

January 01, 2009

Perfectionism and social anxiety among college students

Daniel Per Villiers
Northeastern University

Recommended Citation

Villiers, Daniel Per, "Perfectionism and social anxiety among college students" (2009). *Counseling Psychology Dissertations*. Paper 4.
<http://hdl.handle.net/2047/d10019327>

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PERFECTIONISM AND SOCIAL ANXIETY AMONG COLLEGE STUDENTS

A dissertation presented by

Daniel Per Villiers, M.Ed., M.A.

Submitted to

The Department of Counseling and Applied Educational Psychology in partial
fulfillment of the requirement for the degree of

Doctor of Philosophy

in the field of

Counseling Psychology

Northeastern University

Boston, Massachusetts

February, 2009

TABLE OF CONTENTS

| | <u>Page</u> |
|--------------------------------------------------------|-------------|
| Table of Contents..... | ii |
| Acknowledgments..... | v |
| Dedication..... | vi |
| Abstract..... | vii |
| Copyright Page..... | ix |
| CHAPTER 1: INTRODUCTION..... | 1 |
| Background of the Problem..... | 1 |
| Social Anxiety..... | 1 |
| Perfectionism..... | 2 |
| Perfectionism, Social Anxiety, & College Students..... | 6 |
| Social Anxiety, Perfectionism, & Academic Major..... | 8 |
| Rationale & Significance..... | 9 |
| Research Significance..... | 10 |
| Clinical Significance..... | 11 |
| University Significance..... | 12 |
| Theoretical Foundation of the Study..... | 13 |
| Statement of the Problem..... | 14 |
| Discussion of terms..... | 14 |
| Social Anxiety..... | 14 |
| Perfectionism..... | 16 |
| Research Questions..... | 17 |
| Chapter Summary..... | 17 |
| CHAPTER 2: REVIEW OF THE LITERATURE..... | 18 |
| Introduction..... | 18 |
| Epidemiology of Social Anxiety..... | 18 |
| Prevalence Rates..... | 19 |
| Demographic Characteristics..... | 20 |
| Social Anxiety, Age, & Gender..... | 20 |
| Social Anxiety & Race..... | 21 |
| Race & Perfectionism..... | 21 |
| Race, Ethnicity, Gender, and College Major..... | 23 |
| Comorbid Features of Social Anxiety..... | 24 |
| Etiology of Social Anxiety..... | 27 |
| Neuro-Physiological Influences..... | 27 |
| The Serotonergic System..... | 29 |
| The Dopaminergic System..... | 30 |
| The GABAergic system..... | 31 |
| Genetic Factors..... | 31 |
| Cognitive factors..... | 33 |
| The Conscious Cognitions of Social Anxiety..... | 33 |

| | |
|---------------------------------------------------------------|--------|
| Information Processing Biases in Social Anxiety..... | 39 |
| Environmental Factors..... | 42 |
| The Role of the Family..... | 42 |
| Parenting Style & Parental Personality..... | 43 |
| Limited and Restricted Exposure..... | 45 |
| Other Environmental Factors..... | 46 |
| Perfectionism & Mental Illness..... | 47 |
| Perfectionism and Depression..... | 47 |
| Perfectionism and the Eating Disorders..... | 48 |
| Perfectionism and Social Anxiety..... | 49 |
| Chapter Summary..... | 51 |
| CHAPTER 3: METHODOLOGY..... | 52 |
| Participants..... | 52 |
| Materials and Measures..... | 53 |
| Perfectionism Instruments..... | 54 |
| Social Anxiety Instruments..... | 55 |
| Procedures..... | 55 |
| Research Questions..... | 56 |
| Proposed Statistical Analysis..... | 57 |
| Chapter Summary..... | 58 |
| CHAPTER 4: RESULTS..... | 59 |
| Introduction..... | 59 |
| Research Question 1..... | 59 |
| Research Question 2..... | 60 |
| Research Question 3..... | 60 |
| Additional Findings..... | 62 |
| Tables of Results..... | 63 |
| CHAPTER 5: DISCUSSION..... | 75 |
| Brief Summary of Findings..... | 75 |
| Social Anxiety and Perfectionism (Research Question1)..... | 76 |
| Social Anxiety & Academic Major (Research Question 2)..... | 77 |
| Perfectionism & Academic Major (Research Question 3)..... | 78 |
| Social Anxiety, Perfectionism, and Demographic Variables..... | 79 |
| Conclusions and Implications..... | 81 |
| Recommendations for Future Research..... | 82 |
| Methodological Enhancements and Research Suggestions..... | 83 |
| Policy Recommendations..... | 85 |
| Practitioner Recommendations..... | 86 |
| Recommendations: Conclusion..... | 89 |
| Final Summary..... | 90 |
| REFERENCES..... | 94 |

| | |
|--------------------------------------------------------------|-----|
| APPENDICES..... | 118 |
| Appendix A: DSM Criterion for Social Anxiety | 118 |
| Appendix B: The Social Phobia Scale (SPS)..... | 119 |
| Appendix C: The Social Interaction Anxiety Scale (SIAS)..... | 121 |
| Appendix D: Multidimensional Perfectionism Scale (MPS)..... | 123 |
| Appendix E: Brief Demographics Survey..... | 125 |
| Appendix F: Informed Consent Form..... | 126 |

Acknowledgments

I would first like to thank my advisor and first reader, Barbara Okun, for her support from the day I applied to the doctoral program to the day I defended my dissertation. I would also like to thank second reader, Professor Manny Mason, for his statistical and research methods guidance, especially his open-mindedness and innovation in helping solve some of the early methodological challenges of this project. Significant gratitude must also go out to third reader, Professor Todd Kates, for his professional advice and personal encouragement.

I would like to thank Professor Mary Ballou for her mentorship these past four years. From being your student, co-teacher, research collaborator, and friend, your support always seemed to help me move toward the finish line. Your unending devotion and empathy to your students will always provide inspiration for me in my professional life.

I would like to thank my parents-in-law, Joseph and Karen Hewes, who for much of my writing, researching, and proposing of this dissertation were there for me with unconditional love and support. I would like to thank my father, Douglas Villiers, and mother, Lena Proudlock for the privilege of studying at the best schools in England and the United States, and for their faith in my endeavor to be a psychologist.

Thank you also to my wife, Sarah Villiers, for all the sacrifices you have made to get me to this point in my professional life. It will be returned ten-fold.

Dedication

I dedicate this dissertation to all those children, adolescents, and adults suffering from social anxiety disorder. Your bravery and courage in the face of fear deserve our attention, admiration, and respect.

Abstract

The relationship between social anxiety and perfectionism was explored among college students. Although a good deal of research has demonstrated a strong interaction between perfectionism and several forms of psychopathology, extending this research to social anxiety has received less attention. The few studies that have studied this relationship have demonstrated some inconsistent results, specifically finding only correlations between social anxiety and two or three of the six dimensions of perfectionism put forth by Frost et al.'s (1994) *Multidimensional Perfectionism Questionnaire*. Likewise, previous work has involved only adults in anxiety treatment center locations. This study sought to extend these findings to a non-clinical college student population. In investigating a possible relationship, math and physics majors were compared to communication and music majors on social anxiety and perfectionism measures. The study predicted that high social anxiety traits would predict higher perfectionist traits, and that math and physics majors will experience social anxiety more than music and communication majors.

Three research questions were proposed: 1) Are college students with anxiety traits more likely to have perfectionist traits than college students who do not have social anxiety traits? 2) Are social anxiety traits more common among math and physics majors than communication and music majors? 3) Are perfectionist traits more common among math and physics majors than communication and music majors? In answering research question 1: A statistically significant correlation was found between Frost's *Overall Perfectionism Score* and scores from both the *Social Phobia Scale* and the *Social Interaction Anxiety Score* across all groups. In answering research question 2, math and physics majors had statistically significant higher social anxiety scores than music majors, but not with communication majors. Communication majors still experienced less social anxiety than math and physics majors. In answering research question 3,

perfectionist traits were generally found to be very similar across all four academic majors. In regards to the impact that the four demographic variables (age, race, gender, and residential status) had on social anxiety score, only the age of the student predicted the level of social anxiety, specifically, the older the student, the lower the levels of social anxiety. Implications for future research, policy change, and clinical practice are explored in the discussion section.

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CHAPTER 1

Introduction

This study investigated the relationship between perfectionism and social anxiety in a college-aged student sample. In exploring a possible relationship, math and physics majors were compared to communication and music majors on social anxiety and perfectionism measures. Chapter One will explore the background of the problem, rationale for the study (i.e. how this study is beneficial across academic, research, and clinical domains), definitions of important terms, the theoretical orientation of the study, and several research questions to address the statement of the problem. Perspectives in the literature regarding perfectionism, social anxiety and perfectionism, personality and career choice, and social and cognitive theories related to the etiology of clinical anxiety will be incorporated in Chapter Two to offer a theoretical foundation for the present study.

Background of the Problem

This section will offer a brief introduction to several aspects of social anxiety and perfectionism, and an overview of the problematic nature of these two conditions on college and university campuses.

Social Anxiety

Recent data from the National Comorbidity Survey indicate that social anxiety is the third most common mental illness, following depression and alcohol abuse (Kessler et al. 2005). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, 2000) defines social anxiety (social phobia) as an intense fear of negative evaluation from others, and a chronic concern and self-doubt about one's social ability and social performance. Although the terms social phobia and social anxiety are often used interchangeably in the literature, the former more

accurately refers to a diagnosed condition, whereas the latter, a milder form of social discomfort. The term social anxiety will be used here as this study's primary focus is with social anxiety traits and tendencies whether or not the social anxiety reaches phobic proportions (e.g. criterion for an official DSM diagnosis). Other research studying social anxiety in general populations versus clinical populations, such as this study, have also made this distinction (e.g. Leary, 1983; Shepard, 2006).

Although it is predicted that 40 million Americans suffer from social anxiety, only about 5 million receive diagnosis or treatment (NIMH, 2006). Due to the importance and unavoidability of social interaction in life, social fear often causes impairments in virtually all aspects of daily living. Social anxiety in its most severe form can emotionally and physically paralyze the sufferer, with many struggling to cope with other psychological challenges, finding or maintaining employment, and engaging in romantic and non-romantic relationships. For example, research has found that approximately one half of people suffering from social anxiety have a co-morbid mental, drug, or alcohol problem (Sanderson, DiNardo, Rapee & Barlow, 1990). Likewise, in a review of epidemiological literature of social anxiety disorder, Bruce and Saaed, (1999) found that up to 16 percent of patients with social anxiety disorder have alcohol abuse problems. In fact, patients presenting for substance abuse treatment often also meet the criteria for social anxiety (Kushner, Sher, Beitman, 1999). Other research has found that the disorder increases a patient's lifetime risk of depression approximately four-fold (Lipsitz, & Schneier, 2000), and that this and other comorbid conditions increases the lifetime incidence of suicidal ideation and suicide attempts (Lepine & Lellouch, 1995).

Left untreated, social anxiety can be chronic and pervasive, not only due to the aforementioned co-morbid conditions, but due to the reliance on social avoidance common for those living with the disorder. Although avoidance and isolation may temporarily minimize or

even eradicate the anxiety related symptoms, the underlying fears will often remain. This is demonstrated in the research which has shown that approximately 85 percent of patients with the disorder experience academic and occupational difficulties caused by their inability to meet the social demands of securing and maintaining employment or relationships (Bruce & Saaed, 1999). Another study found that nearly one half of those with social anxiety were unable to complete high school; 70 percent were in the lowest two quartiles of socioeconomic status; and approximately 22 percent were on welfare (Schneier, Johnson, Hornig, & Liebowitz, 1992; as cited by Bruce & Saaed, 1999).

Despite how severe this disorder can be, the research has paid more attention to panic disorder (Barlow, 2002) despite the lower prevalence rates (NIMH, 2006). Historically, social anxiety seems to have been viewed somewhat inaccurately as one of the more mild anxiety disorders and something that “most people deal with to some extent.” Likewise, in popular culture, social phobia or social anxiety is often viewed as mere “shyness” versus something clinically pervasive and pathological (Walker, 2001). From this author’s clinical and research experience, social anxiety can at least be equally debilitating as many other psychological disorders and has also proven a challenge to find lasting treatment. The current view among most professionals has changed, thanks to the resurgence in the literature during the last ten years, with social anxiety becoming the emerging hot topic of the new millennium.

Perfectionism

Socially anxious individuals have been found to have high expectations in regards to their social performance, and become overly self-critical when they fail to reach those expectations. For this reason, many of these key components of social anxiety are also central to the definition of perfectionism, which has been defined as the tendency to set excessively high standards and to engage in overly critical self-evaluations (Frost, Marten, Lahart, & Rosenblate, 1990). There has

been a good deal of research looking at the constructs of perfectionism and the effect of perfectionism on emotion and behavior. The early perfectionism literature adopted a more singular and unidimensional construct (Burns, 1980), whereas more recently, a multifaceted conceptualization has proven popular and accurate (e.g. Frost, Marten, Lahrt, & Rosenblat, 1990; Rheaume, Freeston, Dugas, Latarte, & Ladouceure, 1995). For example, early studies viewed perfectionism as solely the “setting of excessively high personal standards,” (see: Shafran & Mansell, 2001 for a review of the early research). As will be described in more detail in Chapter Two, Frost and colleagues (1990) propose that perfectionism is best understood across several dimensions that include: having excessively high personal standards; a chronic concern over mistakes; a need for, and pursuit of, organization; and frequent doubts about one’s actions.

A more recent debate has questioned whether perfectionism can be both a positive and negative construct, as was first introduced in Slade and Owens’ (1998) Dual Process Model of Perfectionism. The researchers define positive perfectionism as a “predominantly normal or healthy form that carries positive benefits for the individual.” (p. 377). Such “positive” traits were described as a positive striving to meet one’s goals, high personal, social, academic and career standards, and high levels of organization. Furthermore, that these aspirations were “driven by positive reinforcement and a desire for success” (p. 378). They go on to say that negative perfectionism on the other hand is associated with neuroticism, dissatisfaction, maladaptive evaluation concerns, and a high level of socially prescribed perfectionism (i.e. the perception that others demand perfection from you).

Although researchers in this area welcomed this dual process model, others had problems with it. For example, Flett and Hewitt (2006) felt that positive perfectionism is influenced more by an avoidance orientation and a fear of failure and that recent attempts to define positive perfectionism may have confused mere conscientiousness with perfectionism. For example, high

motivation, organization, and ambition may be traits of true perfectionists, yet these traits would also be used to define social and personal conscientiousness. The researchers believe that the term perfectionist “should be reserved for those who hold rigidly to their standards even in situations that do not call for perfection, and continue to place an irrational importance of impossibly high standards in not one, but several life domains” (p. 476). This belief was supported by other research that has shown that people with high perfectionist goals are commonly low in self-satisfaction because of the difficulty in obtaining such unrealistic goals (Locke, 1996).

Considering this study’s focus on relating social anxiety with perfectionism, defining perfectionism as primarily a negative state may prove more accurate and appropriate. As Asher Pacts, the former president of the American Psychological Association, said:

“My bias is that perfectionism is not only an undesirable goal but a deliberating one as well. In my judgment, perfection per se does not exist in reality, but it is the striving for that nonexistent perfection that keeps people in turmoil and is associated with a significant number of psychological problems” (1985, p. 386; as cited by Flett & Hewitt, 2006).

As Dr. Pacts was referring, perfectionism has been found to have strong ties with several forms of psychopathology. The literature has shown that perfectionism is associated with depression (e.g. Blatt, 1995), obsessive compulsive disorder (e.g. McFall & Wollersheim, 1979), trait anxiety (e.g. Diffenbacher et al., 1986), anorexia and bulimia (Halmi et. al., 2000), and panic disorder (Iketani, 2002). Likewise, studies have also shown that social anxiety sufferers have some of the thoughts, feelings, and behaviors associated with perfectionism among a clinical population (Alden & Wallace, 1991; Juster et al., 1996; Saboonchi, Lundh, & Ost, 1999). In fact, a common feature of social anxiety is the presence of a significant disparity between

perceived self-ratings of social performance versus the actual ratings by attending others (Mansell & Clarke, 1999). In other words, socially anxious individuals inaccurately evaluate their own performance and misinterpret the expectations and signs of others. Both of these perfectionist related tendencies are central in the cause and maintenance of social anxiety. This cognitive cycle of social phobia, with perfectionism interpreted as a contributing factor, will be discussed in more detail in Chapter Two.

