilizes the sensation function when perceiving, the intuitive process will be undeveloped. In this model, environment is crucial because it can foster development of a person's natural preferences and skills or it can discourage and frustrate his or her natural bent by providing activities that are less satisfying and motivating. Jung
maintained that if individuals who were naturally predisposed in one direction were forced by their environment to behave otherwise, neurosis or (in extreme cases) even psychosis could develop in later life.

Jung argued that the less preferred functions would---by definition---be awkward and not always under conscious control of the ego. In youth, the task is to develop the dominant and auxiliary (or second function). In mid-life, he considered it necessary to develop the less preferred and inferior functions in order to individuate. The "way to God" or "wholeness" in later years would be made possible by developing the fourth function which is largely unconscious and exists in the "shadow" as potentiality.

Myers and McCaulley (1985) hypothesize that procrastination may occur in certain individuals because of their particular personality type. Individuals who tend to score extremely high on the P side of the judging/perceiving index may be especially vulnerable to procrastination. They suggest that those who have a deficit in their judgment attitude (i.e., extreme perceptual type) may exhibit problems related to "diffusion, drifting, procrastination and confusion over direction" (p.70). These individuals tend to remain in the perceptual mode (either S or N) when a judgment attitude (T or F) is required for decision-making and action. In other words, their perceptual faculties are under conscious control of their ego while their judgment functions sometimes are not. Their judgment attitude tends to be awkward and these individuals therefore can become stuck in what they do best: perceiving rather than acting. As noted earlier, when individuals are faced with a task which forces them to
utilize their weaker and more awkward attitudes and/or functions, a considerable amount of dysfunction and distress tends to occur.

In addition, intuitive-feeling-perceptive (NFP) types have been found to have a poorly developed sense of time. Intuitives tend to be future oriented while sensation types are more focused on the present (Myers & McCaulley, 1985). If the intuitive is also a perceptive type (NP), s/he will have very little sense of time and will have greater difficulty with time management than those who either have a strong judging attitude (SJ, NJ, TJ, FJ) or those who are more grounded in the present (SP). Individuals who rely primarily on their intuition when dealing with the external world will have flashes of insight, see tremendous possibilities in the future but have little or no grounding in space or time and hence suffer from an inability to manage time. A strong judging function (T or F) or sensation (S) is required if one is to make decisions and manage time effectively. This poorly developed sense of time appears to be made even worse, however, if the intuitive-perceptive individual is also a feeling type. Feeling types, by definition, base their decisions on values as opposed to logic. The intuitive-perceptive type has a greater chance of effective time management if his or her rational function is one which utilizes logic as opposed to values when making decisions. The NFP type, therefore, appears to be a high risk candidate for having problems with procrastination.

Purpose of the Study

It is no secret to academia that a considerable number of
supposedly gifted individuals do not receive degrees due to the failure to complete the thesis requirement. For many that do complete their theses, a significant number perceive themselves to be significantly more depressed, more anxious, more alienated, less optimistic and less friendly during the years spent writing their thesis than during the year after completion (McRae & Skelton, 1979). Given these facts, it is surprising that very few, if any, studies have been conducted to examine the problems related to procrastination on the thesis. The purpose of this study, then, was to begin to examine this unresearched and problematic area with the expressed intent of demystifying this puzzling graduate student behavior. Given the mounting evidence that learning can be facilitated by becoming aware of learning styles as predicted by personality types, this study was an attempt to provide hard data linking procrastination with personality type so that potential procrastinators could be identified early in their training. It would then be possible to implement effective treatment strategies to address their particular deficiencies and prevent the considerable waste in time, money and stress currently experienced in graduate schools.

This study tested Myers and McCaulley's hypothesis that procrastinators tend to be perceptive types while non-procrastinators tend to be judging types. Their contention is that individuals with high perceptive scores tend to procrastinate as a habitual mode of behavior and those with high judgment scores do not. In addition, it tested the notion that NFP types (due to the way they process and act on information) would be more likely to be procrastinators than other personality types. It was beyond the scope of this study to
investigate procrastination as a fixed personality trait. It did, however, test Myers and McCaulley's hypothesis on this task-specific situation.

The secondary purpose of the study was of a more exploratory nature which was to analyze the distribution of types within the two groups (of procrastinators and non-procrastinators) to determine if a significant number of specific types appeared to cluster in either group. This was done to determine if differences other than those predicted by the literature might exist.

Significance of the Study

The significance of the study was threefold. As has been pointed out, procrastination has been primarily viewed as a phenomenon which is randomly distributed throughout the population, affecting all ages, occupations, socio-economic levels and both genders. It has traditionally been treated in a simplistic fashion and only recently has been considered a complicated phenomenon with cognitive, affective and behavioral components. While researchers have called for a more comprehensive study of procrastination, there have been no studies to date which have applied personality theory to the phenomenon. This study does just that.

Secondly, the study tested Myers and McCaulley's currently untested theory that procrastination is indeed a characteristic of a particular personality type. The implications of this finding could hold significance both for individuals (in terms of enhancing self-understanding) and for higher education at large as well. Having
a root problem more clearly defined greatly facilitates the implementation of effective treatment interventions.

Finally, this study has contributed to the practically non-existent body of literature dealing with the act of thesis writing itself, although the thesis is a common requirement for a graduate degree in many disciplines. Prior to this study, no attempt had been made to investigate possible reasons for the fact that a considerable number of students postpone getting their degrees for years (due to procrastination on their thesis) in spite of obvious occupational and economic consequences for themselves and their families.

**Definitions of Key Terms**

**procrastination**: This study used the definition of procrastination provided by Wedeman (1985): The tendency to delay or avoid a task one intends to complete. The particular task involved in this study was the completion of the thesis required for graduate students to receive their degree in Counselling Psychology at the University of British Columbia. Procrastinators were operationally defined as those who delayed the completion of their theses until their fifth year and self-reporting always or nearly always procrastinating on this task. Non-procrastinators were defined operationally as those who completed their theses within two years of completing their coursework and self-reported never or almost never procrastinating on this task. Procrastination was therefore measured by behavioral delay as well as self-report (to screen out other factors which might have contributed to the delay other than procrastination).
The following are brief descriptions of terms related to Jungian typology as measured by the Myers-Briggs Type Indicator (MBTI). Terms such as "extravert", "introvert", "thinker", "feeler", "judger", etc. are defined below. The use of such words to describe people is simply a convention intended to save time and space when referring to people who prefer various attitudes and functions as defined by Jung. At no time is it intended to reduce a person to a mere category or label.

**Attitude:** A term used by Jung to indicate a person's preferred orientation of libido; a person with an introverted attitude (I) orients libido inwardly to the intra-psychic world, while a person with an extraverted attitude (E) orients libido outwardly to the world of objects. In other words, the introvert will give and receive energy to and from their inner world while extraverts receive and give energy primarily to and from the outer world. Myers added an additional attitude, the judging-perceiving attitude, to Jungian theory. This dimension indicates the way in which a person manages the outer world. Those who are found to have a judging attitude (J) will tend to prefer to use their rational function (either thinking or feeling) when relating to the outer world. Those who have a perceiving attitude (P) will tend to utilize their preferred irrational function (either sensation or intuition) when managing the outer world.

**Continuous Score:** A transformation of preference scores on the MBTI as if there was no dichotomy by setting a midpoint at 100 and subtracting the numerical portion of the preference score from 100 for preferences E, S, T, and J, and by adding the numerical portion to 100 for preferences I, N, F, and P. Use of continuous scores allows the
strength of the preference to be taken into consideration.

**dichotomous score:** The basic score used to describe each MBTI preference, made up of a letter indicating direction of the preference. Only the direction, not strength, of the preference is indicated when dichotomous scores are used.

**extravert (E):** A person who habitually turns his or her energy outward from subject to object and is dependent upon the object. Myers uses the term to refer to a person who focuses perception and judgment primarily upon people and things (the outer world). Operationally, it refers to a person who obtains a preference score on the extraversion side of the extraversion/introversion index of the MBTI.

**feeling (F):** One of the four basic functions described by Jung (1921). He defined "feeling" as a "process that takes place primarily between the ego and a given content...imparting...to the content a definite value in the sense of acceptance or rejection" (p.434). Jung distinguished it from emotion. It is the function that evaluates an object, determines whether it is desirable or undesirable and its degree of importance. Myers defines "feeling" as judging primarily in a personal way to determine valued and not valued. Operationally, a "feeler" is a person who obtains a preference score on the feeling side of the thinking/feeling index of the MBTI.

**function:** As defined by Jung, a function is a particular form of psychic activity that remains the same in principle under varying conditions. He maintained there were four (and only four) functions that people utilize: sensation (S), intuition (N), thinking (T) and feeling (F). Thinking and feeling represent two mutually exclusive
ways of judging or making decisions regarding the external world. Sensing and intuiting represent two opposing ways of perceiving or taking in data from the external world.

**introvert (I):** A person who habitually withdraws energy or libido from the object or outer world and into him or herself. Myers uses the term to describe a person whose main interest is in the inner world of ideas. Operationally, it refers to a person who obtains a preference score on the introversion side of the introversion/ extraversion index of the MBTI.

**intuition (N):** One of the four basic functions described by Jung. It is the act of becoming aware of things indirectly by way of the unconscious. It is a way of perceiving by which the unconscious tacks associations or ideas onto outside stimuli. Operationally, an intuitior is a person who obtains a preference score on the intuition side of the sensing/intuition index of the MBTI.

**judger (J):** This term refers to a person who relies primarily on a judging process (either thinking or feeling) when dealing with the outer world. This term is not meant to connote "judgmental". A "judger" in the Jungian sense is someone who prefers relating to the outer world by emphasizing planning and decision making. It is distinguished from those who rely primarily on a perceiving mode where they deal with the outer world through the sensation or intuitive function. Operationally, it refers to a person who obtains a preference score on the judging side of the judging/perceiving index of the MBTI.

**judging preferences (J):** The judging attitude represents the way in which a person will manage the outer world. Those who are found to
have a judging attitude are those who prefer to utilize either their thinking (T) or feeling (F) function when managing the outer world. The judging-perceiving dichotomy as an attitude represents an addition to Jungian theory as developed by Myers.

MBTI: Refers to the Myers-Briggs Type Indicator which was designed as an instrument to measure Jungian psychological type. It was first published in 1962. It is the instrument used in this study to identify type preferences.

Perceiver (P): This term refers to a person who prefers to rely on a primarily perceptive attitude (sensing or intuition) when dealing with the outer world. Operationally, it refers to a person who obtains a preference score on the perceiving side of the judging/perceiving index of the MBTI.

Perceptive preferences (P): The perceiving attitude represents the way in which a person manages the outer world. Those who are found to have a perceiving attitude are those who prefer to utilize their sensation (S) or intuitive (N) function when dealing with the outer world. The perceiving-judging dichotomy as an attitude represents an addition to Jungian theory as developed by Myers.

Preference score: The score for each of the four indices (extraversion/introversion; sensing/intuiting; thinking/feeling; judging/perceiving) which indicates the direction of a preference and its magnitude (e.g., F=14). The preference score is computed by subtracting the lesser raw score from the greater raw score on a given dimension, multiplying the difference by two, and then adding a point if the preference is zero or in the direction of I,N,T,P (for males) or I,N,F,P (for females). A point is subtracted from the total if the
preference is in the direction of E,S,F,J (for males) or E,S,T,J (for females).

**personality type**: For the purposes of this study, personality type shall mean the particular combination of four indexed Myers-Briggs Type Indicator preferences as indicated by a four letter code. There are 16 possible combinations or types in Myers' scheme. Myers elaborated upon Jung's notion of judging and perceiving by creating a fourth dimension, thus increasing Jung's original schema of eight types to 16.

**sensing (S)**: One of the four basic functions described by Jung. It is the process of becoming aware of things directly through any of the five senses with the emphasis on immediate evidence. Sensing is related not only to external stimuli but inner ones as well (as Jung defined it). Myers does not include the inner processes in her definition of sensing. Operationally, a "sensor" is a person who obtains a preference score on the sensing side of the sensing/intuiting index of the MBTI.

**thinking (T)**: One of the four functions described by Jung. It is a logical, impersonal way of judging to determine true or false. Operationally, a "thinker" is a person who obtains a preference score on the thinking side of the thinking/feeling index of the MBTI.

**Overview of the Study**

This study consists of five chapters. Chapter One is the introduction. Chapter Two is a review of the relevant literature. Chapter Three contains a description of the methodology: description
and selection of sample, procedures, instrumentation, research design, hypotheses and data analysis. The results are presented in Chapter Four and a discussion of the results and limitations are found in Chapter Five.
CHAPTER TWO

REVIEW OF THE LITERATURE

The relevant literature regarding the following specific areas of study are reviewed in this chapter:

1. procrastination—academic procrastination and thesis writing
2. Jungian psychological type theory
3. the Myers-Briggs Type Indicator as a measure of Jungian typology
4. Jungian typology as it relates to procrastination
5. Jungian typology and learning theory

Procrastination

Procrastination, the tendency to delay or avoid a task one intends to complete, is a universal phenomenon in human experience. Even Shakespeare found it significant enough to cause Hamlet to lament his unwillingness to do that which he has "cause, and will, and strength, and means to do't" (Hamlet 4.4.45-46). Despite its universality, it has received scant attention from researchers. This is surprising, given the toll it takes in academic settings. Hill, Hill, Chabot, and Barrall (1978) found that procrastination is a substantial problem among college students. Ely and Hampton (1973) and Rosati (1975) reported that between 22 to 33 percent of college students procrastinated on assignments. Rothblum, Solomon, and Murakami (1986) found that more than 40 percent of the students they investigated reported high levels of procrastination. They also found a significant negative correlation between procrastination and grade.
point average indicating that procrastination is related to poor academic performance. Ellis and Knaus (1977) estimate that fully 95 percent of college students engage in procrastination. Academic underachievement, poor grades and course withdrawal have all been found to be results of procrastination (Semb, Glick, & Spencer, 1979). Biggs and Felton (1973) and Shaeffer (1973) linked procrastination, lack of goal setting and poor study habits to 44 percent of students admitted to college who were either terminated or placed on probation for academic reasons.

More than 50 percent of those who begin a graduate program with the intention of earning a degree fail to do so (Creager, 1965; Knox, 1970). It is not known how much of this failure is due to time finally running out on procrastinators, nor is it known to what extent procrastination affects those who do finally succeed in earning their degree. What appears to be clear, however, is the fact that procrastination is widespread in academic settings and its effects are considerable.

Even less research has been done on thesis writing, in spite of anecdotal data which testify to the trauma and stress involved in writing a thesis or dissertation. McRae and Skelton (1979) found that subjects perceived themselves as being significantly more alienated, depressed, anxious and less optimistic and less friendly during the year(s) when they were writing their thesis than they were during the year following its completion. For many individuals (especially procrastinators), this period of time for writing can take up to five years, and sometimes even longer for those who receive extensions beyond the five year limit. This is clearly a significant length of
time to be experiencing alienation, depression, and anxiety. Marriages and friendships are frequently strained. The costs in terms of emotional, financial and physical well being are often considerable. Given these costs, it appears important that research be undertaken to begin to explore the phenomenon of procrastination in thesis writing. The purpose of this study, then, is to address this issue by investigating the personality components of those who procrastinate on their thesis as opposed to those who do not. If significant personality differences can be found on the MBTI between procrastinators and non-procrastinators, those vulnerable to procrastination on the thesis could be identified and strategies to remedy this potential problem could be implemented at the outset of graduate programs. This could potentially reduce or possibly prevent the tremendous cost currently experienced by procrastinators.

As Green (1982) points out, procrastination has received minimal theoretical analysis. Until recently, most studies on procrastination have defined it as being a time management or study skills deficit (Miller, Weaver, & Semb, 1974; Ziesat, Rosenthal, & White, 1978). As a consequence, treatment of procrastination has centered mostly on behavioral techniques (Green, 1982; Richards, 1975). Researchers have found that procrastination can be reduced through negative reinforcement (Miller, Weaver, & Semb, 1974), positive reinforcement (Bristol & Sloane, 1974; Lu, 1976) and through guidelines and imposed deadlines (Keenan, Bono, & Hursh, 1978). Self-control techniques have been found to reduce procrastination (Groveman, Richards, & Caple, 1977; Jackson & Van Zoost, 1972; Kirschenbaum & Perri, 1982; Richards, 1975, 1981; Sieveking, Campbell, Rileigh, & Savitsky, 1971). Green
(1982) found that self-monitoring plus self-reward was most effective in reducing procrastinative behaviors.

The most obvious component to procrastination is behavioral delay. All researchers agree that included in its definition is the tendency to delay or avoid a task. But beyond this starting point, divergent points of view begin to emerge. Solomon and Rothblum (1984) challenge the idea that procrastination can be defined, assessed and treated adequately by focusing solely on the behavioral dimension. They claim that procrastination is a complicated interaction of cognitive, affective and behavioral components. Burka and Yuen (1982) lend support to this position by stating that "procrastination is a complex psychological problem that seldom yields to simple remedies" (p.32).

Wedeman (1985) defines it as the tendency to delay or avoid a task one intends to complete. Her definition introduces the cognitive component involved in procrastination: it is basically irrational. As Sabini and Silver (1982) point out, not everyone who puts things off is a procrastinator: note the adolescent who avoids doing the dishes because s/he knows that Mom will do them if s/he stalls long enough. It is sometimes rational to stall or avoid doing an onerous task if chances are great that the stalling may in fact ensure that the task will not have to be done at all. Procrastination, however, is avoiding a task that must be done. It depends on a person's knowing what to do and then not doing it. It is a manifestation of the human capacity for being divided internally. This internal tension produces an additional element which appears to be ever-present in procrastination: affective discomfort. Rothblum, Solomon, and
Murakami (1986) include the affective component of anxiety in their definition of academic procrastination maintaining that procrastination constitutes more than a reasonable length of time to complete a task; "it must include problematic levels of anxiety as well" (p.387).

Most recent investigations of procrastination report high levels of affective discomfort accompanying the practice of procrastination. Burka and Yuen (1982) maintain that procrastinators, regardless of whether they incur academic consequences, suffer anxiety, lowered self-esteem, a sense of fraudulence and self-deprecation. Solomon and Rothblum (1984) found that procrastination correlated significantly with self-report measures of depression, irrational cognitions, low self-esteem, anxiety and lack of assertion. They conclude that any definition of procrastination should include both behavioral delay and psychological distress. Grecco (1984) found that procrastination correlated positively with neuroticism and depression. Powers (1984) concluded that procrastinators demonstrate lower self-esteem, have less time competence than the norm and report fear, anxiety and depression as a consequence of their delaying behavior.

The causes of procrastination---beyond a deficit in time management or study skills---have only recently been investigated in a systematic way (Rothblum, Beswick, & Mann, 1984; Rothblum, Solomon, & Murakami, 1986; Solomon & Rothblum, 1984). These investigators conclude that "time management is not an independent factor that explains procrastination behavior. Although items constituting time management were highly endorsed, students simultaneously endorsed other cognitive, affective and behavioral reasons for procrastinating"
Solomon & Rothblum, 1984, p. 509). Burka and Yuen (1982) suggest numerous reasons for procrastination: evaluation anxiety, difficulty in decision making, rebellion against control, fear of failure, fear of the consequences of success, perceived aversiveness of the task, and overly perfectionistic standards regarding competency. Powers (1984) found that procrastinators are more internal in their locus of control than the norm. Wedeman (1985) compared procrastination with perfectionism, autonomy, frustration tolerance, fear of success, fear of failure, lack of planfulness, and reality interference in 226 students. She found that frustration tolerance was found to be strongly and negatively related to procrastination. Lack of planfulness and perfectionism were moderately and negatively related to procrastination. Fear of success was moderately and positively related to procrastination among male subjects.

Clearly, procrastination is a complex topic which does appear to include cognitive, affective and behavioral dimensions. Frey and Becker (1958) found personality factors (introversion/extraversion) which correlated with individuals who either failed to appear or continuously postponed appointments for experimental purposes. Blatt and Dunilan (1967) compared procrastinating and punctual students on several time parameters and found that punctual students had greater future time extension in fantasy productions, reported less preoccupation with death and did significantly better on a scale assumed to assess the capacity for anticipation and planning. They conclude that fundamental differences exist between those who live primarily in the present and others who rely on continuity and purpose between past, present and future. They emphasize the need for further
research to develop personality theory in this area.

While several studies have noted personality differences involved in procrastinating behavior, there has been no attempt to study the personality profiles of procrastinators in a comprehensive way. Powers (1984) concludes in his investigation that "the personality of a procrastinator (i.e., locus of control and inner-other directedness) influences how s/he perceives his/her procrastinative behavior. This...implies that further research on the dynamics of procrastination...needs to include the personality characteristics of procrastinators" (p.3343-B).

Jungian Psychological Type Theory

Carl Jung first published his theory of psychological types in 1921. His theory grew out of observations of both colleagues and clients and was first inspired by the conflicts that both he and Alfred Adler had with Freud (Mattoon, 1981). Jung was distressed over his own break with Freud and spent years attempting to analyze the reasons for it. He therefore spent a considerable amount of effort and thought studying the quarrel between Freud and Adler which led to Adler's withdrawal from Freud's circle in 1911.

Adler, like Jung a few years later, had been a valued member of the Vienna psychoanalytic group. When Adler's differences with Freud became irreconcilable, Adler resigned from the group and formed his own society. Their disagreement centered around the etiology of neurosis. Freud believed its origin was sexual conflict and Adler found the origin to be in the will to power and the individual's relationship to society. Since both Adler and Jung had similar
upbringings, were products of the same intellectual environment and had pursued the same interests for a decade, Jung questioned how and why such ideological differences could have emerged between the two. He hypothesized that their differences lay in different ways of perceiving the world. His *Psychological Types* explored history, literature and mythology comparing other pairs of ideological rivals as well: Plato and Aristotle, Apollo and Dionysius, Spitteler and Goethe as well as several church fathers. His argument basically stated that these two rivalries were the consequence of two basic and conflicting perceptual ways of looking at the world or "attitudes" and labelled them "extraversion" and "introversion".

Jung characterized the extraverted attitude as being a flow of psychic energy toward the outer world or the object. Introversion is conversely characterized by a flow of psychic energy inward toward the subject. Both attitudes are present in each individual, but one tends to be dominant and under greater conscious control of the ego while the other is less developed and exists more as potentiality than actuality.

Jung found these two attitudes to be insufficient in characterizing the human personality, however, and hypothesized that two other dichotomies or four "functions" also exist. Sensing and intuition represent two dichotomous ways of perceiving the world while thinking and feeling reflect opposing ways of judging (either logically and impersonally or subjectively and according to values as opposed to logic). He believed these paired functions to be incompatible or mutually exclusive. If a person is deciding whether something is true or false (thinking), then evaluation of its relative
importance (feeling) must be postponed. Likewise, if a person is ascertaining facts (sensation), then intuition (consideration of their possibilities) will produce inaccuracies. While all four functions or ways of being are possible within an individual, Jung hypothesized that people tend to prefer either intuition or sensation and either thinking or feeling. People could then be characterized by types: extraverted or introverted, a thinker or a feeler, a sensor or an intuitor. When combined with one another, these preferences will provide eight different personality types. Jung emphasized that the interaction of these different preferences with one another will provide differing and somewhat predictable personality profiles.