Perfectionism and Social Anxiety among College Students

A great deal of recent attention has been given to the mental health of college students. Although it was once assumed that college students experienced little if any psychological disturbance, research from college counseling centers are telling quite a different story. In a recent national survey, 60 percent of university counseling center directors reported record numbers of students using their centers, and for more extended periods of time (National Survey of College Counseling Center Directors, 2006). In Kadison & DiGeronimo's (2004) landmark book, *College of the Overwhelmed: The Campus Mental Health Crises and What to Do about It*, the authors note:

If your son or daughter is in college, the chances are almost one in two that he or she will become depressed to the point of being unable to function; one in two that he or she will have regular episodes of binge drinking (with the resulting significant risk of dangerous consequences such as sexual assault and car accidents); and one in ten that he or she will seriously consider suicide. In fact, since 1998, the likelihood of a college student suffering depression has doubled, suicidal ideation has tripled, and sexual assaults have quadrupled (p. 1).

What are some of the reasons for this dramatic rise of mental illness in colleges across America? Most researchers believe that the root of this crisis is fueled in good part by increasing levels of

competitiveness across several systems of the child's life (Patterson, 2003, as cited by Kadison & DiGeronimo, 2004), and that our children today are often expected to be perfect in many ways. They are expected to get into a good college, make athletic teams, maintain a certain grade point average, make friends, find a good girlfriend or boyfriend, choose an academic major and stay with it, find a job after graduation, and pay off student loans. Not only do parents have these expectations of their children, but the society does also. It is perhaps not surprising that many children feel they cannot keep up with the societal, parental, and ultimately self-imposed perfectionistic pressures. This pressure may also be influenced by who is paying for college. Often, parents make great sacrifices to get their children through college which will only elevate the child's possible need to not disappoint their parents.

Although numerous mental health problems may result from this form of competitiveness and pressure, recent research is supporting the theory that stress, anxiety, and social anxiety are some of the most common bi-products. Nearly half of all college students report feeling so depressed and anxious during their college experience that they have trouble functioning (American Psychiatric Association, 2002), and according to a 1997 national study conducted by the Harvard School of Public Health, nearly half of all college students surveyed drank four or five drinks in one sitting within the previous two weeks. In fact, a recent study found that the prevalence of binge drinking and "pre-partying" on campus is most related to social anxiety than any other disorder (Ham, Bonin & Hope, 2006).

Although there are a limited number of studies that have estimated the prevalence of mental illness on college campuses, studies have shown that as few as 9.1 percent (American College Health Association, 2002), and as many as 20 percent of college students (Strahan, 2003; Turner, 1989) frequently suffer from social anxiety symptoms. Furthermore, college students who rated themselves as perfectionists also had a greater number of depressive episodes

and lower self-esteem scores, than student who rated themselves as non-perfectionists (Ashby & Rice, 2002; Preusser, Rice, & Ashby, 1994). Hewitt, Flett, and Weber (1994) found an alarming connection between college students who consistently set high standards for themselves or believed that others expected only excellence in their performance reported significantly higher scores on measures of suicidal ideation.

In sum, Kadison and Geronimo (2004) articulate the issue well: “It seems to me that college students today are more driven to succeed than any generation before them-and more likely to break down” (p. 124). These findings demonstrate not only the prevalence of perfectionism among our college students today, but the related mental health risks. Although it is not clear which issues college students struggle with the most, whether it be, for example, social anxiety, stress, drinking, depression etc., what is clear is the pressure and fear that many college students experience and how this population needs our attention now more than ever.

Social Anxiety, Perfectionism, & Academic Major

Although the prevalence and relationship of social anxiety and perfectionism is the primary interest of this dissertation, a secondary interest is how perfectionism and social anxiety may be distributed across academic majors. In other words, do certain academic departments attract certain personalities?

Research has shown that socially anxious students either avoid a college education, or implant themselves in an academic major (e.g. math, physics) that allows them to minimize their social interaction (Holland, 1997; Smart, Feldman, and Ethington, 2000). So, it seems that college students today are not only struggling with social anxiety and perfectionism, but may also feel pigeon-holed in academic majors or careers because of these problems.

It seems logical that shy individuals would avoid academic disciplines that demand social comfort and skill (e.g. music and communications) than academic disciplines that require this

skill to a lesser degree (e.g. math and physics). This logic is supported in the research, most broadly in the sense that individuals seek out environments that are congruent with their personality, commonly referred to as the “Person-Environment Fit” theory (Holland, 1976; 1985). This theory has been best illuminated in the study of college students (Holland, 1997) where a relationship between personality type, college major, and post-college vocation has been found (Smart, Feldman, and Ethington, 2000; Pike, 2006).

These studies have shown that introversion, shyness, and social anxiety are more common among what Holland (1997) referred to as *realistic* (e.g. engineering, physics) and *investigative* type vocations (e.g. accounting, mathematics, astronomy) than *artistic* (e.g. music, theater) and *enterprising* (e.g. marketing, communications, business management) type vocations. Others seeking to confirm this *person-environment fit* theory have found considerable evidence among college students with different personality styles (Hackett & Lent, 1992; Walsh & Holland, 1992), as well as specifically with social anxiety (Feldman, Ethington, and Smart, 1999; 2001; Shepard, 2006). These findings provided sufficient evidence for the theory that there would be higher rates of shyness and social anxiety among math and physics majors than among music and communication majors, and that these differences between the two groups would be the ideal methodological approach to assess the relationship between social anxiety and perfectionism.

Rationale and Significance

This study’s prerogative was to provide data that is important for psychologists in research, counselors working in colleges and universities, as well as faculty and staff who work with students. The rationale and significance of this study will be discussed separately across each of these related systems.

Research Significance

Thus far, much of the research looking at social anxiety and perfectionism has been done with an adult clinical sample. Although this research is important in learning more about the cognitive tendencies of social anxiety, these findings are not generalizable to a younger college-aged population, as well as to those who may not experience social anxiety to the degree that would meet criterion for diagnosis. Therefore, a primary reason for continued study is to extend these findings to another demographic group that appears to be experiencing perfectionism, social anxiety, and other mental health issues.

As will be discussed in Chapter Two, these studies have also been somewhat inconclusive about the relationship between social anxiety and perfectionism. In fact, the following two features of perfectionism as termed by Frost et al. (1990): *concerns over mistakes* and *doubt about actions* are the only two of the six dimensions that have shown a consistently significant correlation with social anxiety (Rosser, Issakidis, Peters, 2003). Other forms of perfectionism in Frost et al.'s (1990) scale, specifically *parental expectations*, *parental criticism*, and *personal standards* have shown mixed and inconclusive results (Juster et al., 1991; Rosser, Issakidis, Peters, 2003). This is surprising, considering that numerous scholars stand by a social developmental perspective of anxiety that emphasizes the influence of parental style and personality, early social experiences of anxiety, social embarrassment or trauma, personal and social standing, limited social exposure, and the social learning of anxiety from family members (Gerlsma, Emmelkamp, & Arrindell, 1990; Parker, 1990; Rapee, 1997; Harvey, Ehlers, and Clark, 2005). Therefore, the research rationale of this study is to add to and improve upon these previous findings in the research literature.

Clinical Significance

Social anxiety is a major problem on college campuses today. Likewise, there is a climate of perfectionism that is driving many college students to utilize counseling centers at record numbers. Although these alarming statistics will be discussed in Chapter Two, the high prevalence of these conditions is one of many reasons why this study is clinically important. Further rationale for this study lies in the need to find more effective intervention strategies for social anxiety and negative forms of perfectionism. The findings of this study will be important for psychologists working in mental health settings, and especially relevant to counselors working in colleges. In fact, the 2005 National Survey of Counseling Center Directors showed that almost 30% of college students will see a counselor during their four years of college, with numbers rising every year. Yet, counselors in college centers often report a lack of research on the college student population to guide their practice (e.g. Allen, 1998). If the data finds a relationship between social anxiety and perfectionism or with academic major and perfectionism and/or social anxiety, therapists can target educational programs to certain groups, or provide cognitive-behavioral (CBT) strategies to minimize the perfectionism tendencies among clients with social anxiety. This latter point is important, as, although cognitive and behavioral therapies have shown positive short term results (Heimberg & Juster, 1995), the achievement of long term treatment effects have been more of a challenge (Gould et al., 1997). This has evoked many researchers to call for a greater understanding of the social, cognitive, and behavioral tendencies of social anxious individuals to accurately target intervention (see Barlow, 2002 for a review). For example, if various forms of perfectionism (e.g. *Personal Standards, Organization, Doubts About Actions, Concern Over Mistakes, Parental Expectations, and Parental Criticism*) are found to be associated with social anxiety, clinicians might be better able to accurately target strategies to minimize such forms of negative self-assessment and parental care-giving.

University Significance

Many universities are on the verge of a crisis. Students are dropping out because of mental illness, waiting lists at counseling centers are increasing, and many university faculty and staff feel unprepared and unqualified to meet the growing needs of today's college students (Kadison & Geronimo, 2004). For this reason, several researchers have called for an increase in research assessing levels of mental health on campuses, as the data is very limited. Learning about the prevalence and relationship of social anxiety and perfectionism across academic majors will provide data important for the university community. It is likely that advisors, residential staff, professors, and those working in the career center would find this data relevant to their work.

For example, college counseling centers, which often play a significant role in freshman student orientation, need to guide their training with empirical research that informs them of the current needs and concerns of students. In other words, if high rates of social anxiety and perfectionism are found in this study, whether the two constructs are related or not, counselors can learn ways to educate the campus about coping with stress, anxiety, social fears, and academic and social expectations.

In regard to the significance of assessing social anxiety and perfectionism across academic major, if social anxiety is more prevalent among physics majors, advisors, teachers, and residential life staff may be able to offer more social events to minimize social avoidance. Or, if math majors experience more social anxiety and feel that their career options are limited because of it, the career center and counseling center could work together on a solution. Likewise, if music majors were highly perfectionistic, professors could explore how these tendencies help and hinder their public performances, or if several students wanted to major in communications but felt that they could not because of their social fear or social skill deficits,

professors could supplement their courses with the teaching of skills and strategies to minimize anxiety during academic public speaking and media presentations.

Although there are several benefits of this study, the central goal is to establish data that will someday help the students. Survey studies have clearly illustrated that colleges are no longer safe havens of psychological well-adjusted students, but highly competitive social and academic environments where young adults are under tremendous pressure.

This study's primary directive of assessing this pressure related to anxiety and perfectionism will educate those working in mental health professions, schools, and universities, and ultimately and ideally inform the society to make sure that each of our college students today have the supportive services they need to reach their full potential.

Theoretical Foundation of the Study

In studying the multiple etiological theories of social anxiety for the past ten years, as well as the possible influences of several forms of perfectionism, a cognitive and ecological theoretical approach provides the most appropriate foundation for this study. Although several theoretical explanations in the development of social anxiety will be discussed in Chapter Two, from the genetic (Tilfors, 2004), to the neurological (Charney, 2004), to the familial (Gerlsma, Emmelkamp, & Arrindell, 1990; Merikangas, Lieb, Wittchen, Avenevoli, 2003), the focus will primarily integrate a cognitive and ecological framework, as these studies have received the most scholarly attention and have garnered the most empirical evidence (e.g. Beck, Emery, Greenberg, 2005; Rapee & Heimberg, 1997; Clark & Wells, 1995). Although social anxiety and perfectionism has a strong cognitive component, these conditions and constructs are often mitigated by our cultural environment. The findings and implications of this study through this theoretical lens will be discussed in Chapter Five

Statement of the Problem

The purpose of this study is to explore the relationship between several forms of perfectionism and social anxiety among college-aged students from distinctly different academic areas. The problem is two-fold: 1) do socially anxious traits coexist with more perfectionist tendencies among college students? and 2) is this relationship predicted by academic major, either by disciplines known for their social skill requirements (music, communications) or those that are less known for this skill (math and physics)?

Further support for continued research is that the majority of work investigating perfectionism and psychopathology has paid less attention to social anxiety, despite the fact that features of social anxiety are very similar to features of perfectionism (e.g. self-criticism, inaccurate evaluation of self and environment, overvaluation of the expectations of others, and an undervaluation of one's own abilities, etc). This study seeks to provide further evidence for this uncertain relationship between social anxiety and perfectionism, and verify the prevalence of these problems among college students across several academic areas.

Discussion of Terms

Social Anxiety

Social anxiety, also called social phobia, is characterized by a marked and persistent fear of social situations in which embarrassment may occur (DSM-IV-TR, 2000). People with social anxiety worry persistently about being watched and negatively viewed by others and display a myriad of anxiety related symptoms and behaviors before, during, and after a social event (Clarke, 1995). More recently, researchers have been looking at social anxiety as being experienced in one or two specific social situations (specific or non-generalized social anxiety) or in most or all social situations (generalized social anxiety) (e.g. Hoffman et al., 1999). An

example of specific social anxiety might be someone who only fears writing in front of others, yet is comfortable speaking in front of others.

Other situations that may be a challenge for socially anxious individuals as recognized in the Liebowitz Anxiety Scales (1987) might include: telephoning a stranger; looking at people whom you do not know very well in the eyes; urinating in a public bathroom; taking a test of your ability, skill or knowledge; expressing disagreement or disapproval to someone you do not know very well; giving a party; and/or entering a room where others are already seated. Common themes across all variations of this phobia include a fear of interacting socially, a fear of appearing socially weak or incompetent, and a fear of being judged or scrutinized by others. The National Institute of Mental Health (NIMH, 2006) report that the most common physical symptoms associated with social anxiety include: blushing, profuse sweating, trembling, nausea, and difficulty talking.

Common features of social anxiety disorder include a hypersensitivity to criticism, a fear of negative evaluation or rejection, difficulty being assertive and low self-esteem or feelings of inferiority (DSM IV-TR, 2000). The lifetime prevalence of social anxiety ranges from 3% to 13% with women being diagnosed twice as often as men (DSM IV-TR, 2000). Social anxiety often begins in adolescence, occasionally in childhood, and only rarely after the age of twenty-five (Barlow, 2002). Research has yet to explain the reasons for this common age of onset, but one might speculate it being related to the social development expected during the teenage years.

A final proposed feature of social anxiety is the perfectionistic tendency of setting high personal standards of performance. The research has shown there is often a disparity between how the socially anxious individual rates or interprets his or her social performance, and how attending others may interpret or rate their performance. To complement our description of social

anxiety, a short description of the multiple forms of perfectionism will also prove important in introducing this study.

Perfectionism

The American Heritage Dictionary defines perfectionism as “a propensity for being displeased with anything that is not perfect or does not meet extremely high standards.” Although this definition is accurate in popular culture, it varies somewhat across disciplines. As described earlier, views of perfectionism in psychology have evolved over the last 30 years. The main change is that perfectionism in our field today is viewed largely as a multidimensional construct with several features versus a singular construct with one defining feature. Likewise, it has also adopted a more negative connotation due to its relationship to several forms of psychopathology. This study has adopted both Hewitt and Flett’s (1995), as well as Frost et al.’s (1990) definition of perfectionism as both take into consideration the multidimensional complexity of this construct. Hewitt and Flett (1995) identified three components of perfectionism: 1) *self-oriented perfectionism*, which refers to unrealistic standards for the self, 2) *other-oriented perfectionism*, which refers to unrealistic standards toward others, and *socially prescribed perfectionism*, or the belief that others hold perfectionistic expectations and motives for oneself.

As introduced earlier, Frost et al. (1990) proposed the now widely used Multidimensional Perfectionism Scale, which defines perfectionism across six domains. This scale includes the following six components: 1) concerns over mistakes (CM), 2) doubts about actions (DA), 3) parental expectations (PE), 4) parental criticism (PC), 5) organization (OR), and 6) personal standards (PS), (MPS-F; Frost et al., 1990). These areas have been found to be most closely related to the perfectionist experience and will be used for this project as a measurement scale.

Research Question

The following three research questions are proposed: 1) Are college students with social anxiety traits more likely to have ¹perfectionist traits than college students who do not have ²social anxiety traits? 2) Are social anxiety traits more common among math and physics majors than communication and music majors? 3) Are perfectionist traits more common among math and physics majors than communication and music majors?