Table 2.1. Jung's Classification of Psychological Types.

<table>
<thead>
<tr>
<th>Extraverted Sensing</th>
<th>Introverted Sensing</th>
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</thead>
<tbody>
<tr>
<td>Extraverted Intuition</td>
<td>Introverted Intuition</td>
</tr>
<tr>
<td>Extraverted Thinking</td>
<td>Introverted Thinking</td>
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<tr>
<td>Extraverted Feeling</td>
<td>Introverted Feeling</td>
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</table>

According to Jung, individuals will prefer certain functions over others, just as they have a preference for either introversion or extraversion. He theorized that one function would be dominant and a second, or auxiliary, would have a co-determining influence. He saw the secondary function as supplementing the first. That is, if the dominant function was perceptive (either sensing or intuiting), then the auxiliary would be one of judgment (either thinking or feeling). While many people have a fairly well-developed auxiliary function,
relatively few have conscious use of a third function. The fourth and least developed, or the "inferior" function remains unconscious and part of the "shadow". Jung theorized that the inferior function would be the opposite of the dominant function. In other words, if thinking is a person's superior function, then feeling would be the inferior or fourth function.

There has been a substantial amount of empirical research done to test Jung's theory of psychological type. A summary of these efforts follows.

Gray and Wheelwright (1944) began investigating type theory by finding evidence of the pairing of spouses of opposite types in marriage. In 1945 they published an article studying the irrational (sensing and intuition) and rational (thinking and feeling) functions. By 1946 they had developed a 75-item self-report instrument designed to identify psychological type. Their scales measured extraversion/introversion, sensation/intuition, and thinking/feeling. In 1946, in a study of 200 individuals, they found that 54 percent were introverted and 46 percent were extroverted.

Eysenck (1953) found what he considered to be a confirmation of Jung's attitude of extraversion/introversion as one of the three dimensions of personality (along with neuroticism and psychoticism). In a later study (cited in Mattoon, 1981), Eysenck found (using factor analysis) that extraverts are high on sociability and impulsiveness, while introverts score low on these factors. Carrigan (1960) was less convinced, however, that extraversion/introversion is a basic dimension of personality stating that while evidence was accumulating, the "unidimensionality of extraversion/introversion has not been
conclusively demonstrated" (p. 355).

Myers provided some of the first empirical evidence for Jung's typology by constructing the Myers-Briggs Type Indicator. In an initial study (1962b), she used the MBTI to study 8,561 subjects and found 55 percent were extraverted and 45 percent were introverted. These findings were very similar to Gray and Wheelwright's findings over 15 years earlier and lent further credibility to Jung's theories. Since that initial study, the MBTI has become the most positive endorsement of Jung's type theory to date and has been extensively used to measure personality type.

Bradway (1964) asked 28 Jungian analysts to categories themselves according to Jung's typology and then administered both the Gray-Wheelwright Questionnaire and the MBTI. This validated the extraversion/introversion dimension on both instruments. Significant correlations were obtained for the sensation/intuition dimension on both instruments and significant correlations on the thinking/feeling dimension were obtained from the Gray-Wheelwright Questionnaire.

Strieker and Ross (1964) used the MBTI to test Jung's hypotheses that: 1. the attitudes and functions are stable over time and not easily changed (they found moderate stability); 2. the attitudes and functions are qualitatively dichotomous (scores were not bimodal); 3. the functions and attitudes were interacting (the scales did not interact). They therefore concluded that their results offered little support for the structural properties attributed to the typology by Jung.

Gorlow, Simonson, and Krauss (1966) used a Q sort factor analysis in an attempt to verify Jung's typology. They accounted for 46.03
percent of the total variance by identifying six factors which corresponded to Jungian types: 1. extraverted-feeling, 2. introverted thinking, type A, 3. extraverted-thinking, 4. introverted-thinking, type B, 5. extraverted-sensing, 6. extraverted-intuition. These findings lend support to Jungian theory.

Ball (1967) did a factor analysis of extraversion/introversion and thinking/feeling. He found six factors which accounted for 42 percent of the total variance—all of which were defined in terms of E/I, T/F or both. He concluded that the dimensions postulated by Jung were useful in explaining divergent human behaviors by organizing them conceptually. Cook (1970) found support for the extraversion/introversion factor but little verification of the four functions. Hill (cited in Mattoon, 1981) investigated whether Jung's eight types would be evident within a sample of variables from instruments considered to be theoretically consistent with Jungian typology. Hill concluded that six of the eight factors could be interpreted within the Jungian system: intuition vs. thinking, introversion, perceiving introvert vs. perceiving extravert, sensing extravert, feeling extravert, and thinking. These results offered further limited support for Jung's theory.

Steele and Kelly (cited in Mattoon, 1981, p.57) found a high correlation between the MBTI and the Eysenck Personality Questionnaire. Palmiere (1972) found predictable differences in attitude and behavior between extraverts and introverts using the MBTI and the TAT (Thematic Apperception Test). She found that introverts produce a larger quantity of fantasy than do extraverts. Higher "fantasy scores" (both more words and more ideas) were produced by
introverted subjects.

Jung theorized that attitude type may have a biological foundation. Two studies have indicated that brain function differs between introverts and extraverts. Mattoon (1981, p.59) cites an Australian study in which Savage measured brain waves using an EEG and found the alpha amplitude of extraverts to be significantly higher than that of introverts. Gale, Coles and Blaydon replicated these results in 1969 (cited in Mattoon, 1981). McLeod and Bleweitt (cited in Mattoon, 1981) under Eysenck’s supervision, found that identical twins were significantly more alike in extraversion/introversion \( r=0.499 \) than fraternal twins \( r=-0.331 \). (These researchers could not find an explanation for the negative correlation between fraternal twins except possible measurement error. Mattoon (1981) suggests that fraternal twins may tend to develop different skills in order to differentiate themselves from one another.)

Carlson and Levy (1973) examined several specific behaviors with Jungian type theory. They found that introverted thinking types were significantly \( p<0.002 \) more able to memorize interiorized, neutral material while extraverts were significantly \( p<0.002 \) more accurate in recognizing facial expression and fictitious proper names. They also found that intuitive perceptive types were more accurate in interpreting emotional expression than were sensing judging types. In a final study, they also found that extraverted intuitives were overrepresented among volunteers for social service. These findings clearly support Jung's theory of psychological types and suggest ways in which his theory can be utilized to deepen the understanding of complicated personality characteristics. Devito (1985), in his review
article, pointed out the need for further research which addresses behavioral validation of typological constructs. In one such study, Carskadon (1979) found that those who scored as extraverts on the MBTI were found to exhibit a variety of behaviors indicative of extraversion (less physical distance, more talkativeness, better recall of other people's names).

While the above mentioned research does not conclusively support Jung's theories, there is certainly enough supportive evidence to lend respectable credibility to his constructs, given both Jung's imprecision in defining his concepts and the difficulty inherent in measuring any theoretical construct. His typology can undoubtedly be used for the purpose for which he formulated it:

It is not the purpose of a psychological typology to classify human beings into categories...Its purpose is rather to...make a methodical investigation and presentation of the empirical material possible...It is a critical tool for the research worker, who needs definite points of view and guidelines if he is to reduce the chaotic profusion of individual experiences to any kind of order. (1921, p.555)

The Myers-Briggs Type Indicator (MBTI)

The Myers-Briggs Type Indicator (MBTI) was the instrument used in this study. The MBTI was developed out of Jung's type theory as interpreted primarily by Isabel Briggs-Myers (Myers & Myers, 1980). It was the result of 20 years of collaboration between Isabel Briggs-Myers and her mother, Katharine C. Briggs. It was introduced in 1962 (Myers, 1962a) and was designed to implement Jung's theory of personality type by sorting people into groups or personality types.
(Devito, 1985). It is currently the most widely used instrument measuring Jungian typology. The Center for Applications of Psychological Type (CAPT) currently lists nearly 1200 studies which have been published using the MBTI for research purposes.

Myers operationalized and scaled the original Jungian (Jung, 1923) attitudes of extraversion (E) and introversion (I), as well as the four psychological functions: sensing (S), intuition (N), thinking (T) and feeling (F). In addition, Myers added a fourth dimension or "attitude" which is designed to indicate whether a person prefers the perceptual (P) mode (sensing or intuiting) or the judging (J) modality (thinking or feeling) when dealing with the external environment. The instrument therefore consists of four separate dichotomies (EI,SN,TF,JP). Given the four dichotomies, 16 different four-letter types are possible. See Table 2.2.

Table 2.2 Myers' Classification of 16 Psychological Types.

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<tbody>
<tr>
<td>ISTJ</td>
<td>ISFJ</td>
<td>INFJ</td>
<td>INTJ</td>
</tr>
<tr>
<td>ISTP</td>
<td>ISFP</td>
<td>INFP</td>
<td>INTP</td>
</tr>
<tr>
<td>ESTP</td>
<td>ESFP</td>
<td>ENFP</td>
<td>ENTP</td>
</tr>
<tr>
<td>ESTJ</td>
<td>ESFJ</td>
<td>ENFJ</td>
<td>ENTP</td>
</tr>
</tbody>
</table>

The addition of the JP dimension by Myers expands Jung's original eight types to 16 and represents an elaboration of Jung's theory. The JP index is designed to provide a guide to the dominant function of an individual. According to type theory as interpreted by Myers, extraverts reveal their dominant function when dealing with the external environment, while introverts reserve their dominant function
for dealing with the internal or intra-psychic world (Myers, 1962b). The JP scale gives the dominant function of an extravert and the auxiliary of an introvert. Since the extravert’s dominant function prefers the outer world, it will show up on the JP preference. The dominant function does not show up on the JP preference for introverts, however. Introverts prefer not to use their dominant process in dealing with the outer world. The dominant function is therefore determined by simultaneously considering the JP and EI preferences. The part of Jung’s theory referring to dominant and auxiliary functions is not well developed in Jung’s writings, however, (see McCaulley, 1981, pp. 301-302) and is the most controversial part of Myers’ interpretation of Jung. DeVito (1985) states in his review that there is currently no research which adequately tests the assertions regarding dominant and auxiliary functions.

Information gathered from the MBTI data bank (MBTI results scored by CAPT, the Center for the Applications of Type) indicates that frequency distributions among the 16 types vary depending upon the population under investigation. If the 16 types were normally distributed in a given population, one would expect one sixteenth or 6.25 percent of the population to fall in each of the 16 types. Such even distributions are rare (Myers & McCaulley, 1985). Trends have been found to exist within specific populations. von Fange (1961) administered the MBTI to Canadian school administrators and found that decision-making judging types (J) outnumbered perceptive types (P) by 86 percent to 13 percent. Cacioppe (cited in Myers & McCaulley, 1985) gave the MBTI to graduate students in business and found 89 percent preferring thinking over feeling and 69 percent preferring judging
over perceiving. Simon (1979) investigated professional fine artists and found that 91 percent preferred intuition over sensing and 70 percent scored as feelers as opposed to thinkers.

Myers and McCaulley (1985) maintain that while introverted intuitive types are rare (75 percent of the population in the U.S. prefers both extraversion and sensing), their numbers are more frequent at higher educational levels. A greater preponderance of intuitives have also been found among counsellors. In a sample of 359 counsellors, 67 percent were intuitives (33 percent sensing) and 76 percent were feeling types as opposed to thinking types. This would suggest that in the present study (which is confined to Counselling Psychology graduate students), a higher preponderance of NF types will be found than would be expected by chance.

A further description of the instrument, its scoring, as well as a review of the literature dealing with its validity and reliability is found in Chapter Three.

Jungian Personality Type and Learning Theory

Investigating procrastination in task-specific situations has not been directly undertaken by researchers. There is, however, a growing body of literature which is relevant because it correlates personality type to preferred learning styles. Application of the MBTI to learning theory is a relatively new field of study. Eggins (1979) studied the effects of three different educational models on 350 students and correlated their successes with their personality types. He found that while S-N types succeeded with all three models, S-P and
N-P types were significantly affected by the instructional design. N-P types remembered significantly more with the model that imposed the least structure and allowed individuals to discover relationships for themselves. They remembered significantly less when taught with a highly structured method. The S-P types were most successful with the highly structured model which provided concrete examples and took advantage of their observational skills. She concluded that the scales of the MBTI did significantly interact with learning outcomes.

Correlations have been found between personality type and preferred learning styles using the MBTI. Extraverted-feeling types have been found to prefer group learning situations (McCaulley & Natter, 1974). Intuitive types prefer self-paced learning and courses that allow them to study on their own initiative (Carlson & Levy, 1973; McCaulley & Natter, 1974). Thinking types prefer structured courses with clear goals (Smith, Irey, & McCaulley, 1973). These same studies found judging types preferring to learn from material presented in an orderly way while perceptive types are more likely to report starting too late on assignments, letting their work pile up and having to cram at the end. Sensing types tend to set modest academic goals for themselves (Grant, 1965; McCaulley & Natter, 1974; and Sachs, 1978) and they try to meet these goals by planning their time and working in a systematic way (McCaulley & Natter, 1974).

Introverts did not find learning situations using groups or experimental learning helpful and were observed by their peers as not participating (Haber, 1980; Kilmann & Taylor, 1974). Sensing types prefer mathematics laboratories while intuitives prefer interpersonal laboratories (Golliday, 1975). McCaulley and Natter (1974) found that
feeling types are more likely to report interference with their studies because of their social life and they prefer group projects to individual assignments. Judging types were found to work more efficiently according to their schedules and get their assignments in on time (McCaulley & Natter, 1974).

In drawing conclusions from this growing body of literature, Myers and McCaulley (1985) summarize by stating that the most significant differences in learning style appear to be between sensation and intuitive types. Intuitive types prefer learning situations where they work with people and where flexibility and perception of nuances in behavior are required. (ISTJ types clearly dislike human relations training). Sensing types, on the other hand, appear to like and do better in educational situations that teach content (math and science especially) in an organized, highly structured and rigorous way.

Perry (1975, cited in Myers & McCaulley, 1985) found significant differences in type between members of the American Psychological Association who had chosen clinical as opposed to experimental careers. Clinical psychologists (defined in Perry's study as practitioners) differed significantly in personality type from those involved in experimental psychology. ISTP and INTP types made up almost 37% of the experimental psychologist sample. These same types comprised 0% of the clinical population. While 24% of the clinical psychologists were INFJ's, this type only comprised 3% of the experimental group. See Table 2.3.
Table 2.3 Frequency Distributions of Types among Clinical and Experimental Psychologists

<table>
<thead>
<tr>
<th>Clinical Psychologists</th>
<th>Experimental Psychologists</th>
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<tbody>
<tr>
<td>E</td>
<td>56%</td>
</tr>
<tr>
<td>I</td>
<td>44%</td>
</tr>
<tr>
<td>S</td>
<td>4%</td>
</tr>
<tr>
<td>N</td>
<td>96%</td>
</tr>
<tr>
<td>T</td>
<td>24%</td>
</tr>
<tr>
<td>F</td>
<td>76%</td>
</tr>
<tr>
<td>J</td>
<td>56%</td>
</tr>
<tr>
<td>P</td>
<td>44%</td>
</tr>
</tbody>
</table>

This study identifies personality type differences between those who choose to practice psychology as opposed to those who choose to research it. Especially significant are the differences on the SN and TF dimensions. Nearly all of the clinicians scored N while a significantly larger proportion of experimental psychologists scored S. A greater proportion of thinking types were found in the experimental group while there were more feelers in the clinical group.

Clearly, it appears that certain types of individuals will prefer self-directed learning (I) while others require frequent interaction with others (E) in order to learn successfully. Mathematical and scientifically oriented projects will appeal to S and T types while N
and F types are more comfortable in dealing with the less exact sciences and more specifically, the arts. Judging types appear to be better at organizing themselves while perceptive types tend to be more likely to be less efficient and more spontaneous and open to new possibilities. Obviously, these data demonstrate the complexity of type differences in learning as well as suggest possible trends and patterns worthy of future research.

Jungian Typology and Procrastination

There have been few, if any, studies to date which investigate the relationship between procrastination and personality type, much less any research specifically comparing those who procrastinate on their thesis with those who do not to determine if they differ on personality dimensions. Furthermore, as was pointed out earlier, there have been no studies to date which simply investigate the factors involved in the phenomenon of procrastination on the thesis (regardless of personality issues). Jungian theory, however, suggests that a relationship between procrastination (both as a habitual mode of behavior and also in task-specific situations) and personality may exist. What follows is a summary of the literature pertaining to this argument.

Regarding procrastination as a habitual mode of behavior, Myers and McCaulley (1985) theorize that "procrastination comes from perception with a deficit of judgment" (p.14).....and believe that "Extremes in the perceptual type may show problems related to diffusion, drifting, procrastination and confusion over direction" (p.
Given Jungian theory as interpreted by Myers and McCaulley, it is appropriate in any activity first to utilize either S or N to observe a situation and then use a judgment function (T or F) to decide on the appropriate action. Myers and McCaulley (1985) maintain that those who score P on the MBTI tend to remain longer in the observing or perceiving mode, while judging types typically move more rapidly through perception to a conclusion. In an interpretation of Myers and McCaulley's theory, Keirsey and Bates maintain that people "who choose closure over open options are likely to be judging types" (1984, p.22). The judging type tends to report a sense of urgency until a pending decision has been made while a perceiving type will be more likely to experience resistance to making a decision, expressing the need for more data. They conclude that perceivers are process oriented while judgers are more outcome oriented.

Smith, Irey, and McCaulley (1973), in fact, found in their study that perceptive types were more likely to report starting too late on assignments, letting their work pile up and having to cram at the end. They also found that judging types tended to work more efficiently according to their schedules and get their assignments in on time. These findings lend support to Myers and McCaulley's hypothesis.

In addition, Myers and McCaulley (1985) also theorize that NFP types will be especially vulnerable to procrastination due to the way they process information. These particular types appear especially prone to procrastination due to their poor orientation toward time. They tend to lack the grounding in reality that either sensation or thinking would provide and their intuitive-feeling functions, coupled with a high perceptive score create a deficit in processing time.
appropriately.

Summary

The above literature suggests that certain predictions can be made regarding procrastination, thesis writing and Jungian personality type. First, it appears reasonable to predict that those with strong P (perceiving) scores will be those individuals who tend to procrastinate on their thesis until the deadline becomes a factor while those scoring J (judging) will not. Secondly, the procrastinating group may be composed of a significantly higher number of NFP types than would be expected by chance.

This study tested the above hypotheses since very little actual research has been conducted in this area. Its findings are a contribution to the understanding of procrastination as well as Jungian theory as interpreted by Myers and her colleagues.
CHAPTER THREE

METHODOLOGY

This study examined the relationship between the tendency to procrastinate on writing a Master's thesis and Jungian personality type. This chapter includes a discussion of the sample population, procedures used in collecting data, instrumentation, the research design, the hypotheses, and the statistical tools used for data analysis.

Description and Selection of the Sample

Fifty subjects currently or formerly enrolled in the Department of Counselling Psychology Masters Program at the University of British Columbia participated in this study. Thirty-four of the subjects were women and 16 were men. The number of subjects eligible for participation in this study was inevitably small, given the difficulty inherent in locating subjects who successfully met the eligibility criteria.

Names of all students enrolled in the program from 1978 to 1982 were provided by the Counselling Psychology Department. [Data were not computerized prior to 1978 and were unavailable. Students enrolled after 1982 were by definition ineligible because their thesis deadline (1988) extended beyond the scope of this study (1987)]. Two lists were generated from these names. One list consisted of 59 individuals who completed their theses within two years of completing
their coursework (potential non-procrastinators). A second list was composed of 71 individuals who had taken five years (or longer) to complete their theses (potential procrastinators). Justification for these two particular groups is provided in the following section regarding instrumentation.

Initially, ninety subjects (45 from each group) were randomly solicited by mail from these lists. Appendix A contains the solicitation letter. This letter was followed up by a phone call two weeks later. Of the 90 individuals initially solicited, 27 had moved and could not be located, nine respondents were disqualified because they did not fit the necessary criteria for either the procrastinating or non-procrastinating group, and four either failed to follow-through or directly chose not to participate in the study. As a subject was disqualified because of one of the three reasons listed above, s/he was replaced through a random selection from the remaining names on the appropriate list. This procedure was continued until each group had 25 subjects. At that point, seven of the initial 59 individuals were left in the non-procrastinating pool and 16 of the 71 individuals remained in the procrastinating pool.

Procedures Used in Collecting Data

Those participating in the study were individually administered the following materials (all of which were cleared through the U.B.C. Ethics Committee) by the researcher:

1. An instruction sheet (Appendix B), indicating the manner in which to proceed. Subjects were instructed to first sign the consent
forms (Appendix C), fill out the demographic questionnaire (Appendix D) and then complete the MBTI per its instructions.

2. A demographic questionnaire
3. A MBTI booklet
4. A MBTI computer answer sheet
5. The researcher scored the MBTI immediately and shared the results with them as well as provided them with an MBTI report form.

All answer sheets and consent forms were numerically coded to protect the subjects' identity during data analysis.

Instrumentation

Two instruments were required for this study: one to measure personality type and one to measure procrastination. The Myers-Briggs Type Indicator was the measure used to determine personality type. A review of its scoring, validity and reliability follows the discussion of procrastination.

While the MBTI has been widely accepted for use as a measure of Jungian personality type, measurement of procrastination on the thesis is considerably less straightforward as there are currently few—-if any—-instruments in existence which adequately measure this particular behavior. As was mentioned earlier, very little systematic research on procrastination has been conducted to date and valid, reliable measures of it are (as yet) unavailable.

As was pointed out in Chapter Two, researchers have tended to use behavioral delay to measure academic procrastination. Ziesat,
Rosenthal, and White (1978) used number of minutes studying to operationally define procrastination. Miller, Weaver, and Semb (1974) measured procrastination by counting the number of lessons completed in self-paced instruction courses. Blatt and Quinlan (1967) differentiated punctual and procrastinating students by assessing when within a semester they met a particular course requirement. There are obviously problems with these operational definitions as delay could be explained by factors other than procrastination.

More recent research has included self-report as well as behavioral delay in defining procrastination. Solomon and Rothblum (1984) argue that self-report is a crucial factor to be included in the measurement of procrastination because it is not simply a behavioral problem. Those who procrastinate tend to report high levels of subjective distress as well as delayed action (Solomon, Murakami, Greenberger, & Rothblum, 1983; Rothblum, Beswick, & Mann, 1984; Solomon & Rothblum, 1984; Rothblum, Solomon, & Murakami, 1986).