Chapter Summary

This chapter provided a background of the problem, some rationale for further study across research, clinical, and university domains, a specific statement of the problem, and three research questions to address the problem. A cognitive-behavioral and ecological foundation was also introduced to illustrate the theoretical basis for the study. In addition, operational definitions of social anxiety and perfectionism were briefly introduced to inform the reader prior to the literature review in the next chapter. More in depth definitions will be offered in Chapter Two, including the socio-cultural factors related to perfectionism and social anxiety. In sum, the following chapter will explore relevant social anxiety and perfectionism research from both epidemiological, multicultural, and etiology perspectives.

¹ As measured by Frost et al.'s (1990) *CM, DA, OR, PS, PE, and PC* subscales of perfectionism.

² As measured by Mattick & Clarke's (1989) *Social Anxiety Scale* and *Social Interaction Anxiety Scale*.

CHAPTER 2

Review of the Literature

Introduction

This chapter provides a comprehensive review of the social anxiety and perfectionism literature that has been conducted over the past twenty years. Several areas of the social anxiety research will be explored, specifically studies that have assessed the prevalence of the disorder across age, race, and gender, the biological and psychological symptoms or tendencies of the disorder, and the proposed origins of the disorder across several theoretical domains. The perfectionism literature will also be examined as it relates to race, psychopathology, and social anxiety, as well as studies that have examined the relationship between race, gender, and choice of academic major. A cognitive/ecological orientation will provide the primary theoretical framework for this study, although the following multi-theoretical review will illustrate the development of the social anxiety and perfectionism research, and provide further background and support for this study. This chapter will include the following sections: epidemiology of social anxiety, etiology of social anxiety, perfectionism & mental illness, and perfectionism and social anxiety.

Epidemiology of Social Anxiety

Several researchers have explored social anxiety across gender, culture, race, and age (Lepine & Lellouch, 1995; Lipsitz, & Schneier, 2000), which has helped psychologists understand the complex nature and nurture of the disorder. This section reviews several studies that have explored the prevalence rates of social anxiety, and the demographic characteristics associated with the disorder.

Prevalence Rates

Prevalence rates for social anxiety are generally thought to be historically inaccurate due to the lack of sensitivity in the measures used and the infrequency of socially anxious individuals seeking treatment. The latter issue is highly influenced by the nature of the disorder itself, as an individual who fears social interaction and scrutiny from others is less likely to bring his or her issue to friends, family members, and/or health care providers. This issue is supported by early epidemiology studies that estimated a lifetime prevalence rate between 1% and 4% (e.g. Schneier et al., 1992), whereas more recent studies have found prevalence rates to be at least double (Lipschitz & Schneier, 2000). For example, using more current and sensitive assessment measures, as well as an extensive sample from the National Comorbidity Survey, Magee et al., (1996) found that the lifetime prevalence of social anxiety was 13.3%. Similarly high rates from the same researchers were found in Canada (7.1%), Germany (8.7%), and Switzerland (16%). Likewise, using a survey with empirically sound measures, Furmark et al., (1999) discovered a prevalence rate of 15.6% in 2000 randomly selected Swedish adults.

In a more recent study using the National Comorbidity Survey-Replication (NCS-R), Kessler, Chiu, Demler, and Walters (2005) found a 12-month prevalence rate of 6.8% for social anxiety and a lifetime prevalence rate of at least double. The following 12-month prevalence rates have been found for other psychiatric conditions: Schizophrenia (1.1%), Panic Disorder (2.7%); Generalized Anxiety Disorder (3.1%) Attention Deficit Hyperactivity Disorder (4.1%); and Major Depressive Disorder (6.7%) (NIMH, 2006). Out of these disorders, the NCS-R study places Social Anxiety as one of the most prevalent, followed only behind alcohol abuse (6.9%; Grant et al., 2004). Although some may argue a greater prevalence of one disorder over another, what is clear is that it is a very common disorder that requires a good deal of research and clinical attention.

Demographic Characteristics

Social Anxiety, Age, and Gender

Epidemiological studies have also explored the prevalence of social anxiety by age, gender, educational level, and income. In regards to age, social anxiety often begins in adolescence, occasionally in childhood, and only rarely after the age of twenty-five (Barlow, 2002). Prevalence rates decrease with age, and those over the age of 65 years rarely meet diagnosis for the disorder (Schneier et al., 1992; Kessler, Chiu, Demler, and Walters, 2005). Although the early literature found that social anxiety was experienced by women three to four more times than men, more recent findings have found a ratio of 3 to 2 more accurate (Kessler, Chiu, Demler, and Walters, 2005). Interestingly, females may be more likely to suffer from the condition, yet males are more likely to seek treatment (Weinstock, 1999), which may be due to differences in gender roles and social expectations. In other words, men may be expected to be less socially anxious than women, and, therefore, feel a greater social need to seek treatment.

Looking at the influence of gender and the different types of fears associated with social anxiety, Turk et al. (1998) found no differences in regard to social anxiety subtypes, history of social anxiety, or co-morbidity of additional anxiety disorders, but did find that socially phobic women experienced more fear than men in performing in front of a crowd, entering a room while others are already seated, and giving a party. Socially phobic men, on the other hand, were found to have a greater fear than women in returning merchandise to a store and urinating in public bathrooms.

Social Anxiety and Race

Very few studies have explored the prevalence of social anxiety across race and ethnicities. The studies that have been done have shown mixed results. While Hybels, Blazer, and Kaplan (2000) found that African Americans were more likely to have social anxiety as compared to Whites in a large epidemiology study of British adults, more recent studies have found that the prevalence of social anxiety is very similar across African Americans, Whites, Native Americans, Asian-Americans, and Latinos (Smith et al., 2006).

In looking at anxiety disorders as a whole, Turner & Lloyd, (2004) found that the lifetime prevalence rates for Blacks was 3.2% and 6.3% for Whites, although Lawson (2003) found that Black were also more likely to be misdiagnosed. Wang et al. (2005) found that the lifetime prevalence rates for social anxiety among Blacks and Whites were very similar, although whites sought treatment for social anxiety at greater rates than blacks. Several researchers have called for more of focus on both the prevalence of social anxiety across race and ethnicities and how race might mediate the effectiveness of certain forms of therapeutic interventions (Ferrell, Beidel, & Turner, 2004, Breslau, 2006).

Race & Perfectionism

Research exploring the relationship between race and perfectionism is also somewhat limited. Although many people may have thought that perfectionism was more of a “White middle class phenomenon,” recent research clearly refutes this assumption. Van Hanswijck & Waller (2003) examined levels of perfectionism among 357 White and Black students, and found that Black males and females had greater levels of self-oriented and other-oriented perfectionism than their white peers. This race differential has been supported in several other studies exploring perfectionism and psychopathology (Wassenaar, le Grange, Winship, & Lachenicht, 2000;

Striegel-Moore et al. 2000), with the overall finding that Blacks rate themselves as more perfectionistic than Whites.

Castro & Rice (2003) conducted an even broader multi-ethnic evaluation of perfectionism and found that Asian-American students scored significantly higher than black students, who scored higher than White students on three of Frost's six perfectionism subscales. Interestingly, minority students reported significantly higher parental expectations than White students in every study examining race and perfectionism. Although one can only speculate why minority students have higher rates of perfectionism, Van Hanswijck & Waller (2003) suggest that Black adolescents might feel the need to overcorrect their performance as a result of their perceived lower status in society.

In several studies comparing levels of perfectionism among White students and Asian students, Yee (1992) consistently found that Asian-Americans have more concerns about making mistakes, greater levels of parental expectations and criticism, and greater doubts about their actions than White-Americans. Interestingly, studies that have linked perfectionism with various forms of mental illness have shown that although minority students often have higher rates of perfectionism, they have similar rates of depression and anxiety than White students (Chang, 1998). Although these findings give us some interesting background on the relationship between race and perfectionism, a connection between race, perfectionism, and mental illness has yet to be fully explored in the literature. Most researchers have concluded at this point that perfectionism is influenced by race and ethnicity, and that perfectionism is an important predictor of several forms of psychopathology, yet race appears not to predict rates of social anxiety (Yee, 1992; Nilsson, Paul, Lupini, & Tatem, 1999; Chang, 2000).

Race, Ethnicity, Gender and College Major

While many Universities track the racial demographics of their undergraduate and graduate students, interestingly, most academic departments do not. In fact, many higher educational researchers have called for a greater understanding of the distribution of gender, race, and nationality across academic departments (Dickerson & Jacobs, 2006). Some researchers have explored how race, gender and ethnicity influence a college student's career plans and academic research, but the empirical data is limited. Looking at data from the National Educational Longitudinal Study, Trusty & Plata, (2000) found that women were more likely to be found in the social sciences than in the physical sciences. For example, a U.S. Department of Education report (Snyder & Hoffman, 2000) found that the percentage of bachelor degrees earned by women in engineering and physics were 18% and 19%, respectively, and sociology and psychology 61% and 76%, respectively.

In an extensive review concurring the impact of gender and college major choice, Mullen (2005) concluded "that women closely fit the ideal of the liberal arts student, choosing college majors primarily based on their intellectual interests with little regard for future work or earnings. Men, on the other hand, are often drawn away from their interests to choose majors based on prestige and income potential" (p. 1). Although a good deal of research has confirmed Mullen's findings, specifically that women are more represented in the departments of Education, Sociology, Psychology, etc. than Physics, Math, Engineering etc. (Robst, 2007), some researchers have found that the gender gap is narrowing (Sax & Harper, 2007).

Other studies have found that Asian-Americans, whether male or female, have an over-representation in the physical and biological sciences, engineering, computer sciences and a significant underrepresentation in the social sciences and the humanities (Susuki, 1988). Leong & Hayes (1990) propose that Asian-Americans view hard work and education as the best way for

social mobility, and therefore pick certain majors that will financially facilitate this mobility. In evaluating the trends of college major choice among Asian-Americans from the National Education Longitudinal Study data, Song & Glick (2004) found that 23.3 percent of Asian women were enrolled in business-related fields (accounting, finance, business, etc.) compared to 11.8 percent of White women.

In a more comprehensive study looking at a sample of over 9,000 undergraduate students, Staneic (2004) looked at the race and gender distribution of three categories: science, engineering, and math (SEM); humanities and fine arts (HFA); and social science/other (SSA) which included business, education, and undeclared majors. The results revealed that Asian students (Men: 37.6%; Women: 31.5%) were more commonly in the Science, Engineering, and Math (SEM) departments as opposed to the White students (Men: 31.5%; Women: 21.5%). The data also showed that White and Black students were equally distributed across majors except that whites were twice as likely to be represented in the humanities and fine arts as blacks, but half as likely to be represented in vocational majors.

Although these race and gender distributions may not mimic the distributions on the University campus chosen for this study, this data provides some idea of the racial and gender distribution we might see across the four majors chosen for this study. It should be noted, though, that although race and gender may have some impact of academic major choice, the data will often be highly influenced by the size and location of the University itself. These variations inspired this study to administer a demographics survey to see how race and gender may impact perfectionism, social anxiety, and academic major at a large urban university in the northeast.

Co-morbid Features of Social Anxiety

Like many psychological disorders, social anxiety is often experienced with other forms of mental illness. In a review by Wittchen and Fehn (2003), between 50-80% of clinical patients

with social anxiety had at least one other psychiatric disorder (Merikangas & Angst, 1995; Lecrubier & Weiller, 1997), with other phobic disorders (e.g. Becker, Turke, & Neumer), depressive disorders, and substance abuse (e.g. Farvavelli, Zucchi, & Viviana, 2000) being the most prevalent. In fact, studies show that social anxiety nearly always precedes other mental disorders, suggesting that social anxiety puts a person at a high risk for developing other psychiatric conditions (Lepine & Pelissolo, 1996).

In a study by Chartier, Walker, and Stein (2003), the researchers examined the comorbidity of social anxiety, and its subtypes (generalized versus non-generalized) with other psychiatric diagnoses. Using a sample of 8,116 Canadian respondents aged 16-34, the following trends were discovered: 1) 52% of respondents with social anxiety reported at least one other mental disorder, 2) 27% reported three or more mental disorders, and 3) social anxiety was strongly correlated with other anxiety and mood disorders, and moderately correlated with alcohol abuse. When looking at the two social anxiety groups: specific social anxiety (e.g. a fear in one or two social domains) and the generalized social phobic (fear across most social domains), the latter group was significantly more likely to experience a co-morbid condition. Table 1 below presents the results of the study and shows that simple phobia (fear of a specific stimulus, 25.4%), agoraphobia (fear of being in a place where escape may be difficult, embarrassing, or that may evoke panic, 13.2%), major depression (18.8%), and alcohol abuse or dependence (16.3%) are the most commonly coexisting conditions.

³**Table 1** – Prevalence rates of comorbid disorders among respondents with social anxiety, not-exclusively speaking-social-phobia, public-speaking-social anxiety, and no social anxiety.

| Comorbid Disorders | Prevalence Rates (%) No social anxiety | Prevalence Rates (%) Social anxiety | Prevalence Rates (%) Public Speaking Social anxiety | Prevalence rates (%) Not-exclusively- speaking-social- phobia |
|---------------------------------|-------------------------------------------|----------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------|
| Simple Phobia | 6.1% | 25.4% | 19% | 31.5% |
| Agoraphobia | 1.9% | 13.2% | 6.6% | 21.5% |
| Panic disorder | 1.1% | 5.8% | - | 10.7% |
| Generalized anxiety disorder | 1.1% | 7.4% | - | 12.4% |
| Dysthymia | 1.2% | 8.8% | - | 13.1% |
| Major depression | 6.5% | 18.8% | 8.6 | 31.3% |
| Bipolar disorder | 0.4% | 4.0% | - | 6.9% |
| Antisocial personality disorder | 1.5% | 3.2% | - | - |
| Drug abuse and/or dependence | 3.2% | 6.7% | - | 11.2% |
| Alcohol abuse and/or dependence | 9.6% | 16.3% | 11.3 | 22.5 |
| Alcohol abuse | 6.0% | 7.2% | - | - |
| Alcohol dependence | 3.6% | 9.3% | - | - |

Note: -- dashes indicate that numbers are too small to be considered reliable

Individuals with social anxiety have also been found to have more difficulties with employment, are more commonly single, are in a lower income bracket, and are often either unemployed, and/or have difficulty maintaining employment (Stemberger et al., 1995; Bruce & Saaed, 1999). It is uncertain whether these issues are related to the cause of the disorder, or are mere outcomes of the disorder. In other words, does the isolation often associated with unemployment and being single increase the susceptibility to developing social anxiety, or does the debilitating fear and avoidance associated with social anxiety effect a person's ability to find or keep a job, obtain a college degree, get promoted to increase income, and find a spouse? It seems likely that these factors play a role in both the cause and outcome of the disorder, and perhaps may even mediate the severity of the disorder itself.

³ Chartier, Walker, & Stein (2003), Page 731.

Etiology of Social Anxiety

Although studies looking at the origin of social anxiety are still in their infancy, evidence for both genetic and environmental influences have been found. Research thus far has investigated several related areas, primarily: genetics (e.g. Kendler et al., 1992), cognitive factors (Marcin & Nemeroff, 2003), family factors (e.g. Gerlsma, Emmelkamp, & Arrindell, 1990; Merikangas, Lieb, Wittchen, Avenevoli, 2003), and non-family/environmental factors (see Hudson & Rapee, 2000 for a review). Genetic studies look at the influence that genes have on anxiety by comparing twins reared in shared and non-shared environments; cognitive studies look at both the causal and correlational cognitive tendencies ranging from conscious self-evaluation to subconscious cognitive biases related to attention, memory, and interpretation; family studies explore the role of child rearing, modeling/social learning, and restricted social exposure; and non-family environmental studies explore the effects of social trauma, bullying, and social isolation.

Other scholars have adopted a more integrative model when looking at social anxiety; in other words, one that takes into account a multidimensional and multi-theoretical etiological approach (Barlow, 2002). This section will summarize and critique the literature across these domains, while paying particular attention to both the cognitive and family factors related to the origins of social anxiety.

Neuro-Physiological Influences

Individuals with social anxiety often experience visible and non-visible signs of anxiety. Visible signs frequently include: sweating, trembling, blushing, and cold clammy hands (Hope, Rapee, Heimberg, & Dombeck, 1992). More subtle physiological tendencies include an increase in eye gaze, and greater facial expression and movement. Turner and Beidel (1985) found that heart palpitations and urinary urgency were experienced by socially anxious individuals more

often than controls from a list of ten somatic anxiety symptoms, and early research has shown that anxiety and social anxiety is associated with a decrease in eye contact (Daly, 1978; Hobson, Strong, Bull & Craig, 1973), and an increase in eye blinking (Jankovich, 1997). In addition, Harrigan and O'Connell (1996) discovered that clinically anxious participants had an increase in total facial movement, specifically with the use of non-enjoyment smiles, and frequent averted gaze. Likewise, Amies, Gelder, and Shaw (1983) found that socially anxious individuals had a greater tendency for facial twitching and repetitive jaw movements.