Solomon and Rothblum (1984) included both behavioral measures as well as self-reports to distinguish between procrastinating and non-procrastinating students. They developed a self-report instrument, the Procrastinative Assessment Scale-Students (PASS), which asks subjects to indicate on a 5-point scale the degree to which they procrastinate on specific tasks (1=never procrastinate; 5=always procrastinate) and the degree to which procrastination on the task was a problem for them (1=not a problem; 5=always a problem). They found significant positive correlations between self-reported measures of procrastination and behavioral delay. Thus, subjects who reported frequently procrastinating on these tasks tended to delay taking their
quizzes as well. Other studies have also tended to confirm the
validity of self-reported procrastination. Self-reported
procrastination has been validated against delay in submitting course
assignments (Rothblum, Beswick, & Mann, 1984) and delay in
participation in psychology experiments (Solomon & Rothblum, 1934) as
well.

For the purposes of this study, academic procrastination was
measured using both behavioral delay and self-report. Subjects who
completed their theses within two years of completing their coursework
and simultaneously self-reported procrastination as never or almost
never having been a problem for them were considered
non-procrastinators. Procrastinators, on the other hand, were defined
as those who took the full five years (or longer) to complete their
final papers while simultaneously reporting procrastination as having
always or nearly always been a problem for them. This self-report
measure was utilized to screen out other factors which might have
explained the behavioral delay such as serious illness, more thorough
investigative procedures, etc. This salient information (i.e., time
taken to complete the thesis and the self-reported procrastination)
was derived from the demographic questionnaire (Appendix D).

The rationale for the selection of the MBTI for measuring
personality type was developed in Chapter Two. What follows is a
discussion of its scoring, validity and reliability.

Items and Scoring

The MBTI is intended for normal populations and is not intended
to be a measure of psychopathology like some personality instruments. It measures personality dimensions non-judgmentally (both polarities may be viewed as strengths). To identify types, the MBTI uses forced choice questions to identify the four bi-polar preferences: extraversion-introversion (EI), sensing-intuiting (SN), thinking-feeling (TF) and judgment-perception (JP). The scoring then generates raw score or point totals for E, I, S, N, T, F, J, and P and preference scores which are made up of a letter to indicate the direction of the preference and a number indicating the strength of the preference after a tie-breaking formula is applied. Two people both identified as ENTJ may have very different preference scores. For example, one individual might have preference scores of E41, N20, T07 and J19 while another could have E17, N40, T11 and J05. Myers and Briggs designed the instrument to indicate the four letters of preference (i.e., ENTJ), and consider data on the strength of the preference as an incidental by-product (Wentworth, 1980). Used in this fashion, the data will produce dichotomous scores. This is consistent with the theory underlying the MBTI which asserts that the preference represents fundamental differences between extraverts and introverts, for instance. Each of the scales, EI, SN, TF, and JP is therefore considered to reflect an underlying dichotomy.

Myers also created a mechanism for obtaining continuous scores if strength of preference is considered necessary or desirable for research. Putting the midpoint at 100, the preference score value is subtracted from 100 if the score is E, S, T or J and added to the value if the score is I, N, F or P. Continuous scores are based on the premise that extraversion-introversion, for example, is a
continuous, normally distributed psychological dimension. This opposes type theory which sees them as dichotomies. There is no agreement at present as to the most appropriate scores---continuous or dichotomous---to use. Devito (1985) suggests using continuous scores in research (to prevent the need for frequency data, large samples and non-parametric statistical tests because parametric statistics is possible using the four continuous scores) and the dichotomies and four-letter types in counselling. For the purposes of this study, data were analyzed both ways.

The reaction to the MBTI regarding its validity and reliability has been mixed, but generally favorable. Devito (1985) in his review suggests that the instrument merits serious consideration by psychologists because it satisfies many of the criteria of a psychological test. In addition, he considers it useful for education, counselling, career guidance and research. The most recent manual of the MBTI was published in 1985 (Myers & McCaulley). It cites extensive research on the construction, the validation, reliability and theoretical underpinnings of the instrument. The MBTI is considered the most positive endorsement of Jung's attitudes and functions to date (Gosse, 1978). Carlyn (1977) reviewed the extensive literature on the statistical analysis of the MBTI and cites numerous corroborations of the validity and reliability of the MBTI as it relates to Jungian typology.

Predictive Validity

Carlyn (1977) found that the MBTI has been shown to have some
predictive validity in certain areas: choice of major, GPA, drop-out potential and specific curriculum choices. Bradway (1964) asked 28 Jungian analysts to classify themselves on EI, SN, and TF. There was 100% agreement on EI, 68% on SN and 61% on TF between self-classification and MBTI scores. Myers and Davis (1977) studied 5355 medical students and followed them up 12 years later. They found their choice of specialty to be consistent with expectations from type theory. The current MBTI Manual (1985) presents further data which indicate that self-ratings of type and the type indicated by the instrument have closer correspondance than would be expected by chance. It also presents many findings relating SN and TF to diverse vocational choices.

Conary (1966) found a significant relationship between MBTI types and academic achievement. He also concluded that specific MBTI types were found to predominate in certain curricula. Stricker, Schiffman, and Ross (1965) assessed the ability of the MBTI to predict freshman year GPA and drop-out potential. Using the contingency table procedure, they found that dichotomous type categories had a greater predictive validity than did continuous scores, although both were valid.

Devito (1985) concludes in his review that the research relating type and academic and vocational choices is interesting, useful in counselling, but lends only a slight evidence of validity to the instrument. Acknowledging that the MBTI is not intended to be an instrument to predict career choice, he suggests using it as an adjunct to a more valid instrument (the Strong Campbell Interest Inventory) if attempting to predict vocational choice or interest.
Construct Validity

There has been extensive research in the area of construct validity. In the MBTI Manual (Myers & McCaulley, 1985), the results of many studies are cited which found correlations between MBTI scales and other tests. The variables regarding personality in the MBTI have been correlated with personality measures (Adjective Check list, N=152; California Psychological Inventory, N=1218, 713; Comrey Personality Scales, N=139, 102; Edwards Personality Preference Survey, N=236; Emotions Profile Index, N=60; Eysenck Personality Questionnaires, N=93; Maudsley Personality Inventory, N=52; FIRO-B, N=100, 200, 100, 1228); Jungian Type Survey, N=47; Minnesota Multiphasic Personality Inventory, N=225; Omnibus Personality Inventory, N=484, 648; Personality Research Inventory, N=507, 722; Stein Self-Description Questionnaire, N=34, 41; Brown Self-Report Inventory, N=149; Sixteen Personality Factor Questionnaire, N=66, 122, 149, 484, 645; State-Trait Anxiety Inventory, N=60; Study of Values, N=1351, 236, 238, 65, 877; Rokeach Dogmatism Scale, N=68), and interest inventories (Opinion, Attitude, and Interest Scales, N=484, 658, 46; Kuder Occupational Interest Survey, N=100; Strong-Campbell Interest Inventory, N=912, 848, 157; Holland's Vocational Preference Inventory, N=405). The manual also cites studies which correlate the MBTI with 10 other instruments related to education (Terman's Concept Mastery Test, Kolb Learning Style Inventory, Rotter's Internal-External Locus of Control, for example).

Randomly choosing three of the above-mentioned studies, one finds
the following correlation coefficients. In a study correlating the Personality Research Inventory (N=507), significant correlations were found between talkativeness and extraversion (.70), tolerance for complexity and intuition (.34) and perception (.47). Gregariousness correlated with extraversion (.22) and sensation (.31). Attitude toward work correlated with thinking (.22) and with judgment (.36).

In all, significant correlations (above .20 at the .01 level of significance or greater) were found on 16 out of the 25 P.R.I. scales. Correlations between the Jungian Type Survey (N=47), an instrument designed to measure the same Jungian functions as the MBTI (except for JP), are moderately high and statistically significant (E .68, p<.01; I .66, p<.01; S .54, p<.01; N .47, p<.01; T .33, p<.01; and F .23, p<.05). Five studies (with N's ranging from 65 to 1351) correlated the MBTI with the Allport-Vernon-Lindzey Study of Values. Significant correlations were found on all six scales. F correlated with the religious scale (.38) and the social scale (.38). E and S correlated with the political scale (.26 & .29). I, N and P correlated with the aesthetic scale (.25, .50, .45). E, S and T correlated with the economic scale (.22, .58, .39). N and T correlated with the theoretical scale (.28 and .42 respectively). While the above correlations are moderate at best, they are all in the direction one would expect in relationship to the MBTI. Given the definition of the constructs, one would expect E and S to correlate with Allport's political scale, for instance, since they all manifest an interest in people and working with facts. These correlations therefore provide some evidence supporting the construct validity of the MBTI.

Mendelsohn (1965) supported the validity of the MBTI and stated
it was capable of being able to relate meaningfully to a large number of variables: personality, interest, ability, values, academic choices, behavior ratings and performance measures. Grant (1965) found that summary descriptions compiled from 1413 freshmen regarding their behaviors and attitudes were similar to the descriptions of type found in the 1962 MBTI Manual. Carlyn (1977), in his review article, discusses numerous studies which support the validity of each preference when considered separately. Ross (1966) correlated the MBTI with a battery of 32 test instruments (10 scales from a personality inventory, 15 ability tests and seven interest tests). He concluded that the MBTI scales were linked with the variables of personality, ability and interest. He also maintained, however, that the scales reflect surface characteristics rather than typological differences. Myers and Briggs, however, have not claimed that item content reflects the constructs themselves. Their intent, rather, was to develop questions which would "be the straws that test the wind, not a measure of the wind itself" (Wentworth, 1980, p. 67).

Webb (1964) found relative independence between dichotomous type dimensions used by Myers. Strieker and Ross (1964) contend that the content of items used for SN and TF scales appear to be consistent with Jung's conceptual definitions, but EI and JP may measure something other than the definitions suggested by Myers. Carskadon (1979) found a significant correlation between those measuring E on the MBTI and several behavioral indicators of extraversion. Devito (1985) enthusiastically echoes Carlson and Levy (1973) who recommend further behavioral studies to validate typological constructs. In conclusion, MBTI scores do appear to correlate in the expected
directions with other instruments that appear to be tapping the same constructs.

Reliability

Split-half reliabilities reported for the MBTI yield respectable results for a personality instrument. In college student samples, Myers (1962b) reported split-half reliabilities ranging from .71 to .88 for EI, .80 to .90 for SN, .68 to .86 for TF and .80 to .87 for JP. Interestingly, she found lower reliabilities for under-achieving junior high school students: .60 to .80 for EI, .59 to .75 for SN, .19 to .57 for TF and .62 to .81 for JP. She explains this discrepancy by noting that reliability scores are a function of how clear the subjects are regarding their preferences. Clarity in decision-making (between T and F) can be the latest to develop and is more likely to be confused in people operating below their potential. Strieker and Ross (1963) reported Alpha reliabilities of college and high school samples. These ranged from .76 to .83 for EI, .74 to .80 for SN, .64 to .74 for TF and .78 to .84 for JP. They contended that these reliabilities were comparable to those of better known instruments with longer scales.

Mendelsohn (1970) stated that test-retest reliability evidence for the MBTI is weak. Myers (1962b) agreed, and maintained that longitudinal studies in particular were needed. Since that time, Carskadon (1977), Carlyn (1977), Levy, Murphy, and Carlson (1972) have all published test-retest studies. McCaulley (1978) summarized six different samples whose test-retest reliabilities ranged from .75 to
.83 for EI, .69 to .83 for SN, .56 to .78 for TF and .64 to .87 for JP. The percent reporting the same letter preferences in four of these ranged from 74 to 84 percent for EI, 70 to 88 percent for SN, 73 to 90 percent for TF and 66 to 76 percent for JP. People reporting all four letters the same was 31 to 47 percent and three or all four the same was from 60 to 88 percent. Howes and Carskadon (1979) found that when changes in type occurred, it was usually only in one preference and that preference had been weak on the original scores. Test-retest reliability of males on TF appears to be the least stable (Devito, 1985).

In summary, the general consensus is that the MBTI performs about as well as most other personality instruments. It appears to identify adequately the strength of personality dimensions that correspond to Jung's typology.

Research Design, Hypotheses and Data Analysis

Two groups of individuals—those who procrastinated while writing their theses (25 subjects) and those who did not procrastinate (25 subjects)—were compared in this study to determine if they differed significantly in personality type. These subjects were administered the MBTI and their personality type was determined using both dichotomous and continuous scores.

As was discussed in Chapters One and Two, one might expect differences between procrastinators and non-procrastinators on the Judging/Perceiving dimension of the MBTI. The literature did not suggest that one would expect differences between these two groups on
the other three dimensions. As a consequence, the following hypotheses were tested:

1. There will be no difference between the procrastinators and non-procrastinators on the Extraversion/Introversion continuum of the MBTI.

2. There will be no difference between the procrastinators and non-procrastinators on the Sensation/Intuition continuum of the MBTI.

3. There will be no difference between the procrastinators and non-procrastinators on the Thinking/Feeling continuum of the MBTI.

4. The procrastinators will tend to score closer to the Perception end of the continuum of the MBTI than the non-procrastinators who will tend to score closer to the Judging end of the continuum.

These four hypotheses were tested using a t-test and the continuous scores of the MBTI. Probability was set at the conventionally accepted .05 level of significance for the social sciences. In this design, procrastinators and non-procrastinators represented the independent variables. The dependent variables were the EI, SN, TF, and JP dimensions of the MBTI.

5. There will be a significantly higher number of NFP types in the procrastinating group than in the non-procrastinating group.

It was suggested in Chapters One and Two that a higher proportion of NFP types might be found in the procrastinating group. This hypothesis was tested by using dichotomous scores and a chi square analysis to investigate the distribution of personality types within the two groups. The chi square analysis was also utilized to explore
the distribution of types within the two groups to determine if other differences might exist which have not been predicted by the research to date.
CHAPTER FOUR

RESULTS

The results of this study are discussed in the following sections: demographic data, results of hypotheses, and type distribution data.

Demographic Data

Fifty subjects participated in this study. Thirty-four of the subjects were women and 16 were men. All were graduate students either currently or formerly enrolled in the Department of Counselling Psychology Masters Program at the University of British Columbia. All were admitted to the program between the years 1978 and 1982.

These subjects were randomly solicited in steps by mail from two lists: one consisting of potential procrastinators (N=71), and one comprising their non-procrastinating counterparts (N=59). These lists were provided by the Department of Counselling Psychology. Of the 90 subjects who were initially solicited, 27 had moved and could not be located. Nine respondents were disqualified because they did not fit the necessary criteria for either the procrastinating or non-procrastinating group, and four either failed to follow through or directly chose not to participate in the study. As subjects were eliminated for the above reasons, additional subjects were selected
randomly from the remaining pool until each group had 25 subjects. When a total number of 50 was achieved, seven of the initial 59 remained in the non-procrastinating pool and 16 remained in the procrastinating pool.

The procrastinating group (N=25) consisted of 17 females and 8 males. The mean number of years taken to write the thesis within this group was 5.88 and ranged from 5 years to 8 years (S.D.=.971). Of the 29 individuals involved in this study who fit the eligibility criteria of taking five-plus years to complete their theses, four were eliminated because they did not report always or nearly always procrastinating. (One individual took 8 years and self-reported almost never procrastinating; 1 subject took 6 years and self-reported sometimes procrastinating; 2 subjects took 5 years and reported sometimes procrastinating). Of the remaining 25 subjects, 9 reported always procrastinating and 16 self-rated themselves as nearly always procrastinating. Significantly, none reported never procrastinating.

The non-procrastinating group (N=25) consisted of 8 males and 17 females. The mean number of years taken to write the thesis in this group was 1.474 years (SD=.497) and ranged from 9 months to 2 years. Five of the 30 subjects initially involved in the study were eliminated because they failed to report never or almost never procrastinating. These five individuals self-reported sometimes procrastinating. Of the remaining 25 individuals, 11 reported almost never procrastinating and 14 reported never procrastinating. Significantly, none of the non-procrastinators self-rated themselves as always or nearly always procrastinating.

While there were no reliability nor validity studies done on the
measure of procrastination used for this study, it was assumed that combining self-report with behavioral delay would be an adequate measure. Using the Pearson product moment correlation coefficient, this study did in fact find a significant positive correlation between self-reported procrastination and time taken to write the thesis. ($r = .7725$, $p < .05$).

Table 4.1 below visually represents the self-reported procrastination of both groups.

Table 4.1  Self-Reported Procrastination of the Procrastinating and Non-Procrastinating Groups

<table>
<thead>
<tr>
<th>Procrastinating Group (N=29)</th>
<th>Non-Procrastinating Group (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Never</td>
</tr>
<tr>
<td>Almost</td>
<td>Always</td>
</tr>
<tr>
<td>Sometimes</td>
<td>Nearly</td>
</tr>
<tr>
<td>Nearly</td>
<td>Always</td>
</tr>
<tr>
<td>Always</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procrastinating Group (N=29)</th>
<th>Non-Procrastinating Group (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Almost</td>
</tr>
<tr>
<td>X</td>
<td>XXX</td>
</tr>
<tr>
<td>XXX</td>
<td>XXX</td>
</tr>
<tr>
<td>XXX</td>
<td>XXX</td>
</tr>
<tr>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

$X = 1$ subject
Mean no. of yrs. to write thesis: 5.88

Mean no. of yrs. to write thesis: 1.474

A chi-square analysis was performed to determine if any differences between gender existed between procrastinators and non-procrastinators. No differences were found ($\chi^2(1) = 0$) indicating
that gender was not a factor between the two groups. A chi-square analysis of gender and personality type (using dichotomous scores on the MBTI) found no significant distribution of personality types between the two gender groups as well \( \chi^2(11) = 13.16, p = .28 \).

A t-test (two-tailed) was calculated using the continuous scores of the MBTI to determine if differences existed between males and females on the four indices (EI, SN, TF, JP). No significant differences were found on the Extraversion/Introversion scale \( t(48) = -0.28, p = .78 \); the Sensation/Intuition scale \( t(48) = -0.58, p = .565 \); or the Judging/Perceiving scale \( t(48) = -1.57, p = .123 \). Significant differences, however, were found on the Thinking/Feeling index \( t(21.34) = -2.74, p = .012 \). This indicates that the males in the study tended to score T (thinking) while the females tended to score toward the F (feeling) end of the continuum. This is consistent with findings by other researchers (Myers & McCaulley, 1985) who use this instrument and consequently lends further validity to the MBTI.

Results of Hypotheses

A t-test (two-tailed) was performed using the continuous scores of the MBTI to test the following hypotheses:

1. There will be no difference between the procrastinators and non-procrastinators on the Extraversion/Introversion continuum of the MBTI. This hypothesis was accepted and the null hypothesis was not rejected. No significant difference was found between the
procrastinating and non-procrastinating group on this dimension
$t(48) = .55, p = .586$.

2. There will be no difference between the procrastinators and non-procrastinators on the Sensation/Intuition continuum of the MBTI. This hypothesis was accepted and the null hypothesis was not rejected. No significant differences were found between the two groups on this dimension $t(48) = 1.53, p = .133$.

3. There will be no difference between the procrastinators and non-procrastinators on the Thinking/Feeling continuum of the MBTI. This hypothesis was accepted and the null hypothesis was not rejected. No differences between the two groups were found on this dimension $t(48) = 1.18, p = .245$.

4. The procrastinating group will tend to score closer to the Perceiving end of the continuum of the MBTI than the non-procrastinating group who will tend to score near the Judging end of the continuum. This hypothesis was accepted. Significant differences were found between procrastinators and non-procrastinators on the Judging/Perceiving index with procrastinators tending to score P and non-procrastinators tending to score J $t(46.86) = 2.79, p = .008$.

A chi-square analysis using dichotomous scores was conducted to determine the final hypothesis:

5. There will be a significantly higher number of NFP types in the procrastinating group than in the non-procrastinating group. Hypothesis accepted $\chi^2 (1) = 9.82, p = .0017$.

It was predicted in hypotheses 1, 2, and 3 that no differences would be found on the EI, SN, and TF scales between the two groups.
Differences were predicted, however, on the JP index. The t-test conducted confirmed all four hypotheses. Table 4.2 below summarizes the result of the first four hypotheses tested.

Table 4.2 t-test Comparison of Procrastinating and Non-Procrastinating Groups on Continuous Dimensions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Number</th>
<th>Mean</th>
<th>t value</th>
<th>p</th>
<th>diff?</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>Procrast.</td>
<td>25</td>
<td>105.64</td>
<td>0.55</td>
<td>0.586</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>Non-Procrast.</td>
<td>25</td>
<td>101.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>Procrast.</td>
<td>25</td>
<td>129.88</td>
<td>1.50</td>
<td>0.133</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>Non-Procrast.</td>
<td>25</td>
<td>120.92</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TF</td>
<td>Procrast.</td>
<td>25</td>
<td>108.12</td>
<td>1.18</td>
<td>0.245</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>Non-Procrast.</td>
<td>25</td>
<td>102.44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JP</td>
<td>Procrast.</td>
<td>25</td>
<td>112.36</td>
<td>2.79</td>
<td>0.008</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>Non-Procrast.</td>
<td>25</td>
<td>91.16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A chi-square analysis which compared the procrastinating and non-procrastinating groups according to personality type was conducted to determine if the differences in distribution between these two groups was significant. A significant difference was found: \( \chi^2(11) = 22.53, p = .02 \), although any interpretations from this must be made carefully given the small sample size involved.

More specifically, earlier research had suggested that NFP types might tend to procrastinate more than other personality types.
Hypothesis 5 predicted that a significantly higher number of NFP types would be found in the procrastinating group than in the non-procrastinating group. This hypothesis was also confirmed. No differences were found between ENFP's and INFP's in the two groups suggesting that the Extraversion/Introversion index is not a relevant factor between the two groups \( \chi^2(1)=0.0, p=1.0 \). When ENFP's and INFP's were combined, however, and then compared with all the other types in a chi-square analysis, significantly more NFP's were found in the procrastinating group than the non-procrastinating group \( \chi^2(1)=9.82, p=.0017 \). See Table 4.3.

Table 4.3 Chi-square Comparison of NFP's between Procrastinators and Non-Procrastinators

<table>
<thead>
<tr>
<th></th>
<th>Others</th>
<th>I&amp;ENFP</th>
<th>Raw Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=8</td>
<td>N=17</td>
<td>25</td>
</tr>
<tr>
<td>Procrastinators</td>
<td>Exp.Val.=14</td>
<td>Exp.Val.=11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Row Pct.=32%</td>
<td>Row Pct.=68%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Col.Pct.=28.6%</td>
<td>Col.Pct.=77.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Pct.=16%</td>
<td>Total Pct.=34%</td>
<td></td>
</tr>
<tr>
<td>Non-Procrastinators</td>
<td>N=20</td>
<td>N=5</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Exp.Val.=14</td>
<td>Exp.Val.=11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Row Pct.=80%</td>
<td>Row Pct.=20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Col.Pct.=71.4%</td>
<td>Col.Pct.=22.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Pct.=40%</td>
<td>Total Pct.=10%</td>
<td></td>
</tr>
<tr>
<td>Column</td>
<td>28</td>
<td>22</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>56%</td>
<td>44%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Type Distribution Tables

The following Tables (4.4, 4.5, 4.6 and 4.7) illustrate graphically the distribution of personality type between the two groups using the dichotomous scores of the MBTI.