While many authors have shown that somatic symptoms are 'consequential' or 'secondary' cues in triggering a cycle of anxiety in socially anxious subjects (Mulkins, Bogels, & de Jong, 1999), others propose that the anticipatory fear of the somatic symptoms acts as the primary causal agent (Mersch et al., 1992). Whatever the degree to which the somatic symptoms play a role in social anxiety, virtually all researchers conclude that the production and attention to anxiety related self-physiology is highly influential and problematic in the course and outcome of the disorder (e.g. Barlow, 1998; Clark & Wells, 1995; Scholing & Emmelkamp, 1993).

Behind the visible physiological signs and symptoms of anxiety is a complex neurobiology that is both receiving and responding to the experience of agitation and fear. When a person perceives a threat, which for a social phobic might include attending a dinner party, or meeting someone for the first time, anxiety symptoms appear. These symptoms are activated by the autonomic nervous system. The autonomic nervous system is divided into the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). The sympathetic nervous system is the system that releases energy and prepares the body for the "fight or flight" response, whereas the parasympathetic nervous system stabilizes these action-oriented responses (Kaplan & Sadock, 1998). Both these systems either excite (SNS) or inhibit (PNS) adrenal glands in the kidneys to secrete chemicals such as adrenaline or serotonin (Tancer, Lewis, & Stein, 1995).

Sympathetic stimulation is said to be responsible for sweat gland activity, blushing, trembling, increased heart rate, and other social anxiety symptoms (Pohjavaara, Telaranta, & Vaisanen, 2003). Studies show that socially anxious individuals have an over-responsive sympathetic nervous system, and an under-responsive parasympathetic nervous system (Lader, 1975, 1980). This has been demonstrated by comparing heart rate (Holden & Barlow, 1986), galvanic skin response (Neff & Blanchard, 1987), and EEG activity (Hazlett, McLeod, & Hoehn-Saric, 1994) of anxious and non-anxious subjects during a stressful task.

Numerous studies comparing anxious and non-anxious subjects have determined where anxiety is most likely to be detected. Although not all neurobiological areas associated with anxiety will be able to be discussed in great detail in this dissertation, some of the most central will be introduced, specifically, the serotonergic system, the dopaminergic system, and the GABAergic system.

The Serotonergic System

Serotonin, or 5-hydroxytryptamine (5-HT) has been found to be involved in a range of anxiety-related functions and is influential in both the increase and decrease of anxiety (Tilfors, 2004). Although the specific relationship between serotonin and anxiety is still debated, what is more certain is the effectiveness of selective serotonin reuptake inhibitors (SSRIs) as an anxiolytic, or anxiety reducer (Van Ameringen, Mancini, Oakman, Farvolden, 1999). In fact, studies have found that 5-HT releasing agents, 5-HT reuptake inhibitors, and 5-HT receptor agonists are all beneficial in the treatment in modifying anxiety (Potts, Book, Davidson, 1996).

Deakin and Graeff (1991) suggest that there are two independent serotonergic pathways involved in anxiety. The first ascends from the dorsal raphe nucleus to the amygdala and frontal cortex to facilitate conditioned fear; and the other that descends to the periaqueductal gray region to inhibit unconditioned fear. An alternative theory is that there is one pathway with varying

concentrations of 5-HT with short-term and long-term lasting effects. This is supported by the fact that initial treatment with SSRI's causes an increase in anxiety before eliciting lasting decreases in anxiety (Stein & Stahl, 2000). Although the specific influences of this neurotransmitter are still questioned, what is clear is that many people suffering from social anxiety benefit from the use of SSRI's, therefore demonstrating the influence of serotonin.

The Dopaminergic System

Monoamine oxidase inhibitors (MAOI's) have been shown to have an anxiolytic effect on people suffering from social anxiety, which supports the theory that the dopamine system is involved in the regulation of anxiety (e.g. Potts, Book, & Davidson 1996). Studies have evaluated the impact of blocking agents and dopamine activating agents on anxiety and have found the former to increase anxiety and the latter to decrease anxiety (Leibowitz et al, 1987). Additional support for this relationship is demonstrated by low central nervous system dopamine activity in timid mice (Bell, Malizia, and Nutt, 1999), and in humans with panic disorder and social anxiety (Johnson et al., 1994). These findings and assumptions have been challenged by some research which has found an elevated rate of social anxiety in patients with Parkinson's disease, an illness characterized by depleted dopamine functioning (Stein, Heuser, Juncos, Uhde, 1990). These uncertainties are perpetuated by the fact that MAOI act on both serotonergic and dopaminergic functions, which has made it difficult to determine each neurotransmitter's degree of influence (Tilfors, 2004).

GABAergic system.

In 1977, the Benzodiazepine receptor was discovered (Mohler & Okada, 1977; Squires & Braestrup, 1977), as well as the inhibitory neurotransmitter GABA's ability to promote the binding of benzodiazepines to the receptor site. Two GABA receptors have been identified:

GABA_A and GABA_B, each of which contains several different binding sites. One of the binding sites of GABA_A responds to the class of drugs known as benzodiazepines. Examples of drugs include Valium, Ativan, and Zanax (American Psychiatric Association, 2004). Barlow (2002) conducted a review of studies that provide evidence for the involvement of the benzodiazepine system in anxiety and found that GABA antagonists appear to be anxiogenic (anxiety producing), and benzodiazepines appear to exert anxiolytic effects due to the enhanced GABA-ergic inhibition they produce (Insel, 1986; Gray 1985, as cited by Barlow, 2002).

Research is rather inconclusive regarding the role that the GABA-benzodiazepine receptor has on individual anxiety disorders (e.g. panic disorder, generalized anxiety disorder, social anxiety, etc.) While some attest that this site is central to social anxiety (Kalueff & Nutt, 1997), other researchers suggest that the benzodiazepines site is more related to panic disorder (Malizin et al. 1998) or to generalized stress and anxiety (Paul & Skolnick, 1981). Further questions arise due to the fact that some types of benzodiazepines are effective for social anxiety while others are not (Gorman & Gorman, 1987). For example, while Davidson et al. (1993) found that clonazepam was effective in a placebo controlled study, Gelernter et al. (1991) found that alprazolam was not very effective. These disparities have encouraged researchers to propose that the GABA-benzodiazepine system is more complex than once thought and new research has demonstrated other interrelated factors (Speigel & Barlow, 2000). Although these neurophysiological actions describe the internal processes associated with anxiety well, researchers interested in the biological causes have mostly investigated the genetic factors.

Genetic Factors

The majority of researchers who have related genetics to psychopathology employ twin studies. Despite a multitude of studies showing a genetic component to shyness and anxiety (e.g. Eaves & Eysenck, 1976), and panic disorder and agoraphobia (e.g. Crowe, Noyes, Pauls, and

Slymen, 1983; Carey & Gottesman, 1981; Torgersen, 1983), studies demonstrating a genetic relationship with social anxiety are scarce and inconclusive.

Kendler et al. (1992) did find that monozygotic twins had a concordance rate of 24%, whereas dizygotic twins had a concordance rate of 15%. In other words, if one identical twin had social anxiety, there was a 24% chance the other identical twin would have social anxiety. Likewise, if one non-identical twin had the diagnosis, the other non-identical twin had a 15% chance of having the disorder. Based on these results, the experimenters concluded that approximately one-third of the variance is genetically inherited, while two-thirds is most likely attributed to environmental factors.

Several researchers propose that it is not social anxiety itself that is inherited, but more the predisposition toward fearfulness, or what has been termed by some as behavioral inhibition (Stein, 1998). Behavioral inhibition refers to the tendency to be fearful of novel objects and stimuli, which is thought to be associated with a low threshold of limbic activation (Kagan, Reznick, & Snidman, 1987; as cited by Marcin & Neweroff, 2003). Other researchers would agree that what is being inherited is not social anxiety, but the vulnerability to excessive anxiety (Jardine, Martin, & Henderson, 1984). Andrews et al. (1990) would concur as they conducted a large twin study of 33 adult twin pairs with social anxiety and found no evidence for the specific heritability of individual anxiety disorders. They mention that the data supported the conclusion that what is inherited is not social anxiety but a propensity for general fear and anxiety.

These twin studies demonstrate that although genes may play a small role in the development of an anxiety disorder, or even social anxiety, there appears to be many causal pathways. Considering the degree to which a person's thoughts impact the maintenance of a phobia, whether it be a fear of spiders, heights, or social situations, it seems logical that cognitive factors play the most central role in the origin of social anxiety.

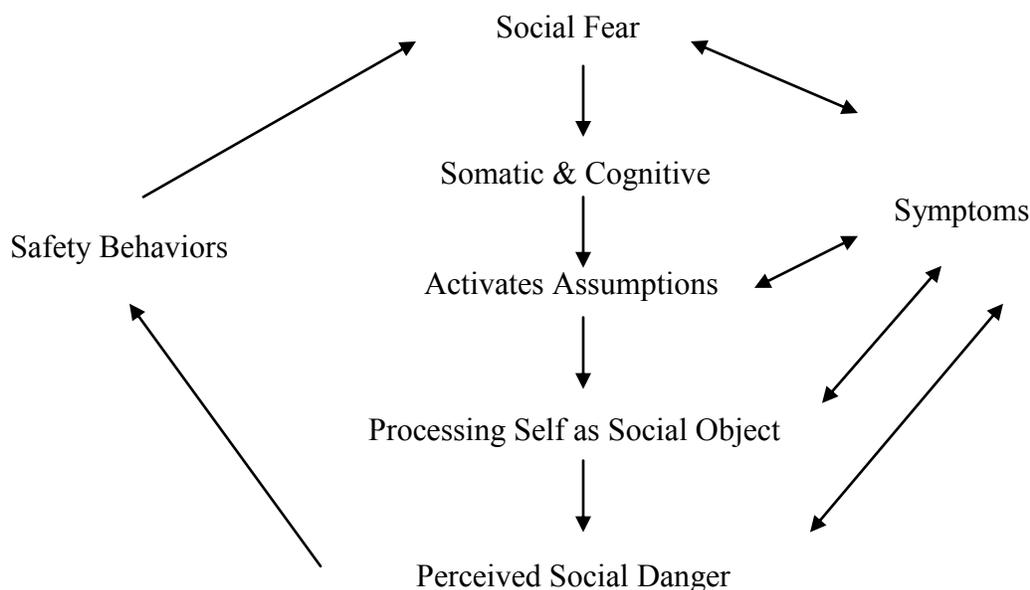
Cognitive Factors

There is an abundance of research looking at the conscious and sub-conscious cognitive tendencies associated with the disorder (the latter is known commonly as information processing biases). Conscious cognitive tendencies refer to the evaluative thoughts that the anxious individual has, and how these thoughts play a role in the cause, maintenance, and outcome of the disorder. It will become evident how this component is most related to the cognitive processes related to perfectionism discussed earlier. Subconscious cognitive tendencies refer to the anxious individual's information processing, which in general, the person is less aware. Examples of the latter have mainly focused on cognitive biases associated with attention, recognition, and memory (see: Ledley & Heimberg for a review, 2006). Studies looking at the effects of evaluative self-talk will be discussed first followed by the information processing research addressing interpretive cognitive biases.

The Conscious Cognitions of Social Anxiety

A person with social anxiety will often have a mind racing with evaluative thoughts that are both causing his or her anxious feelings, as well as responding to them. In other words, the symptoms and cognitions are not only a bi-product of the social fear, but a cause of the social fear, making cognition in many ways a gatekeeper in experiencing or not experiencing anxiety (Trower & Gilbert, 1989). For this reason, cognitive theories of anxiety have been at the head of the race to find the why's and how's of social anxiety. David Clark, a psychologist and professor at Oxford University, has been at the forefront of social anxiety research since the late eighties. Clark proposes that the symptoms associated with the disorder are primarily influenced by a systematic cognitive cycle (Clark, 1993). The following diagram illustrates how cognition and self-awareness and other-awareness play a role in this disorder.

The Cognitive Cycle of Social anxiety⁴



The above diagram represents a cognitive theory of social anxiety that includes a proposed origin, course, and outcome of the experience. It begins with a fear of a social situation, whether that is a presentation in front of an audience, a dinner party, or meeting new people. This is followed by the sufferer experiencing or expecting the onslaught of somatic symptoms (e.g. sweating, trembling, blushing), in addition to the assumptions that the socially phobic sufferer may be focusing on (e.g. “I am not going to perform well around these people,” “They must think that I weak and incompetent,” “They can see how red my face is,” etc). This cognitive attention and self-awareness drives sufferers to view themselves as the social object, or the object of everyone’s attention, which further fuels the somatic and cognitive symptoms. If these cognitive and physiological issues get out of hand, the sufferer will view the social environment as dangerous, and may feel the need to resort to safety behaviors such as an escape from the situation, an avoidance of the situation in future, or self-medication to cope with the situation. All of the aforementioned cognitive-behavioral issues further perpetuate the cognitions,

⁴The above diagram is adapted from Clark & Well’s (1995) *Cognitive Model of Social anxiety*.

behaviors, and symptoms of the socially phobic individual, and therefore can be described as a vicious cycle.

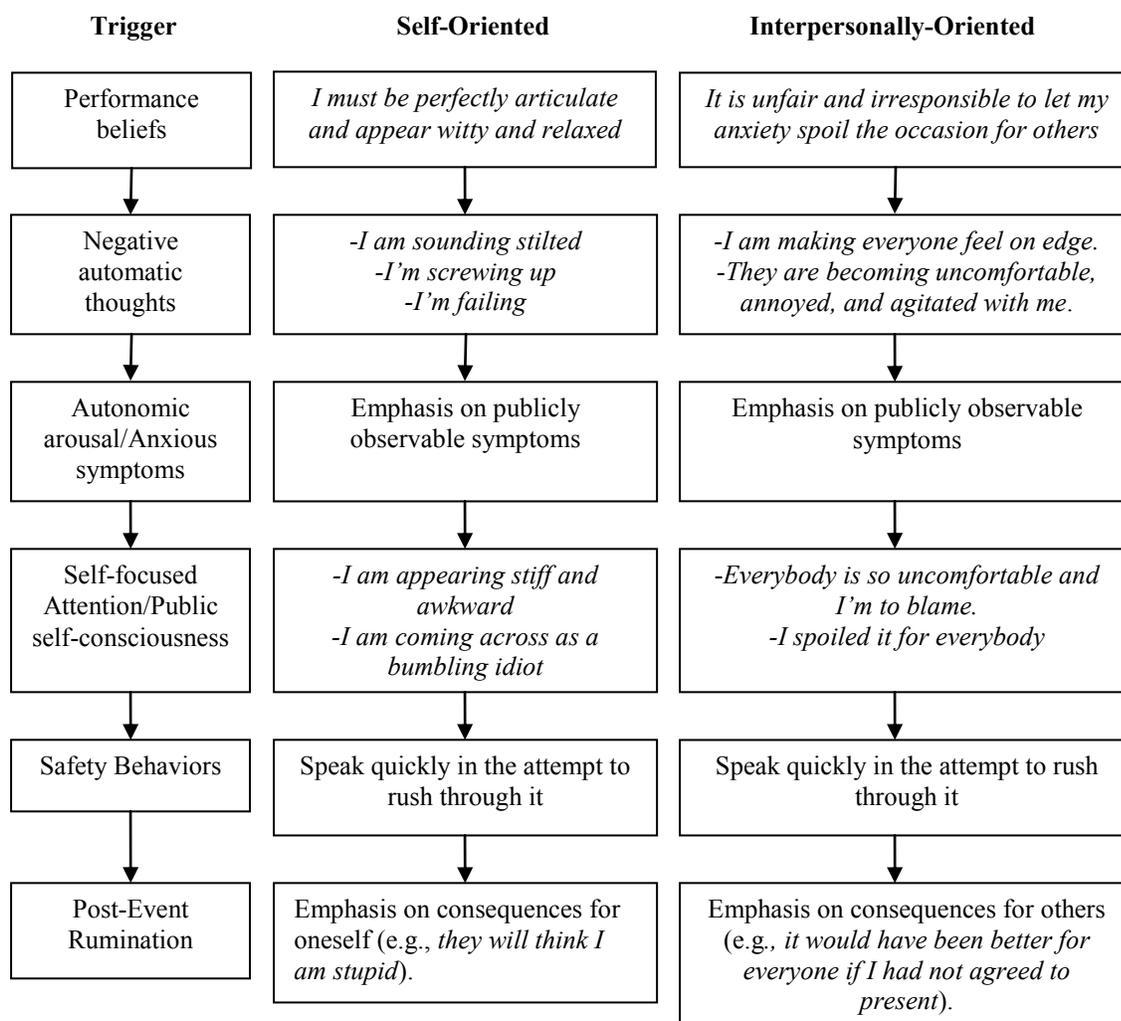
As Clark's cognitive model illustrates, individuals with social anxiety designate significant attention to their own cognitive, psychological, and physiological state. For some time now, it has been understood that heightened arousal leads to self-focused attention (e.g., Fenigstein & Carver, 1978) and that this process is present across several psychopathologies (see: Samuel & Dollinger, 1989 for a review). Socially anxious individuals are included in this group and are shown to attend to their own physiological symptoms in a highly pronounced way. Attention has been found to be most commonly directed toward blushing or skin tone (Bogels, Alberts, & De Jong, 1996), heart rate (Panayiotou & Vrana, 1998), and the effectiveness of social performance (Clark & Arkowitz, 1975; Woody, 1996). All of these areas have been shown to be susceptible to bias due to the nature of the phobic experience, and as a result, are often inaccurate. In other words, the cognitive evaluations of the self are often different from the cognitive evaluations given by attending others (Rapee & Lim, 1992).