Table 4.4  Procrastinators and Non-Procrastinators Compared
According to Distribution by Type.

<table>
<thead>
<tr>
<th>ISTJ</th>
<th>ISFJ</th>
<th>INFJ</th>
<th>INTJ</th>
<th>ISTP</th>
<th>ISFP</th>
<th>INFP</th>
<th>INTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=0</td>
<td>N=0</td>
<td>N=1</td>
<td>N=3</td>
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<td>N=9</td>
<td>N=0</td>
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<td>EV=2.5</td>
<td>EV=2</td>
<td>EV=0</td>
<td>EV=0</td>
<td>EV=6</td>
<td>EV=1</td>
</tr>
<tr>
<td>PRO GRP</td>
<td>0.0%</td>
<td>0.0%</td>
<td>4.0%</td>
<td>12.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>N=25</td>
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<td>20.0%</td>
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<td>0.0%</td>
<td>75.0%</td>
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<tr>
<td></td>
<td>0.0%</td>
<td>0.0%</td>
<td>2.0%</td>
<td>6.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

<table>
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<tr>
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<th>N=3</th>
<th>N=2</th>
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</thead>
<tbody>
<tr>
<td>EV=0</td>
<td>EV=0.5</td>
<td>EV=2.5</td>
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<td>EV=0</td>
<td>EV=0</td>
<td>EV=6</td>
<td>EV=1</td>
</tr>
<tr>
<td>N-P GRP</td>
<td>0.0%</td>
<td>4.0%</td>
<td>16.0%</td>
<td>4.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>12.0%</td>
</tr>
<tr>
<td>N=25</td>
<td>0.0%</td>
<td>100.0%</td>
<td>80.0%</td>
<td>25.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td></td>
<td>0.0%</td>
<td>2.0%</td>
<td>8.0%</td>
<td>2.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTP</th>
<th>ESFP</th>
<th>ENFP</th>
<th>ENTP</th>
<th>ESTJ</th>
<th>ESFJ</th>
<th>ENFJ</th>
<th>ENTJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=1</td>
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<td>N=8</td>
<td>N=1</td>
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<td>N=1</td>
<td>N=0</td>
</tr>
<tr>
<td>EV=0.5</td>
<td>EV=0.0</td>
<td>EV=5</td>
<td>EV=1.5</td>
<td>EV=1.5</td>
<td>EV=0.5</td>
<td>EV=2.5</td>
<td>EV=1.5</td>
</tr>
<tr>
<td>PRO GRP</td>
<td>4.0%</td>
<td>0.0%</td>
<td>32.0%</td>
<td>4.0%</td>
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<td>4.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>N=25</td>
<td>100%</td>
<td>0.0%</td>
<td>80.0%</td>
<td>33.3%</td>
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<td>100%</td>
<td>20.0%</td>
</tr>
<tr>
<td></td>
<td>2.0%</td>
<td>0.0%</td>
<td>16.0%</td>
<td>2.0%</td>
<td>0.0%</td>
<td>2.0%</td>
<td>20.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>N=0</th>
<th>N=0</th>
<th>N=2</th>
<th>N=3</th>
<th>N=0</th>
<th>N=4</th>
<th>N=3</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV=0.5</td>
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<td>EV=5</td>
<td>EV=1.5</td>
<td>EV=1.5</td>
<td>EV=0.5</td>
<td>EV=2.5</td>
</tr>
<tr>
<td>N-P GRP</td>
<td>0.0%</td>
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<td>8.0%</td>
<td>8.0%</td>
<td>12.0%</td>
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<tr>
<td>N=25</td>
<td>0.0%</td>
<td>0.0%</td>
<td>20.0%</td>
<td>66.7%</td>
<td>100%</td>
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<td>0.0%</td>
<td>0.0%</td>
<td>4.0%</td>
<td>4.0%</td>
<td>6.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

PRO GRP= Procrastinating Group
N-P GRP= Non-procrastinating Group
N= Number
EV= Expected Value based on given distribution of the data
Row %
Column %
Total %
Table 4.5: Comparison of Procrastinators (N=25) and Non-Procrastinators (N=25) according to Jungian Personality Type. (X= Procrastinators; O= Non-Procrastinators)

<table>
<thead>
<tr>
<th>Number</th>
<th>ISTJ</th>
<th>ISFJ</th>
<th>INFJ</th>
<th>INTJ</th>
<th>ISTP</th>
<th>ISFP</th>
<th>INFP</th>
<th>INTP</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ISTJ  ISFJ  INFJ  INTJ  ISTP  ISFP  INFP  INTP

ESTP  ESFP  ENFP  ENTP  ESTJ  ESFJ  ENFJ  ENTJ
Table 4.6  Myers-Briggs Type Table Distribution of Sample Population  
[P= Procrastinating Group (N=25); NP= Non-Procrastinating Group (N=25); x= 1% of total sample (N=50) ]

<table>
<thead>
<tr>
<th>SENSATION TYPES</th>
<th>INTUITIVE TYPES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITH THINKING</td>
<td>WITH FEELING</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>ISTJ</td>
<td>ISFJ</td>
</tr>
<tr>
<td>INTROVERTED</td>
<td>INTROVERTED</td>
</tr>
<tr>
<td>JUDGING</td>
<td>JUDGING</td>
</tr>
<tr>
<td>P=0</td>
<td>P=0</td>
</tr>
<tr>
<td>NP=0</td>
<td>NP=0</td>
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<tr>
<td>xx</td>
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<td></td>
<td>xxx</td>
</tr>
<tr>
<td>ISTP</td>
<td>ISFP</td>
</tr>
<tr>
<td>INTROVERTED</td>
<td>INTROVERTED</td>
</tr>
<tr>
<td>PERCEPTIVE</td>
<td>PERCEPTIVE</td>
</tr>
<tr>
<td>P=0</td>
<td>P=0</td>
</tr>
<tr>
<td>NP=0</td>
<td>NP=0</td>
</tr>
<tr>
<td>xx</td>
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<td>xxx</td>
</tr>
<tr>
<td>ESTP</td>
<td>ESFP</td>
</tr>
<tr>
<td>EXTRAVERTED</td>
<td>EXTRAVERTED</td>
</tr>
<tr>
<td>PERCEPTIVE</td>
<td>PERCEPTIVE</td>
</tr>
<tr>
<td>P=1</td>
<td>P=0</td>
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<tr>
<td>NP=0</td>
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<tr>
<td>xx</td>
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<tr>
<td></td>
<td>xxx</td>
</tr>
<tr>
<td></td>
<td>xxx</td>
</tr>
</tbody>
</table>

| ESTJ            | ESFJ            | ENFJ            | ENTP            |
| EXTRAVERTED     | EXTRAVERTED     | EXTRAVERTED     | EXTRAVERTED     |
| JUDGING         | JUDGING         | JUDGING         | JUDGING         |
| P=0             | P=1             | P=1             | P=0             |
| NP=3            | NP=0            | NP=4            | NP=3            |
| xxx             | xx              | xxx             | xxx             |
| x               | xxx             | xxx             | xxx             |
Table 4.7  Data from Sample Population Regarding Distribution of Type on Each MBTI Index.

**Total Sample (N=50)**

<table>
<thead>
<tr>
<th>Index</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraverts</td>
<td>26</td>
<td>52%</td>
</tr>
<tr>
<td>Introverts</td>
<td>24</td>
<td>48%</td>
</tr>
<tr>
<td>Sensors</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>Intuitors</td>
<td>44</td>
<td>88%</td>
</tr>
<tr>
<td>Thinkers</td>
<td>16</td>
<td>32%</td>
</tr>
<tr>
<td>Feelers</td>
<td>34</td>
<td>68%</td>
</tr>
<tr>
<td>Judgers</td>
<td>22</td>
<td>44%</td>
</tr>
<tr>
<td>Perceivers</td>
<td>28</td>
<td>56%</td>
</tr>
</tbody>
</table>

**Procrastinating Group (N=25)**

<table>
<thead>
<tr>
<th>Index</th>
<th>Number</th>
<th>% of group</th>
<th>Number</th>
<th>% of group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraverts</td>
<td>12</td>
<td>48%</td>
<td>14</td>
<td>56%</td>
</tr>
<tr>
<td>Introverts</td>
<td>13</td>
<td>52%</td>
<td>11</td>
<td>44%</td>
</tr>
<tr>
<td>Sensors</td>
<td>2</td>
<td>8%</td>
<td>4</td>
<td>16%</td>
</tr>
<tr>
<td>Intuitors</td>
<td>23</td>
<td>92%</td>
<td>21</td>
<td>84%</td>
</tr>
<tr>
<td>Thinkers</td>
<td>5</td>
<td>20%</td>
<td>11</td>
<td>44%</td>
</tr>
<tr>
<td>Feelers</td>
<td>20</td>
<td>80%</td>
<td>14</td>
<td>56%</td>
</tr>
<tr>
<td>Judgers</td>
<td>6</td>
<td>24%</td>
<td>16</td>
<td>64%</td>
</tr>
<tr>
<td>Perceivers</td>
<td>19</td>
<td>76%</td>
<td>9</td>
<td>36%</td>
</tr>
</tbody>
</table>

**Conclusion**

The results from this study found significant differences in personality type between the procrastinating and non-procrastinating groups. Judgers were less likely to be procrastinators while the perceivers tended to be procrastinators. A high proportion of NFP types belonged to the procrastinating group while a more normal distribution was found among the non-procrastinators.
CHAPTER FIVE

DISCUSSION OF THE RESULTS, LIMITATIONS OF THE STUDY, AND IMPLICATIONS FOR FUTURE RESEARCH

This chapter contains two major sections. The first section discusses the results of the study. The second section covers limitations of the study and implications for future research.

Discussion of the Results

Overview

This study's major objective was to determine if procrastinators and non-procrastinators differ significantly in personality type. More specifically, it explored the relationship between the tendency to procrastinate on writing a Master's thesis and Jungian personality type as measured by the MBTI. Two groups were compared to determine if differences in personality type could be found between those who procrastinated in writing their thesis and those who did not.

This study sought to test two specific and currently untested theories regarding procrastination and Jungian personality type. Literature has suggested (see Chapters One and Two) that personality factors might be involved in the tendency to procrastinate. Myers and McCaulley (1985) have hypothesized that procrastinators would differ from non-procrastinators on one specific index of the MBTI: the
judging-perceiving scale with procrastinators tending to be the perceivers and non-procrastinators the judgers. They based this hypothesis on the assumption that procrastination occurs when individuals rely heavily on their perceptual mode at the expense of their judgment or decision-making attitude. This study specifically addressed this theory by comparing procrastinators and non-procrastinators on all four of the MBTI's indices to see if differences did occur. It was predicted that there would be no difference on the first three indices (extraversion-introversion, sensation-intuition, thinking-feeling) but that procrastinators would score P and non-procrastinators would score J on the judging-perceiving index.

Secondly, the study explored the distribution of types to see if a significant difference in clustering occurred between the procrastinators and non-procrastinators. It was hypothesized that a significantly higher number of NFP types might be found in the procrastinating group as opposed to the non-procrastinating group. This particular personality type appears to have a poorly defined orientation toward time and hence might be vulnerable to procrastination.