Beyond the fear of negative social evaluation and embarrassment, individuals with social anxiety also appear to have a fear of causing discomfort in others. Rector, Kokovski, and Ryder (2006) advanced this theory by proposing that individuals with social anxiety have great concerns that their anxiety symptoms will negatively affect the comfort and enjoyment of others in the shared environment. The researchers found that socially anxious individuals believed the following: "I often think if I could just be less anxious, others would have a better time," and "I've noticed that as I become anxious, others become agitated," and "I often think people avoid me because I make them feel on edge" (p. 910). They propose that these thoughts fuel the aforementioned cognitive cycle proposed by Clarke et al., (1997), in that the fear of getting anxious, and subsequently making others uncomfortable, plays a central role in the anticipatory

phase of anxiety. This is the phase when the anxious individual is most likely saying to him/herself, “I must not get anxious, because if I do, I will ruin it for everybody.” One can see how this high setting of personal goals, and the self-criticism of not meeting those goals, whether that be a certain social accomplishment or making others feel comfortable is a perfectionistic tendency.

Although Rector, Kokovski, and Ryder (2006) do not specifically refer to the term perfectionism, they do make a distinction between self-oriented fears of negative evaluation, and interpersonal-oriented fears when causing discomfort in others. To illustrate the similarities and differences between these two cognitive tendencies, they used the following flowchart, with the example of public speaking as the feared task at hand:

1. Rector, Kocovski, & Ryder, (2006) Self & Interpersonally-Oriented Cognitive Cycles in Social anxiety.



This diagram illustrates that the individual's anxiety is not only influenced by negative self-evaluation, but also by the shame and embarrassment of making others feel uncomfortable. The self-talk in this flow chart could also be used for several other social situations that an individual might fear and could also be adapted into a circular design to illustrate how each cognitive and physiological trigger (see far left side of the diagram) can continually elicit more and more negative cognitions and unpleasant symptoms.

A noticeable theme in these studies is the socially anxious individual's tendency to be hypersensitive toward one's own performance, as well as the perceived opinions of attending

others. There has been a good deal of speculation in regard to how accurately the socially phobic individual perceives three areas: 1) the severity of their own symptoms, 2) the degree to which thoughts, feelings, and symptoms are observable to attending others, and 3) the level of their general social ability and performance in specific social domains. The research in regard to the accuracy of symptom self-perception has been shown to be somewhat contradictory. While Johanson and Ost (1982) discovered that socially anxious individuals were more accurate in estimating their heart rate changes in social situations than non-anxious individuals, others have found that, although chronic anxiety provides an increase in symptom vigilance, this rarely results in symptom accuracy (Boone et al., 1999, as cited from Edelman & Baker, 2002).

In a study conducted by Edelman and Baker, (2002), the experimenters looked at self-reported versus actual physiological responses in social anxiety. The goal of the study was to compare physiological reactions with self-reports of bodily sensation in a clinically anxious group versus a non-clinically anxious group. The criteria for the former group included a diagnosis of generalized anxiety disorder, panic disorder, or social anxiety, and the criteria for the latter group, was not carrying a diagnosis. Anxiety variables that were assessed included: skin conductance, heart rate, and temperature. The tasks used to invoke anxiety included: a physical exercise task, a mental arithmetic task, a mental imagery task, and a social conversation task. The results showed that, although anxious groups reported significantly higher ratings of all anxiety related symptoms on all tests, all groups were generally inaccurate in their rating of bodily sensations. In other words, physiological tests did not correlate with their perceived level of symptomology.

The term *illusion of transparency* has been used to describe the degree to which thoughts, feelings, and symptoms are observable to others. The research looking at this concept in regards to social anxiety has yet to be fully explored. There has been some work conducted in the area of

speech anxiety, which has demonstrated that public speakers felt more nervous than audience members believed they did (Behnke, Sawyer, & King, 1997). Mansell and Clark (1999) also found that socially anxious individuals overestimated how anxious they appeared during a social interaction and a speech presentation and that public speakers evaluated their own speeches more negatively than the audience did (Rappee & Lim, 1992).

Although this research does suggest that the anxious individual will overestimate the audience's knowledge of their "personal struggle," can it be assumed that this will apply to individuals diagnosed with social anxiety? Furthermore, is this interpretation bias fueled by perfectionist characteristics, i.e. a character that devalues his or her personal performance, despite being viewed as competent by others? And if so, where do such tendencies and characteristics come from? The next section explores some of the more subconscious cognitive tendencies, referred in the literature as information processing biases.

Information Processing Biases & Social anxiety

Individuals with social anxiety have been shown to have significant biases in both visual and auditory attention. In testing what has been referred to as the attentional bias hypothesis, researchers have primarily employed the Emotional Stroop Test (Stroop, 1935; Williams, Mathews, & Macleod, 1996), the Dot Probe Paradigm (Macleod, Mathews, & Tata, 1986), and the Face in the Crowd Paradigm (Gilboa-Schechtman, Foa, & Amir, 1999).

In the Emotional Stroop Test, the subject must name the color of words that come in different colored inks. For example, one word may be "DOG" and appear in blue, and the other word may be "FIGHT" and appear in green. Selective attention to threat is indexed by the length of time it takes to name the color of the neutral and non-neutral word. In regard to social anxiety, a multitude of studies have shown that socially anxious individuals are slower at color-naming social threat words than physical threat words and neutral words (e.g. Hope, Rapee, Heimberg, &

Dombeck, 1990; Lundh & Ost, 1996; as cited from Bogels & Mansell, 2003). In a study conducted by Spector, Pecknold, and Libman (2003), the researchers found that socially anxious individuals took longer to identify words expressing the observable components and symptoms of anxiety (e.g. blushing, sweating, trembling), and threat words describing negative evaluation (e.g. criticize, judge, assume). Likewise, studies have also demonstrated that the use of words related to social fear (party, restaurant, interview) also had a similar effect with subjects taking longer to respond to these words than a selection of neutral words (e.g. McNeil et al., 1995).

In the modified dot probe paradigm, subjects are presented with two words on a computer screen, one threatening and one non-threatening. The words on the screen disappear after a short period of time and a dot takes the place of where one of the types of words was. The subject is asked to press a button as soon as the dot is detected. This test determines the response time to the appearing dot, specifically the degree to which greater attention was given to one type of word versus another type of word. The findings using the dot probe paradigm show mixed results. While some studies suggest that socially anxious individuals pay more attention to threat words, and therefore take longer in responding to the probe (e.g. MacLeod et al., 1986), other studies show little to no attentional bias toward threat with this paradigm (Horenstein & Segui, 1997; Amir, Foa, & Coles, 1998). The contradictory results may be due more to the methodological paradigm used, instead of hyper-vigilance and attention not playing a role.

The previous two attentional bias paradigms have looked at words as stimuli for social threat, but researchers have questioned the real life validity of such a test. It has been proposed that using real life faces may prove to have a more powerful attention bias, as Gilboa-Schechtman, Foa, & Amir, (1999) mention:

Facial expression connoting approval or disapproval are highly related to social evaluations, whereas, words are only indirect representation of these social signals.

Second, facial expressions of emotions are prototypic, biologically significant social stimuli, in that they appear very early in the developmental sequence, and tend to operate on a pre-attentive level (p. 306).

One experimental method which uses images is known as the *Face in the Crowd Paradigm*. In this task, subjects are asked to identify a target face among a crowd of non-target faces, in other words, picking the “odd one out.” Participants are requested to report either the presence or location of a target face. It was found that angry faces were detected faster than happy faces in a random student population (Hansen & Hansen, 1998). Gilboa-Schechtman, Foa, and Amir, (1999) conducted a study assessing the attentional biases for facial expressions using the face in the crowd paradigm. The response time of socially anxious individuals was compared with a control group of non-socially anxious individuals. The results showed that socially anxious individuals exhibited a greater attentional bias for angry faces than for happy faces in a background of neutral faces. In other words, socially anxious individuals took less time to respond to angry faces than the control group, and took more time to respond to happy faces than the control group. This suggests that individuals with social anxiety are more likely to selectively attend to threat stimuli versus non-threatening stimuli.

In a more recent study, Rinck, Becker, Kellerman, and Roth (2003) looked at both the distractibility of threat stimuli in addition to the enhanced detection of threat stimuli. The experimenters used a visual search task, in which participants were asked to find single target words (Generalized Anxiety Disorder (GAD) related, speech related, neutral, or positive) amongst distracter words (GAD related, speech related, neutral, or positive). Attention to the threat condition used GAD related words amongst many other neutral or positive words, and the distractibility by the threat condition used a positive word amongst a host of GAD related words. The results showed that GAD patients were slowed by GAD related distracter words, although

did not show a significant enhanced detection of GAD related target words. Although this study involved a GAD diagnosed participant sample, the previous studies mentioned in this paper demonstrate that these attentional biases are equally, if not more, common amongst individuals with social anxiety.

The cognitive studies mentioned in this section clearly show the significant relationship between self-focused and other-focused attention and social anxiety. This finding means that socially anxious individuals are attentionally primed toward verbal and visual threat, and therefore subsequently primed to experience anxiety. This research is very necessary to help clinicians best guide treatment. For example, due to the fact that socially phobics over attend to their own thoughts and the words and images in their environment, treatment can help modify such processes to minimize the onslaught of subsequent physiological reactions. In fact, a primary component of CBT treatment for social anxiety is helping the client interpret their self and environment more objectively and ultimately more accurately (Heimberg, 2003; Rodebaugh, Holaway, & Heimberg, 2004). This form of cognitive restructuring has elicited excellent outcomes for individuals with social anxiety (Heimberg, 2002).

Environmental Factors

The Role of the Family

Psychotherapists and research psychologists often explore a person's family and childhood experiences when seeking to understand the origins of a particular problem. Due to the fact that social anxiety has a weak genetic component, at least compared to other psychological disorders (e.g. schizophrenia, bi-polar disorder, panic disorder), scholars have focused on other environmental influences, specifically the family. Research has primarily focused on the influence of parenting style and parental personality, limited or restricted social exposure, and the modeling of these types of family traits and tendencies. Unfortunately, the research has been

somewhat minimal due to the difficulty of conducting research on the family, and the debated accuracy of retrospective analyses. In other words, some have questioned the validity and reliability of asking a participant to recall their early family experiences. Despite this methodological limitation common to many of these studies, the limited findings will be mentioned in this section, in addition to supporting information gained from this author's clinical experience treating social anxiety.

Parenting Style and Parental Personality

In working with about twenty socially phobic adolescent clients over the past four years, it was common for me to hear some of the following statements:

- My dad always finishes my sentences for me.
- My mom plans everything in my life.
- My mom says that I will always be shy and nervous.
- My dad says that my anxiety is pathetic.
- My dad tells me that if I am not more assertive in life, I will be a failure.
- My mom doesn't want me to have my anxiety, so she said I should avoid spending time with others.

The theme of these comments is that they are both critical of the child's condition, and negative in regard to their child's ability to succeed in the future. In other words, parents seem to think that their child's social anxiety is in many ways a fixed personality trait versus a treatable psychological disorder. Other researchers tend to agree. For example, studies have found parents of socially phobic individuals tend to be less caring, more critical, and more likely to use shame tactics to reinforce behavior (Bruch & Heimberg, 1994; Rapee & Melville, 1997).

In a longitudinal study by Leib et al., (2000), the researchers explored whether child rearing styles and parental psychopathology increased the risk of social anxiety. Employing a

sample of 1,047 adolescents aged 14 to 17, the results found the following: 1) a strong association between parental social anxiety and social anxiety among offspring, 2) other forms of parental psychopathology were related to social anxiety among offspring (most commonly depression, anxiety, and substance abuse, and 3) a parenting style defined as overprotective and rejecting was found to be associated with social anxiety in respondents.

In a more recent study, Merikangas, Leib, and Wittchen (2003) found similar results looking at findings from The Yale Family Study and the Munich Early Developmental Stages of Psychopathology Study. Both of these projects employed a combined family and prospective high risk study to explore the specificity of social anxiety disorder across three generations. The Yale Study and the Munich Study both showed a significant degree of familial aggregation of social anxiety when genetic factors were controlled (i.e. family data was excluded if parents or grandparents had social anxiety). The most predictive parental rearing behavior was parental overprotection and parental rejection even after parental depression and alcohol abuse was controlled. Interestingly, these results only applied to maternal rearing. The researchers go on to say that their results matched Bowlby's theory that "anxiety is a response to disruption in the mother-child relationship, and that maternal overprotection is related to anxiety, particularly separation anxiety" (p. 7).

Merikangas, Leib, and Wittchen (2003) review another line of research that examines the effect of parents sensitizing their child to bodily functions, social scrutiny, the importance of consistency in daily routine, and the need for personal safety. For example, Bennet and Sterling (1998) used the Parental Bonding Instrument (Parker, Tulping, & Brown, 1979) to assess parental overprotection and care in clinically anxious and non-anxious groups. The researchers hypothesized that the anxious group would obtain higher scores than the non-anxious group on the parental overprotection and sensitization subscales. The results confirmed this prediction in

that the anxiety group reported greater maternal and paternal overprotection and increased maternal sensitization to anxiety stimuli than the non-anxious group.

These studies appear to show us that parents who shelter their children from the social world, perhaps by limiting their independent social interaction, are at greater risk for being socially awkward and incompetent, and likewise socially fearful. In addition, the research implies that parents who examine their child's appearance and performance in an evaluative and perfectionistic way may further instill this form of sensitivity that appears central to the maintenance of social anxiety.

Limited and Restricted Exposure

Other research has explored the impact that limited social involvement may have on the development of social fear and avoidance. In a study where both socially anxious individuals and their parents were asked to retrospectively examine their level of social interaction when their child lived at home, Rapee and Melville (1997), found that the child and parents both reported significantly lower socialization scores than healthy controls. Likewise, Bruch and Heimberg (1994) found that persons with social anxiety, as compared to healthy controls, retrospectively perceived their parents as overemphasizing the opinions of others, as well as wanting to isolate them. In other words, it was common for these parents to view social situations as potentially harmful, and that the best way to deal with them was by avoiding them.

These studies appear to show that parents who shelter their children from the social world, perhaps by limiting their independent social interaction, place their children at a greater risk for being socially awkward and incompetent, and subsequently, socially fearful. In addition, this research implies that parents who examine their child's appearance and performance in an evaluative and perfectionist way may further instill this form of sensitivity that appears so central to the maintenance of social anxiety.

Other Environmental Factors

In addition to the genetic, cognitive, and familial theories of social anxiety, some researchers and clinicians believe that the onset of social anxiety disorder may be influenced by early traumatic social experiences (see Hudson & Rapee, 2000 for a review). For example, Ost & Hugdahl, (1981) found that 58% of a social anxiety disorder sample reported that the onset of their condition was due to a negative conditioning experience. Negative experiences included being laughed at or severely criticized during a date, oral presentation, or party. Other findings have demonstrated the impact of traumatic experiences at least in regards to making someone who might be already shy and insecure to someone who is severely phobic of the judgment and criticism of others (Stemberger, Turner, Beidel, & Calhoun, 1995).

This etiological theory follows the classical conditioning model where fear of social or performance situations are learned from pairings with aversive stimuli (criticism or embarrassment). Mowrer (1960) proposed a two stage theory in the acquisition and maintenance of fear. The first stage involves classical conditioning in the initial learning of the fear, and the second stage involves instrumental learning, which means that the individual learns to reduce the fear by avoiding the stimulus, or in this case, the social situation.

Not all socially anxious adults can trace the onset of their disorder to a specific traumatic event (Menzies & Clarke, 1995), which implies that early traumatic social experiences are not necessarily a necessity in developing social anxiety. Most researchers of anxiety today see the etiology as more multi-causal and multi-dimensional. In other words, no single factor predicts the onset of social anxiety disorder, but more a combination of genetic, cognitive, and environmental forces (Barlow, 1997).

Perfectionism and Mental Illness

Research has conclusively found a strong relationship between perfectionism and depression, as well as perfectionism and eating disorders (See: Shafran & Mansell, 2001 for a review). Several studies looking at each relationship will be mentioned here prior to discussing the social anxiety and perfectionism research.

Perfectionism and Depression

Depressed individuals will often have a negative view of the self, the world, and the future (Beck, 1967), and similar to socially anxious individuals may have a cognitive proclivity toward destructive and biased thinking, often unsupported by rational evidence (Ellis, 1986). This cognitive vulnerability is propelled by the tendency to set high personal expectations and be overly self-critical when those expectations are not met. This follows aspects of Frost et al.'s (1990) definition of perfectionism, specifically the tendency to set high expectations, having concerns over past and/or future mistakes, and having doubts and uncertainties with one's actions. As Enns & Cox (2005) suggest, "perfectionists evaluate themselves against unrealistically stringent standards and may focus on negative aspects of performance, thus experiencing little satisfaction" (p. 541).

Other researchers have tended to agree. For example, studies have found moderate to strong correlations between Frost et al.'s *concern over mistakes* and *doubts about actions* subscales and depressive symptoms (Enns & Cox, 1999). In a longitudinal study, Flett et al., (1995) found that self-oriented perfectionism was related to an increase in depressive symptoms three months after the subjects had experienced a major life event. In a more recent study, Hawley and Moon-Ho (2006) examined the relationship between patient-rated perfectionism with clinician-rated depression during five occasions in outpatient treatment. The findings interestingly revealed that perfectionism predicted the subsequent rate of depression change, and

inspired the researchers and clinicians working on this project to modify perfectionist tendencies first and depressive symptoms second. Others have also found that a patient's perfectionism can have an adverse effect on treatment outcomes for depression (Blatt, Quinlan, Pilkonis, & Shea, 1995; Shahar et al., 2004).

Although it is still uncertain whether perfectionism acts as a vulnerability factor, or is a cognitive correlate or consequence of the disorder, similarities in the definition of perfectionism and depression, and supportive quantitative research appears to support a close relationship between these two constructs. Similar to other psychological disorders that have a significant cognitive component, perfectionism has also been linked to eating disorders.

Perfectionism and the Eating Disorders

Perfectionism has long been associated with unhealthy eating and the development of anorexia nervosa and bulimia nervosa. (e.g. Halmi et al., 2000; Ashby, Kottman, and Shoen, 1998; Hewitt, Flett, and Ediger, 1995). Findings have been consistent over the years, specifically that individuals with eating disorders hold stringent standards of self-evaluation as it applies to physical appearance, body thinness, and weight (Bauer & Anderson, 1989; Mizes, 1988; Lilienfeld et al., 2000). Personal deficiencies in eating disordered individuals are marked by mistakes, flaws, and inability to live up to one's expectations of perfection. Because perfection is unobtainable, and expectations tend to be extraordinarily high, eating disordered individuals often consider themselves to be failures.

Hewitt, Flett, and Ediger (1995) interviewed a sample of 81 female University students to determine how certain types of perfectionism influenced eating disordered thinking. Assessing the effects of self-oriented perfectionism and socially-prescribed perfectionism, the study found that the former to be related to anorexic symptoms and attitudes, while the latter to body image avoidance and low self-esteem. Likewise, Pilner and Haddock (1996) found that women who

were chronically concerned with their weight were more likely than unconcerned or less concerned women to have unrealistically high goals imposed by others. Furthermore, weight-concerned women set lower personal goals when external factors were absent (e.g. social approval) and were also more impacted by negative feedback. This led the authors to suggest that perfectionistic characteristics are related to a weight-concerned woman's need for social approval and conformity to societal standards.

Some attention has been given to recovered or "restored" eating disordered individuals. Bastiani et al. (1995) compared anorexics who were underweight, anorexics who had restored healthy body weight and a control group of healthy-weight individuals using two multidimensional perfectionism scales. The results showed that anorexics scored significantly higher than the restored anorexics and the control group, and the restored anorexics scored higher than the control group on most of the scale scores.

Although these are just a few of the many studies looking at eating disorders and perfectionism, there still is a shortage of studies specifically exploring the possible effect of parental perfectionism on a child's perfectionism, specifically in regard to body and self-image perfectionism. Future research needs to explore these areas. This further inspired this study's interest in perfectionism and social anxiety from both a CBT and family/systems perspective.

Perfectionism & Social Anxiety

Although there has been a good deal of research relating perfectionism with depression and eating disorders, only three studies have specifically focused on social anxiety. Each of these studies revealed a lack of consistent evidence in relating social anxiety to certain aspects of perfectionism despite all studies sharing similar hypotheses. Many of these inconsistencies might be due to methodological problems which was the partial inspiration for this study to include several design modifications.

The first study to explore the relationship between components of perfectionism and social anxiety was done by Juster et al. (1996). In their assessment of 61 psychiatric outpatients with social anxiety and 39 community volunteers without social anxiety on Frost et al.'s (1990) Multidimensional *Perfectionism* Scale (MPS), social anxiety participants obtained a higher score on subscales assessing *concerns over mistakes (CM)*, *doubts about actions (DA)*, and *perceived parental criticism (PC)*. The study did not find a significant result for the *parental expectations (PE)* subscale, despite the researchers predicting the influence of this component.

Saboonchi, Lundh, and Ost (1999) replicated Juster et al.'s (1996) study, although compared psychiatric outpatients with panic disorder and social anxiety on Frost et al.'s (1990) Multidimensional Perfectionism Scale. The following two questions were raised: 1) is perfectionism more specifically related to social anxiety than other anxiety disorders, and 2) What components of perfectionism account for this relationship? The researchers hypothesized that social anxiety and panic disorder with agoraphobia will have higher rates of perfectionism, specifically on the CM, DA, and PC subscales, and that the social anxiety group will be characterized by a greater degree of perfectionism than panic disorder with agoraphobia.

Using 52 social phobic participants with an average age of 33 years, socially anxious individuals scored higher on CM, DA and PC subscales than normal controls. They also scored higher on CM and DA subscales than the panic disorder group. The researchers mention in their discussion that these findings are consistent with previous research that has found perfectionism to be related to panic disorder (Frost & Steketee, 1997) and social anxiety (e.g. Juster et al., 1996; Rosser, Issakidis, and Peters, 2003), yet contributes new findings which imply that social anxiety is more robustly related to perfectionism than panic disorder.

Rosser, Issakidis, and Peters (2003) conducted a study exploring the relationship between social anxiety and perfectionism at both pretreatment and post-treatment. The researchers

proposed two hypotheses: first, that greater CM, DA, and PC would be associated with an increase in social anxiety symptoms, and second, that greater CM will be predictive of poorer outcomes of cognitive-behavioral treatment for social anxiety.

Sixty-one adult outpatients attending a group-based cognitive-behavioral therapy (CBT) treatment program for social anxiety were included in the study. The results showed that CM and DA were both related to the severity of social anxiety at pre-treatment as predicted, yet PC was not significantly related to any aspects of social anxiety. This appears to contradict many of the etiological studies that imply this relationship, in addition to the empirical findings found by Juster et al. (1994) and Saboonchi, Lundh, & Ost (1999). This lack of consistency in results, and aforementioned sample limitation further motivated this dissertation to test the relationship between perfectionism and social anxiety using a younger college sample, vulnerable to these two negative experiences due to the stress and competitiveness of the college experience.

Chapter Summary

This chapter reviewed much of the social anxiety and perfectionism literature over the past two decades. The purpose of this chapter was to present to the reader the epidemiological and etiological theories of social anxiety and describe how this disorder and other disorders relate to multiple components of perfectionism. The shortfall and inconsistencies in the three social anxiety and perfectionism articles mentioned in the last section encouraged this study to expand on the methodology by including a younger college age sample that may be able to more accurately report their feelings toward their parent's current and past levels of expectation and criticism. The next chapter gives an overview of the participants chosen for this study, the instruments employed, the experimental procedure, and the research design that was used to test the hypotheses.

CHAPTER 3

Methodology

This chapter describes the methodological details of the proposed study. The following sections will be included in this chapter: participants, measures, data collection procedures, research design, projected data analysis procedure, a restating of the research questions, and a chapter summary.

Participants

Participants for this study were recruited through the following academic departments at a large urban University in the Northeast: Math, Physics, Music and Communications. The Chairperson of the Physics, Math, Music, and Communications Departments granted their permission and support to conduct the study during class time. Each teacher within each department was recruited based on this author's following request:

For my study, I am looking for male or female undergraduate participants who have officially declared their major in _____ to complete three brief questionnaires assessing their levels of social behavior and self-evaluation. I would like to request your permission to come to one of your classes this semester to administer these forms. The chair of your department and the Institutional Review Board (IRB) has granted permission for me to conduct this study, only if you agree to contribute 20 minutes of your class time this semester for this important project.

It was expected that some of the faculty would not agree to give up this time, but there are about 14 classes during each semester, so this proved less of a challenge. This method was applied to the Physics, Math, Music, and Communications majors as approved and supported by each of the Chairs of these departments. At the beginning of each class, the following script was read by this author:

I am a Northeastern University student conducting a dissertation exploring the social behavior and self-evaluation of college students. I am looking for Math/Physics/Music/Communications majors who have officially declared their major, who are freshman, sophomores or juniors, and who live on campus. Your participation would require you to complete three brief questionnaires that would take no more than 20

minutes of your time. Your participation will contribute important information to this university and others researchers about social behavior, self-evaluation, and career choice, and will also help me complete the requirements for the PhD degree. Your involvement will be completely confidential, and for you time and effort, you will be compensated with a \$10 Borders Book store gift card.

Despite the required declaration of major, the only exclusionary criterion to assure high levels of internal validity was that seniors were not included in the study. This is based on the belief that seniors may be a more socialized group than freshman, sophomores and juniors, and therefore might skew the data. In other words, this study wanted to assure that the levels of social anxiety is related to their academic major and not to their year in college.

Participants were not excluded on the basis of race or gender as recent research shows that social anxiety is equally prevalent among men and women and across races and nationalities. To further contribute to this data, a demographics survey was administered so this study could also see how perfectionism, social anxiety, and career choice may be affected by race, gender, and age.

Forty participants were recruited for each of the academic discipline group, bringing the number of participants in this study to 160. The sample included the following: 40 Physics majors, 40 Math majors, 40 Communication majors, and 40 Music majors. Eighty-six participants were male and 74 were female. For further demographic frequency counts such as age and race distribution, please see Table 1 on page 76. Each student was given a \$10 gift certificate to Borders Book Store as compensation for their time.

Materials and Measures

Each participant was given one perfectionism measure, two social anxiety measures, and a demographics questionnaire. Each of these measures were used based on their popularity in peer-reviewed empirical research, their frequent use in studies using a college student

population, and due to an abundance of strong reliability and validity data. A description of these materials is given in this section.

Perfectionism Instruments

Multidimensional Perfectionism Scale (MPS: Frost et al. 1990). The MPS is a 35 item self-report measure which generates an overall perfectionism score as well as scores for the following six dimensions of perfectionism: (1) concern over mistakes (CM); (2) doubts about actions (DA); (3) personal standards (PS); (4) parental expectations (PE); (5) parental criticism (PC); and (6) organization (OR). The subscale CM includes items such as “people will probably think less of me if I make a mistake,” and “if I fail at work/school, I am a failure as a person.” The subscale DM includes items such as “it takes me a long time to do something right” and “even when I do something very carefully; I often feel that it is not quite right.” Frost (1990) found that these critical self-evaluation subscales are key components of pathological perfectionism. The PS subscale is the more commonly understood form of perfectionism and refers to the setting of high expectations, and described by the following item examples, “it is important for me to be thoroughly competent in everything I do” and “I expect higher performance in my daily tasks than most people.” The *Organization* (OR) scale assesses the tendency to be orderly and tidy, as reflected by the following items, “organization is very important to me” and “I am a neat person.” The *Parental Expectations* (PE) subscale includes items such as “my parents wanted me to be the best at everything” and “my parents set very high standards for me,” and the *Parental Criticism* (PC) subscale include items such as “my parents never tried to understand my mistakes” and “as a child, I was punished for doing things less than perfectly.”

The high frequency that the MPS is used in the psychological literature is influenced by the strong reliability and validity of this scale. Internal consistency has ranged from good to

excellent for each of the subscales (Cronbach ranging from 0.77 to 0.93) and for the total perfectionism score (Cronbach= 0.90; Frost et al., 1990). The total perfectionism score, equal to the sum of all subscales except OR, was significantly correlated with other measures of perfectionism (Frost et al., 1990; as cited by Juster et al. 1996). Participants in the clinical groups had a mean age of 36 years ($SD = 9.59$, range: 18-65), and 49.70% were women. The sample was predominantly White (80.1%) and spanned a range of income levels.

Social anxiety Instruments

This project administered two social anxiety measures to each student. These included the *Social Interaction Anxiety Scale* (SIAS; Mattick & Clarke, 1989), which assesses types of anxiety experienced in social situations (e.g. “I become tense if I have to talk about myself or my feelings;” and “I get nervous when I have to speak to someone in authority (teacher, boss) and the *Social Anxiety Scale* (SPS: Mattick & Clarke, 1989), which primarily addresses anxiety while being watched (“I become self-conscious when using public toilets;” and “I fear I may blush when I am with others.” These scales are frequently used together in the research literature as both demonstrate high internal consistency with a racially diverse sample (SAIS: Cronbach alpha = .89; SPS: Cronbach alpha = .93) (Mattick & Clarke, 1998). In addition, Heimberg et al. (1992) found moderate to strong validity with related measures such as the Leibowitz Social Anxiety Scale (ranging from .60 to .92), as well as strong test-retest reliability (Alpha = .91). These findings have been found with a diverse sample of Blacks (12%), Whites (72%), Latin Americans (11%), and Asian Americans (5%).

Procedures

Participants in the Physics, Music, Math, and Communications groups received the demographic questionnaire, MPS, SIAS, and SPS scales during the first 20 minutes of one of

their classes that is required for their major. This procedure was pre-arranged and pre-approved with the professors of each class in advance.

All participants were informed that the following questionnaires measure “social behavior and self evaluation in college students.” The terms social anxiety and perfectionism were not specifically used so as to remove any complex language and to not influence the participants with clinically loaded terms. The participants were required to sign a consent form, which described the general theme of the study, outlined the expectations of participating, clearly stated that no identifiers (e.g. student name, college name) would be present on any document to protect confidentiality, and made clear that the participant was free to withdraw from the study at any time and for whatever reason, and choose to not answer any of the questions. Student participants were told that the completion of the forms would take no more than 20 minutes. Each participant was assigned a code to aid the analysis of the data (e.g. Math 1-Math 40; Physics 1-Physics 40; Communications 1-Communication 40; and Music 1-Music 40). To express gratitude for participation, each participant was given a \$10 gift certificate to Borders Book Store.

Research Questions

The following three research questions were proposed: 1) Are college students with ⁵social anxiety traits more likely to have ⁶perfectionist traits than college students who do not have social anxiety traits? 2) Are social anxiety traits more common among Math and Physics majors than Communication and Music majors? 3) Are perfectionist traits more common among Math and Physics majors than Communication and Music majors?

⁵ As measured by Mattick & Clarke’s (1989) *Social Anxiety Scale* and *Social Interaction Anxiety Scale*.

⁶ As measured by Frost et al.’s (1990) *CM, DA, OR, PS, PE, and PC* subscales of perfectionism.

Statistical Analysis

The primary independent variables for this study were levels of perfectionism as measured by Frost et al's (1994) *Multidimensional Perfectionism Questionnaire* and academic major. Additional independent demographic variables included age, gender, residential status (live on/off campus), and race. The dependent variable was level of social anxiety as measured by Mattick & Clarke's (1989) *Social Anxiety Scale* and *Social Interaction Anxiety Scale*. Pearson product-moment correlations were used to elicit a relationship between perfection and social anxiety. Numerous one way ANOVA tests were performed for the two social anxiety scores, and their individual relationship between each dimension of perfectionism, each academic major, and each demographic variable. The relationship between social anxiety and perfectionism was further examined using multiple regression models. Additionally, ANCOVA models were constructed for the independent variable school major controlling for the four covariates (gender, age, residence location, and race) for the dependent variables of SPS/SIAS and Overall Perfectionism.

The Alpha level for this study was set at $p = .05$. However, due to the exploratory nature of this study, findings significant at the $p = .10$ level were noted to suggest avenues for future research. Data were initially tabulated using standard summary statistics (means, standard deviations, frequencies and percentages). As a general data analysis approach, bivariate comparisons were performed using Pearson product-moment correlations and one-way ANOVA tests. Multiple regression prediction equations were created to test the hypotheses.

The determination of an adequate sample size for the regression models was calculated using a formula recommended by Tabachnick and Fidell (2001, *p.* 117). They recommend that the sample size be calculated based on the following formula:

$$\text{Sample Size} = 104 + m$$

where m equals the number of independent variables. Given that formula, the minimal sample size for this study would be no less than 108 participants. This study included 160 participants therefore comfortably exceeded the formula's minimum.

Chapter Summary

This chapter described the participants, the measures and materials, the procedures, and the research design/statistical approach. Chapter Four will describe the statistical results related to the research questions.

Chapter 4

Introduction

This chapter presents the statistical data used to address this study's research questions in both narrative and tabular form.

Results

The purpose of this study was to explore the relationship between several forms of perfectionism and social anxiety among college-aged students from different academic areas. A total of 160 college students participated in this study, and table 1 displays the frequency counts for selected variables. Students were evenly divided among the four majors and there were slightly more males than females (53.8% versus 46.3%). Ages ranged from "17-18 years (17.5%)" to "23 years or older (5.6%)." Most (85.6%) were Caucasian and about two-thirds (62.5%) lived on campus (Table 1).

Table 2 displays the psychometric characteristics for the nine summated scale scores. Cronbach alpha reliability coefficients ranged from $r = .81$ to $r = .95$ with a median coefficient of $r = .89$ suggesting all scales had adequate internal reliability.

Research Question One

Research Question One asked, "Are college students with social anxiety traits more likely to have perfectionist traits than college students who do not have social anxiety traits?" To address this question, Table 3 displays the Pearson product-moment correlations for the relevant variables. The overall perfectionism score had significant positive correlations with both the SPS Total score ($r = .50, p < .001$) and the SIAS Total score ($r = .49, p < .001$). In addition, the two anxiety scores were significantly correlated with most of the MPS perfectionism subscales

scores. For these subscales, Doubting of Actions had the highest correlations with the SPS Total score ($r = .63, p < .001$) and the SIAS Total score ($r = .61, p < .001$).

Also in Table 3 are the correlations for gender and age with the nine scale scores. Female respondents had significantly higher Organization scores ($r_{pb} = .21, p < .01$). Age was negatively related to the SPS Total score ($r = -.24, p < .005$) and the SIAS Total score ($r = -.20, p < .01$) plus Concern over Mistakes ($r = -.16, p < .05$) and Doubting of Actions ($r = -.18, p < .05$). In addition, race (Caucasians versus Others) and residence location (On Campus versus Off Campus) were compared with the nine scale scores (not shown in Table 3). None of those resulting 18 correlations were significant at the $p < .05$ level.

Research Question Two

Research Question Two asked, “Are social anxiety traits more common among math and physics majors than communication and music majors?” To answer this question, one way ANOVA tests were performed for the two social anxiety scores (Table 4). Significant differences between the majors were noted for both the SPS Total score ($p = .003$) and the SIAS Total score ($p = .001$). For the SPS Total score, Scheffe post hoc tests found Physics students to be higher than Music students ($p = .006$) with no other pair of means being significantly different at the $p = .05$ level. For the SIAS Total score, Scheffe post hoc tests found Physics students to be higher than Communication students ($p = .04$) and Music students ($p = .006$) with no other pair of means being significantly different at the $p = .05$ level.

Research Question Three

Research Question Three asked, “Are perfectionism traits more common among math and physics majors than communication and music majors?” To answer this question, one way ANOVA tests were performed for the seven perfectionism scores (Table 4). No significant

differences between the majors were noted for the Overall Perfectionism score ($p = .09$). Only one of the six perfectionism subscale scores (Concern over Mistakes, $p = .03$) was significantly different between the majors. Scheffe post hoc tests found Math students to be higher than Communication students ($p = .04$) with no other pair of means being significantly different at the $p = .05$ level.

Additional Findings

The relationship between social anxiety and perfectionism was further examined using multiple regression models for the SPS score (Table 5) and the SIAS score (Table 6). The respondent's SPS score was predicted based on four covariates (gender, age, residence location and race) plus the Overall Perfectionism score. The five independent variable model was significant ($p = .001$) and accounted for 29.3% of the variance in the dependent variable. Inspection of the beta weights found social anxiety to be negatively related to age ($p = .006$) and positively related to the respondent's Overall Perfectionism score ($p = .001$) (Table 5).

The respondent's SIAS score was predicted based on the same four covariates (gender, age, residence location and race) plus the Overall Perfectionism score (Table 6). The five independent variable model was significant ($p = .001$) and accounted for 26.6% of the variance in the dependent variable. Inspection of the beta weights found that social anxiety was positively related to the respondent's Overall Perfectionism score ($p = .001$) (Table 6).

ANCOVA models were constructed for the independent variable school major controlling for the four covariates (gender, age, residence location and race) for the dependent variables of SPS (Table 7), SIAS (Table 8) and Overall Perfectionism (Table 9). For SPS (Table 7), the overall model was significant ($p = .005$) and accounted for 12.4% of the variance. SPS was related to age ($p = .02$) and major ($p = .02$). Bonferroni post hoc tests found Math students to have higher anxiety than Music students ($p = .02$) (Table 7).

For SIAS (Table 8), the overall model was significant ($p = .01$) and accounted for 11.2% of the variance. SIAS was related to the student's major ($p = .02$). Bonferroni post hoc tests found Music students to have lower anxiety than Physics students ($p = .05$) and Math students ($p = .04$) (Table 8).

For Overall Perfectionism (Table 9), the overall model was not significant ($p = .15$) and accounted for only 6.7% of the variance. Overall, the variance in Perfectionism was not significantly addressed to any of the variables at the $p = .05$ level (Table 9).

Tables of Results

Table 1

Frequency Counts for Selected Variables (N = 160)

| Variable | Category | <i>n</i> | % |
|----------|-------------------|----------|------|
| Major | Physics | 40 | 25.0 |
| | Math | 40 | 25.0 |
| | Communication | 40 | 25.0 |
| | Music | 40 | 25.0 |
| Gender | Male | 86 | 53.8 |
| | Female | 74 | 46.3 |
| Age | 17-18 years | 28 | 17.5 |
| | 19-20 years | 77 | 48.1 |
| | 21-22 years | 46 | 28.8 |
| | 23 years or older | 9 | 5.6 |

Table 1 *Continued*

Table 1 *Continued*

| Variable | Category | <i>n</i> | % |
|--------------------|----------------------|----------|------|
| Race/Ethnicity | | | |
| | Caucasian | 137 | 85.6 |
| | African- American | 5 | 3.1 |
| | Hispanic | 3 | 1.9 |
| | Asian | 10 | 6.3 |
| | Other | 5 | 3.1 |
| Residence Location | | | |
| | Live on campus | 100 | 62.5 |
| | Live off campus | 60 | 37.5 |

Table 2

Psychometric Characteristics for Summated Scales (N = 160)

| Scale | Number | | | Cronbach | | |
|-----------------------|----------|----------|-----------|----------|-------|-------|
| | of Items | <i>M</i> | <i>SD</i> | Low | High | Alpha |
| SPS Total Score | 20 | 17.27 | 13.44 | 0.00 | 64.00 | .93 |
| SIAS Total Score | 20 | 24.31 | 15.66 | 0.00 | 67.00 | .92 |
| Overall Perfectionism | 29 | 2.73 | 0.66 | 1.38 | 4.45 | .93 |
| Concern over Mistakes | 9 | 2.43 | 0.84 | 1.00 | 4.89 | .89 |
| Personal Standards | 7 | 3.49 | 0.75 | 1.57 | 5.00 | .82 |
| Parent Expectations | 5 | 2.99 | 0.85 | 1.00 | 5.00 | .81 |
| Parental Criticism | 4 | 1.96 | 0.91 | 1.00 | 5.00 | .82 |
| Doubting of Actions | 4 | 2.49 | 0.94 | 1.00 | 5.00 | .83 |
| Organization | 6 | 3.59 | 0.94 | 1.00 | 5.00 | .95 |

SPS = *Social Anxiety Scale*SIAS = *Social Interaction Anxiety Scale*

Table 3

Intercorrelations Among Selected Variables (N = 160)

| Scale | SPS Total | SIAS Total | Gender ^a | Age |
|-----------------------|-----------|------------|---------------------|----------|
| SPS Total Score | 1.00 | .78 **** | .02 | -.24 *** |
| SIAS Total Score | .78 **** | 1.00 | -.10 | -.20 ** |
| Overall Perfectionism | .50 **** | .49 **** | -.05 | -.13 |
| Concern over Mistakes | .49 **** | .51 **** | -.10 | -.16 * |
| Personal Standards | .16 * | .13 | .02 | -.04 |
| Parent Expectations | .26 **** | .26 **** | .00 | -.04 |
| Parental Criticism | .46 **** | .41 **** | -.03 | -.07 |
| Doubting of Actions | .63 **** | .61 **** | -.04 | -.18 * |
| Organization | .06 | -.09 | .21 ** | -.05 |

* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$.

^a Coding: 1 = Male 2 = Female

SPS = *Social Anxiety Scale*

SIAS = *Social Interaction Anxiety Scale*

Table 4

One Way ANOVA Tests for the Scale Scores Based on Major (N = 160)

| Scales | Major | <i>M</i> | <i>SD</i> | eta | <i>F</i> | <i>p</i> |
|------------------------------------|------------------|----------|-----------|-----|----------|----------|
| SPS Total Score ^a | 1. Physics | 21.90 | 15.34 | .29 | 4.74 | .003 |
| | 2. Math | 19.33 | 16.13 | | | |
| | 3. Communication | 16.38 | 10.93 | | | |
| | 4. Music | 11.48 | 7.76 | | | |
| SIAS Total Score ^b | 1. Physics | 30.60 | 14.75 | .31 | 5.71 | .001 |
| | 2. Math | 27.48 | 18.22 | | | |
| | 3. Communication | 20.63 | 13.27 | | | |
| | 4. Music | 18.55 | 13.22 | | | |
| Overall Perfectionism ^c | 1. Physics | 2.74 | 0.57 | .20 | 2.24 | .09 |
| | 2. Math | 2.94 | 0.74 | | | |
| | 3. Communication | 2.58 | 0.62 | | | |
| | 4. Music | 2.64 | 0.68 | | | |

^a Scheffe post hoc tests: Physics > Music ($p = .006$); no other pair was significantly different at the $p = .05$ level.

^b Scheffe post hoc tests: Physics > Communication ($p = .04$); Physics > Music ($p = .006$); no other pair was significantly different at the $p = .05$ level.

^c Scheffe post hoc tests: No pairs of means significantly different at $p < .05$ level.

Table 4 *Continued*

Table 4 *Continued*

| Scales | Major | <i>M</i> | <i>SD</i> | eta | <i>F</i> | <i>p</i> |
|------------------------------------|------------------|----------|-----------|-----|----------|----------|
| Concern over Mistakes ^d | 1. Physics | 2.44 | 0.79 | .23 | 2.96 | .03 |
| | 2. Math | 2.71 | 0.94 | | | |
| | 3. Communication | 2.17 | 0.72 | | | |
| | 4. Music | 2.38 | 0.83 | | | |
| Personal Standards ^c | 1. Physics | 3.46 | 0.70 | .18 | 1.78 | .15 |
| | 2. Math | 3.72 | 0.72 | | | |
| | 3. Communication | 3.43 | 0.78 | | | |
| | 4. Music | 3.36 | 0.79 | | | |
| Parent Expectations ^c | 1. Physics | 3.02 | 0.73 | .13 | 0.91 | .44 |
| | 2. Math | 3.17 | 0.89 | | | |
| | 3. Communication | 2.91 | 0.90 | | | |
| | 4. Music | 2.88 | 0.89 | | | |
| Parental Criticism ^c | 1. Physics | 1.97 | 0.84 | .08 | 0.32 | .81 |
| | 2. Math | 2.07 | 1.12 | | | |
| | 3. Communication | 1.93 | 0.86 | | | |
| | 4. Music | 1.88 | 0.81 | | | |

^c Scheffe post hoc tests: No pairs of means significantly different at $p < .05$ level.

^d Scheffe post hoc tests: Math > Communication ($p = .04$); no other pair was significantly different at the $p = .05$ level.

Table 4 *Continued*

Table 4 *Continued*

| Scales | Major | <i>M</i> | <i>SD</i> | eta | <i>F</i> | <i>p</i> |
|----------------------------------|------------------|----------|-----------|-----|----------|----------|
| Doubting of Actions ^c | 1. Physics | 2.58 | 1.01 | .14 | 1.11 | .35 |
| | 2. Math | 2.65 | 0.99 | | | |
| | 3. Communication | 2.31 | 0.82 | | | |
| | 4. Music | 2.42 | 0.90 | | | |
| Organization ^c | 1. Physics | 3.62 | 0.92 | .16 | 1.30 | .28 |
| | 2. Math | 3.50 | 1.05 | | | |
| | 3. Communication | 3.81 | 0.84 | | | |
| | 4. Music | 3.42 | 0.95 | | | |

^c Scheffe post hoc tests: No pairs of means significantly different at $p < .05$ level.

Table 5

Prediction of Social Anxiety Scale (SPS) Based on Selected Variables (N = 160)

| Variable | <i>B</i> | <i>SE</i> | β | <i>p</i> |
|---------------------------------|----------|-----------|---------|----------|
| Intercept | -5.72 | 6.57 | | .39 |
| Gender ^a | 1.19 | 1.85 | .04 | .52 |
| Age | -3.63 | 1.31 | -.22 | .006 |
| Residence Location ^b | 2.13 | 2.14 | .08 | .32 |
| Race ^c | -0.58 | 2.63 | -.02 | .83 |
| Overall Perfectionism | 9.87 | 1.39 | .49 | .001 |

Full Model: $F(5, 154) = 12.76, p = .001, R^2 = .293$.

^a Coding: 1 = *Male* 2 = *Female*

^b Coding: 1 = *On campus* 2 = *Off campus*

^c Coding: 1 = *Other* 2 = *Caucasian*

Table 6

*Prediction of Social Interaction Anxiety Scale (SIAS) Based on Selected Variables**(N = 160)*

| Variable | <i>B</i> | <i>SE</i> | β | <i>p</i> |
|---------------------------------|----------|-----------|---------|----------|
| Intercept | 3.36 | 7.80 | | .67 |
| Gender ^a | -2.47 | 2.19 | -.08 | .26 |
| Age | -2.82 | 1.55 | -.14 | .07 |
| Residence Location ^b | 0.51 | 2.54 | .02 | .84 |
| Race ^c | -0.20 | 3.12 | .00 | .95 |
| Overall Perfectionism | 11.13 | 1.65 | .47 | .001 |

Full Model: $F(5, 154) = 11.17, p = .001. R^2 = .266.$

^a Coding: 1 = *Male* 2 = *Female*

^b Coding: 1 = *On campus* 2 = *Off campus*

^c Coding: 1 = *Other* 2 = *Caucasian*

Table 7

ANCOVA Model for Social Anxiety Scale Based on Major (N = 160)

| Source | <i>df</i> | <i>MS</i> | <i>F</i> | <i>p</i> | Partial Eta Squared |
|---------------------------------|-----------|-----------|----------|----------|---------------------|
| Full Model | 7 | 508.84 | 3.07 | .005 | .124 |
| Major ^a | 3 | 586.92 | 3.54 | .02 | .065 |
| Gender ^b | 1 | 62.85 | 0.28 | .60 | .002 |
| Age | 1 | 970.36 | 5.86 | .02 | .037 |
| Residence Location ^c | 1 | 279.93 | 1.69 | .20 | .011 |
| Race ^d | 1 | 50.22 | 0.30 | .58 | .002 |
| Error | 152 | 165.59 | | | |
| Total | 159 | | | | |

^a Bonferroni post hoc tests: Math > Music ($p = .02$); no other pair were significantly different at the $p = .05$ level.

^b Coding: 1 = *Male* 2 = *Female*

^c Coding: 1 = *On campus* 2 = *Off campus*

^d Coding: 1 = *Other* 2 = *Caucasian*

Table 8

ANCOVA Model for Social Interaction Anxiety Scale Based on Major (N = 160)

| Source | <i>df</i> | <i>MS</i> | <i>F</i> | <i>p</i> | Partial Eta Squared |
|---------------------------------|-----------|-----------|----------|----------|---------------------|
| Full Model | 7 | 626.28 | 2.75 | .01 | .112 |
| Major ^a | 3 | 808.48 | 3.55 | .02 | .066 |
| Gender ^b | 1 | 62.85 | 0.28 | .60 | .002 |
| Age | 1 | 421.49 | 1.85 | .18 | .012 |
| Residence Location ^c | 1 | 101.65 | 0.45 | .50 | .003 |
| Race ^d | 1 | 79.72 | 0.35 | .55 | .002 |
| Error | 152 | 227.58 | | | |
| Total | 159 | | | | |

^a Bonferroni post hoc tests: Physics > Music ($p = .05$); Math > Music ($p = .04$); no other pair were significantly different at the $p = .05$ level.

^b Coding: 1 = *Male* 2 = *Female*

^c Coding: 1 = *On campus* 2 = *Off campus*

^d Coding: 1 = *Other* 2 = *Caucasian*

Table 9

ANCOVA Model for Overall Perfectionism Based on Major (N = 160)

| Source | <i>df</i> | <i>MS</i> | <i>F</i> | <i>p</i> | Partial Eta Squared |
|---------------------------------|-----------|-----------|----------|----------|---------------------|
| Full Model | 7 | 0.66 | 1.56 | .15 | .067 |
| Major ^a | 3 | 1.06 | 2.49 | .06 | .047 |
| Gender ^b | 1 | 0.00 | 0.00 | 1.00 | .000 |
| Age | 1 | 1.24 | 2.92 | .09 | .019 |
| Residence Location ^c | 1 | 0.03 | 0.07 | .80 | .000 |
| Race ^d | 1 | 0.17 | 0.40 | .53 | .003 |
| Error | 152 | 0.43 | | | |
| Total | 159 | | | | |

^a Bonferroni post hoc tests: no pair was significantly different at the $p = .05$ level.

^b Coding: 1 = *Male* 2 = *Female*

^c Coding: 1 = *On campus* 2 = *Off campus*

^d Coding: 1 = *Other* 2 = *Caucasian*

Chapter 5

Introduction

This section intends to reiterate the purpose and process of the study, and provide a brief summary of findings across the three research questions related to perfectionism, social anxiety, and college major. This will be followed by comparing the results from this study with the results from other related studies, followed by providing conclusions and implications for these new findings. In addition, limitations and challenges of this study will be discussed, as well as proposing some research, policy, and practitioner recommendations.

Discussion

Brief Summary of Findings

This study investigated the relationship between perfectionism and social anxiety across four academic undergraduate majors (Math, Physics, Communications, and Music). Three research questions were proposed: 1) Are college students with anxiety traits more likely to have perfectionist traits than college students who do not have social anxiety traits? 2) Are social anxiety traits more common among Math and Physics majors than Communication and Music majors? 3) Are perfectionist traits more common among Math and Physics majors than Communication and Music majors?

In answering research question 1: A statistically significant correlation was found between Frost's *Overall Perfectionism Score* and scores from both the *Social Phobia Scale* and the *Social Interaction Anxiety Score* across all groups. In other words, the higher the social anxiety scores, the higher the perfectionism scores regardless of academic major. In looking at Frost's subscales, significant correlations were found between the *Concerns Over Mistakes (CM)*, *Parent Expectations (PE)*, *Parental Criticisms (PC)*, and *Doubting About Actions (DA)*

subscales and social anxiety. Little, if any, correlations were found between the *Personal Standards (PS)* and *Organization (OR)* subscales and social anxiety.

In answering research question 2, Math and Physics majors had statistically significant higher social anxiety scores than Music majors, but not Communication majors. Communication majors still experienced less social anxiety than math and physics majors. In answering research question 3, perfectionism traits were generally found to be very similar across all four academic majors.

In regards to the impact that the four demographic variables (age, race, gender, residence status) had on social anxiety score, only the age of the student was involved to some degree in the level of social anxiety; in other words, the older the student, generally the lower the levels of social anxiety.

Current and Previous Research Comparisons

Social Anxiety & Perfectionism (Research Question 1): The findings from this project support other research that has illustrated a strong relationship between several aspects of perfectionism and levels of social anxiety. Out of the three studies linking social anxiety and perfectionism, each have produced minor differences in how social anxiety is related to each specific perfectionism subscale score. For example, although Juster et al. (1996) obtained significantly higher scores on the CM and PC subscales, as this dissertation did, they did not find significance with the PE subscales. In addition, this project's data showed that the DA subscale was significantly related to social anxiety whereas Juster et al. (1996) did not.

Similarities and differences were found between this study and both Saboonchi, Lundh, and Ost's (1999) and Rosser, Issakidis, and Peters (2003) earlier studies correlating social anxiety and perfectionism. These studies found that socially anxious individuals scored higher on CM and DA than controls, although Rosser, Issakidis, and Peters (2003) found that PC was not

significantly related to any aspects of social anxiety. Two interesting differences exist between this study's findings and previous work: the first is that these earlier studies used an inpatient anxiety treatment population between the ages of 30 and 50, and secondly, these studies have found only three out of six of Frost's perfectionism subscales to be significantly correlated with social anxiety (CM, DA, and PC). This study found four out of six of Frost's perfectionism subscales to be significantly correlated with social anxiety (CM, DA, PC, and PE) with a non-clinical college student population. The results from this dissertation found that PC was correlated with social anxiety whereas the other studies did not. This finding is likely due to the fact that this study's sample were on average 10 years younger than the participants used in the previous studies. In other words, the parents of our participants were still very much involved in the lives of the students socially, emotionally, and academically.

Although there are some differences between this project and the methodology of previous work, the fact that social anxiety and perfectionism has found to be strongly correlated in both clinical and non-clinical populations not only provides further evidence for this relationship but contributes new and important data in the field of mental health which will be discussed later in this chapter.

Social Anxiety & Academic Major (Research Question 2): Although there are no studies specifically exploring how social anxiety is predicted by academic major, research has shown that introversion and shyness is more common among what Holland (1997) referred to as *realistic* (e.g. Engineering, Physics) and *investigative* type vocations (e.g. Accounting, Mathematics) than *artistic* (e.g. Music, Theater) and *enterprising* (e.g. Marketing, Communications) type vocations. This was clearly supported in our findings, specifically that Math and Physics majors had higher rates of social anxiety than Music and Communication majors.

This quantitative finding was also qualitatively supported during the data collection procedure. This researcher counted the number of individuals who either had questions with the informed consent form and/or expressed curiosity about the purpose of the study. Interestingly, although perhaps not surprisingly, the Communication majors were the most verbally interactive with four students having questions about the procedures outlined in the consent form, and seven students interested in what the study was intending to discover. Likewise, two Music majors had questions about the procedures outlined in the consent form, and five Music majors asked questions about the purpose of the study. There was not one Physics major participant on the other hand who approached this researcher with such questions and/or interests, and only two math majors who asked, “What type of statistical analysis would I be using?” (possibly due to their interest in statistics). Likewise, no other Math majors expressed interest in the purpose of the study. This seems to support Holland’s person-environment fit theory, and our prediction that social anxiety or introversion would be more prevalent in majors that require more social interaction and social performance skill (Communications and Music) than majors that require these abilities to a less significant degree (Math and Physics).

Perfectionism & Academic Major (Research Question 3): The data showed that perfectionism rates were relatively high across all majors, but not statistically significant between academic majors. There have been no research studies looking at perfectionism rates across academic majors, but there has been a series of popular psychology books discussing the current stressors of the college student. This was best articulated in Kadison and Geronimo’s (2004) book, *College of the Overwhelmed*. Several sections of the book describe the current pressures of the college experience that seem to be unmitigated by social class, geographic location, race, gender, and most pertinent to this study, academic major/career choice. Although historically, some career paths could almost guarantee an employment position, the country is

struggling in a severe economic recession. Perhaps this global economic collapse adds even more fuel to the fire in regards to the perfectionist tendency of the college student and the parents who are driving them to succeed. Perhaps, perfectionism has become a pre-requisite for undergraduate and post-graduate survival.

With the emerging research demonstrating the connection between perfectionism and mental illness, it should inspire university personnel to reach out and help students in need. On college campuses this is best done through educational outreach activities with students and/or residential staff. It should inspire us to understand what students face day-to-day, so we in the helping professions can provide the empathy and support students need to strive and succeed in our ever increasing competitive world.

Social Anxiety, Perfectionism, and Demographic Variables: This study's findings revealed that age was the only demographic variable that predicted a partial level of social anxiety, specifically, the older the college student, the lower the social anxiety. This makes rational sense in that as the student becomes older he or she is more likely to not only have more social experience but also be desensitized to the social and performance demands of curricular and extra-curricular environments. Although these are speculations, empirical data does demonstrate that in general/non-clinical populations, social anxiety decreases with age, and likewise social confidence/skill increases with age (Schneier et al., 1992; Kessler, Chiu, Demler, and Walters, 2005).

Findings from studies during the last ten years that looked at the relationship between gender and social anxiety have started to show little differences between the prevalence rate of social anxiety between men and women (Turk et al., 1998; Kessler, Chiu, Demler, and Walters, 2005). Although the reason is uncertain, it is speculated that social anxiety among men has become less of a stigma in our society, with more and more men participating in research studies

(Beidel & Turner, 2007). Data from this study also found that men and women equally experience social anxiety. This demographic variable was evaluated with a healthy equal distribution between males and females in this study (53.4% Male; 47.6% Female) which provides more validation for this finding.

Although there is no previous research analyzing levels of social anxiety between students living on-campus versus off-campus, one might have thought that those living off-campus might be more socially independent and therefore more socially confident. The results did not support this expectation in that social anxiety was not statistically related to the student's residential status. This might be due to the theory that an inner city campus requires students of all ages who either live on or off campus to be more equally socially competent than other types of campuses.

The data also suggested that race did not appear to influence the level of social anxiety and perfectionism. This followed recent findings implying that social anxiety is very similar across African-Americans, Whites, Native-Americans, Asian-Americans, and Latinos (Wang et al., 2005; Smith et al., 2006), but contradicted several studies that showed that African-Americans and Asian-Americans score higher on perfectionism scales than Whites (Wassenaar, le Grange, Winship, & Lachenicht, 2000; Striegel-Moore et al., 2000; Van Hanswijck & Waller, 2003). It is uncertain why this study did not support this almost unanimous finding in regard to race and perfectionism. One probable explanation is that the other studies had a more equal distribution of African-Americans, Asian-Americans, Native-Americans and Whites. This study's participants were heavily dominated by white participants (White, 85.6%; Black, 3.1%, Hispanic, 1.9%, and Asian, 6.3%). Future research may need to recruit a more ethnically diverse participant sample.

In sum, the finding that demographic variables played a nominal role in the level of perfectionism and social anxiety (only 27% of the variance) only further supports the statistical accuracy of the significant correlation between social anxiety and overall perfectionism.

Conclusions and Implications

As discussed in great detail in the first two chapters, college campuses are seeing a significant surge in mental health and behavior problems among students. Although areas of concern are numerous, social anxiety is one of the most prevalent. In addition, the social and academic environment has seen a dramatic surge in levels of competitiveness, so much so that many students feel they need to be perfect in order to succeed. Although few studies have shown that social anxiety has a relationship to perfectionism, these studies have been limited to clinical populations. The findings from this study are the first to show that social anxiety in a non-diagnosed general student population is strongly correlated with several components of perfectionism. This study is also unique as it has demonstrated how common social anxiety and perfectionism is on college campuses today.

The findings from this study are important for several groups of people. Primarily, counselors working on college campuses are now provided with data suggesting not only the prevalence of social anxiety and perfectionism among college students, but also the need for cognitive interventions for the treatment of social anxiety to focus on minimizing the negative forms of perfectionism (e.g. Concerns Over Mistakes, Doubt about Actions, etc). In addition, teachers and residential advisors can be aware of these cognitive and emotional challenges, how some may be more vulnerable than others, and ultimately provide meetings, groups, and trainings on improving social skills. A significant component of the college counseling center job is to provide outreach training to students and faculty about the prevention and awareness of mental health conditions. This data may support efforts to target programs to train those working

with students to be aware of social anxiety, negative forms of perfectionism, and ultimately learn ways to guide and support at-risk students, students who are overwhelmed, and students in crisis.

One statistically significant finding was that parental criticism and parental expectations play a significant role in how children evaluate themselves academically and socially. This may inspire individuals working with the family to educate parents on such findings and provide parenting strategies that motivate and inspire their children in a healthy, realistic, and constructive way. In other words, help parents (at-risk or struggling with this condition) realize the long term effect that an overly perfectionistic, highly evaluative, and critical home environment may have on their child's development.

Recommendations for Future Research

Although perfectionism, social anxiety, and college major have been strongly linked, this project merely lays the groundwork for more research. One area is extending this research and clinical work to a younger population. The findings from this study and numerous others suggest that despite these relationships, the cognitive components of social anxiety and perfectionism might be developing at an early age in the home. If this is found to be the case (e.g. whether in regards to parenting style or social exposure), counselors, social workers, and educators should probably intervene at an earlier age and ultimately prepare students better for high school and college.

The perfectionism literature is still in its infancy. Although it has been explored by researchers in regards to depression, anxiety, and eating disorders, numerous mental health conditions experienced by college students may also be in play. For example, while a college student may have a family history of drug abuse, his or her negative perfectionism may be fueling the drug or alcohol use or abuse. Another behavioral issue common in young adults is impulse control disorders such as hyperactivity, anger, and aggression. Are these proclivities

related to ADHD or drug use, for example, or are these disruptive manifestations a partial result of the overwhelming pressure and expectation to succeed in today's society? This is not to imply that negative perfectionism is the sole cause of many psychological challenges, rather that the contributing and potentially debilitating nature has been underexplored. In addition These ideas may inspire some to improve or expand on the methodology of this study and develop related areas of research inquiry. Suggestions for doing this will be provided in the next session.

Another key issue not explored and evaluated in the methodology is the impact of who is paying for college and how this might relate to the child's perfectionism. For example, how would the child's perfectionist tendencies change if they were paying for college or if their parents were? A further question that could be raised is how the cost of the education influences levels of perfectionism. Might a private expensive institution yield a more perfectionist student or is it more related the income level of the family? An additional issue is the role that the context plays in determining whether perfectionism is problematic or not. Although this study focuses on a maladaptive form of perfectionism, it is important to realize that perfectionism may be beneficial in certain academic majors and careers. Might being an air traffic controller, NASA pilot, or neurosurgeon require perfectionist traits? In other words, it is important to consider the context in which perfectionism is taking place in knowing whether perfectionism is a negative or positive trait. These important questions were not explored in this study, but could alone produce some interesting research.

Methodological Enhancements & Research Suggestions

An alternative methodology would be very useful is comparing college students who have been diagnosed with social anxiety with those that have not. Although this would be assessing a clinical sample like other studies have done, it would compare college students in treatment with college students not in treatment. This form of comparative study in a college

setting has not been conducted in regard to perfectionism and social