Demographic Data Regarding Sample

The above objectives were addressed by administering the MBTI to two groups of subjects and then comparing their scores. These two groups were relatively homogeneous. All subjects in both groups were graduate students enrolled in the Counselling Psychology Department at
the University of British Columbia. An equal number of males and females were represented in each group. No differences were found between the procrastinators and non-procrastinators regarding gender suggesting that it was not a relevant variable in this study. The one variable differentiating them was the procrastination factor. One group, operationally defined as the procrastinators, consisted of those individuals who took at least five years to write their theses and self-reported always or nearly always procrastinating on this project. Twenty-five individuals made up this group. The mean number of years taken to write the thesis was 5.88 and ranged from five to eight years.

The second group, operationally defined as non-procrastinators, were 25 subjects who completed their theses within two years and reported never or almost never procrastinating on this project. The mean number of years taken to write the thesis for this group was 1.474 years and ranged from nine months to two years.

The total sample (both groups combined) had an approximately equal number of introverts (48%) and extraverts (52%) and a slightly higher percentage of perceivers (56%) than judgers (44%). There was a much higher percentage of intuitors (88%) than sensors (12%). There were more feeling types (68%) than thinkers (32%) with more males preferring thinking and more females preferring feeling (as is almost always the case with MBTI samples). This distribution is consistent with findings in other studies which have measured the personality types of counsellors. Counsellors tend to be high on the N and F dimensions with more or less equal representation on the E-I and J-P indices. These findings lend further validity to the MBTI as well as
credibility to this study.

Measuring Procrastination

Measuring procrastination was somewhat problematic as there is no instrument to date which is widely accepted as a valid and reliable measure of this behavior. This study, therefore, combined time taken to write the thesis with self-reported procrastination in order to differentiate the procrastinators from the non-procrastinators. Significantly, there was a high positive correlation between time taken to write the thesis and self-reported procrastination or lack thereof \((r = .7725, p < .05)\). Nine individuals did not meet both criteria (i.e., their self-report did not correlate with time taken) and they were, therefore, screened out of the study ensuring that those in the study were clearly eligible for one of the two groups.

Findings of the Study

The first four hypotheses were intended to find if there were differences between procrastinators and non-procrastinators on the four indices of the MBTI. It was hypothesized that differences would be found on the perceiving-judging index only. This was confirmed.

Hypothesis 1: Result. There is no significant difference between procrastinators and non-procrastinators on the extraversion-introversion index of the MBTI. Hypothesis is accepted and the null hypothesis is not rejected.
Discussion. When these two groups were compared on this particular dimension, no differences were found. This indicates that neither extraverts nor introverts appear to be more likely to procrastinate than the other. This finding is consistent with Myers and McCaulley's theory as it does not suggest that differences should exist on this dimension. Extraversion-introversion was not found to be a personality factor involved in procrastination.

Hypothesis 2: Result. There is no difference between procrastinators and non-procrastinators on the sensation-intuition index of the MBTI.

Discussion. No differences were found on the sensation-intuition index of the MBTI between the procrastinating and non-procrastinating groups. Neither intuitors nor sensors were more likely to procrastinate than the other in this particular study. This finding is also consistent with Myers and McCaulley's theory and lends evidence to the assumption that the sensing-intuitive dimension is not a factor involved in procrastination.

Hypothesis 3: Result. There is no difference between procrastinators and non-procrastinators on the thinking-feeling index of the MBTI. Hypothesis is accepted and the null hypothesis is not rejected.

Discussion. This finding supports Myers and McCaulley's theory as well. No differences were found on the thinking-feeling scale of the MBTI between the two groups suggesting that this dimension of personality is not a factor relating to procrastination as it pertains to thesis writing.

Hypothesis 4: Result. Procrastinators will tend to score toward
the perceiving end of the judging-perceiving continuum while non-procrastinators will tend to score toward the judging side of the continuum. Hypothesis is accepted. This directional hypothesis was confirmed suggesting that procrastinators do tend to be perceptive types as measured by the MBTI while non-procrastinators tended to score toward the judging end of the continuum.

**Discussion.** This is a significant finding. While no differences were found between procrastinators and non-procrastinators on the other three scales of the MBTI, there was clearly a difference between these two groups on the J-P continuum. With the midpoint set at 100, the mean score for the procrastinating group was 112.36. The mean score for the non-procrastinating group was 91.16. This finding clearly supports Myers and McCaulley's contention that procrastination may occur more frequently with individuals who are perceivers as opposed to judgers, thereby suggesting that personality factors may indeed be involved in procrastination.

Finally, a chi-square analysis was conducted to determine if differences in the distribution of personality types was significant between these two groups. A significant difference was found, although the small sample size involved in this particular statistical test certainly restricts the significance of these findings.

**Hypothesis 5: Result.** There will be a significantly higher number of NFP types in the procrastinating group than in the non-procrastinating group. Hypothesis is accepted.
Discussion. This fifth hypothesis tested the suggestion found in earlier research linking NFP types to procrastination. This hypothesis was also confirmed. When the NFP types were compared with all the other types in a chi-square analysis, significantly more NFP's were found in the procrastinating group than in the non-procrastinating group.

While the sample size is small given the possibility of 16 types, it is nevertheless significant that such a trend was found in these data. It does appear that procrastinators do tend to be NFP types while the personality type of the non-procrastinators is not clearly apparent and appears to be more evenly distributed throughout the other remaining types.

Four types were not represented at all in the sample: ISTJ, ISTP, ISFP and ESFP. What is common to all these groups is S. As has been mentioned earlier, there was a high percentage of intuitive types in this sample as would be expected given their speciality area (Counselling Psychology). Of the remaining 12 types, 44% were either ENFP or INFP types (nearly 78% of these were the procrastinators) and another 20% consisted of INFJ and ENFJ types (80% of these were the non-procrastinators). ISFJ, ESTP and ESFJ each made up 2% of the sample. INTP consisted of 4%, ENTP, ESTJ and ENTJ each comprised 6% of the sample and INTJ made up 8%.
Limitations and Implications for Future Research

Limitations

The primary limitation of this study was its sample size. There were 25 subjects in each group and this is a relatively small number of subjects to be considered when using an instrument like the MBTI. This limitation was especially pronounced when using dichotomous scores to analyze the distribution of types where 16 possible types could be represented.

The individuals involved in this study were all part of a specific graduate student population (Counselling Psychology). The cultural, economic and educational profile of such a population cannot be said to represent more than a small segment of society. To the extent that response styles to the test instruments were influenced by this set of circumstances, the study is limited in its generalizability.

Another limitation is one which is practically unavoidable when conducting research with human subjects. That is the problem of ultimate reliance upon the willingness of people to volunteer their participation in the study. The random selection of subjects within each group was an attempt to control for this confounding aspect, but subjects who had been selected were still free to decline to participate. While the number of those who did decline was relatively small, there was a considerable number of individuals who had moved from the area and could not be located. Whether significant differences in personality type exist between those who moved away and
those who remained within the lower mainland of British Columbia is a question that remains unanswered by this study.

Another limitation pertains to the lack of a valid and reliable instrument for the measurement of procrastination. This study was unable to compare procrastination as a habitual mode of behavior with personality type since there are currently no widely accepted measures of this behavior. It was, therefore, confined to one specific behavioral measure of procrastination: the tendency to delay the completion of the Master's thesis. It cannot, therefore, be assumed that the correlation between procrastination on the thesis and personality type automatically generalizes to other forms of procrastination. In addition, it cannot be inferred from this study that certain personality factors cause procrastination. Correlation does not imply causation. This study merely suggests that certain personality factors do appear to play a role in the phenomenon of procrastination on the thesis project. It also suggests that certain personality types do appear to be more vulnerable to procrastination on this particular task than other types.

While this study took considerable precaution to ensure that procrastination on the thesis was in fact the variable differentiating the two groups (by insisting upon both self-report and behavioral delay), there are inherent limitations regarding self-report in any study. Individuals who may have indeed procrastinated were eliminated from the study if they did not self-report this behavior. Similarly, self-report on the MBTI does not take unconscious motivations, etc. into consideration when measuring personality factors. Clearly, there can be a considerable discrepancy between what an individual reports
and how s/he actually behaves.

In spite of these limitations, however, it does appear clear from this study's findings that Jungian psychological type is indeed a relevant factor involved in the tendency to procrastinate on writing a Master's thesis. Certain personality types appear more vulnerable to procrastinating on this task than others. In addition, it also lends evidence to support the theory that procrastination may occur as a consequence of the habitual tendency to utilize a perceptual attitude when a judging attitude would be more appropriate.

Implications for Future Research

Given the fact that very little research has been conducted on thesis writing, the field is wide open for future study. This study has made a contribution in analyzing how certain graduate students appear to stall on their final project by suggesting that certain personality factors may contribute to procrastination on this task. Personality type is obviously only one factor involved in the fact that nearly one-half of all graduate students fail to graduate due to non-completion of their final project. A critical incidence study interviewing both procrastinators and non-procrastinators would be a valuable contribution to this area of interest.

In addition, there simply is little current statistical data available on how serious this problem is in graduate schools. Are there differences in numbers of individuals who fail to graduate due to non-completion of their thesis among the different departments within a university? If so, why? Do universities differ in their
ability to assist their graduate students in completing the thesis requirement on time? If so, what factors contribute to this phenomenon and what factors inhibit it from occurring?

Secondly, there is a significant need for a valid and reliable instrument to measure procrastination. While contributions have been made in this field (Grecco, 1984; Solomon & Rothblum, 1984), much more work needs to be done in this area before a widely accepted measure of procrastination will be available. Once an appropriate instrument has been constructed, procrastination as a habitual mode of behavior can be compared more readily with personality type.

Finally, further studies must replicate this study's findings linking personality type with procrastination. A longitudinal study could be run by administering the MBTI to those entering their respective programs and then comparing their performance with their MBTI scores. If this study's findings are replicated, intervention strategies could then be implemented to assist NFP types or those scoring high on the perceptual end of the J-P scale to develop their judging (decision-making) functions. A larger sample (possibly comparing representatives from several disciplines) is clearly necessary to add validity to these results.

Further research is needed to determine specific ways in which those who do appear to have a deficit in their judging attitude could learn to rely less on their perceptual attitude and more on their judging abilities.

Clearly, the possibilities for future research are myriad. What is significant about this study is that it has begun to find a correlation between procrastination on completing a Master's thesis
and personality type. It has, therefore, justified the need for future study in this area.
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APPENDICES
APPENDIX A

LETTER OF INITIAL CONTACT
APPENDIX B

INSTRUCTION SHEET
APPENDIX C

SUBJECT CONSENT FORM
APPENDIX D

DEMOGRAPHIC QUESTIONNAIRE
DEMOGRAPHIC QUESTIONNAIRE

1. Type of Master's degree currently sought or already conferred: M.A. M.Ed. (please circle)

2. Have you completed your thesis or major paper? If so, when?

-------------  -------------
month         year

3. When did you begin your studies for the above Master's degree?

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month         year

4. To what degree was/is procrastination a factor in the length of time it has/is taking you to complete your thesis or major paper? (please circle)

<table>
<thead>
<tr>
<th>Never Factor</th>
<th>Almost A Factor</th>
<th>Sometimes A Factor</th>
<th>Nearly Always A Factor</th>
<th>Always A Factor</th>
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<td>Never A Factor</td>
<td>A Factor</td>
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5. ____ Yes  Do you wish to have a Myers-Briggs Report Form mailed you once the scoring has been completed?

____ No

THIS COMPLETES THE DEMOGRAPHIC QUESTIONNAIRE. THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY.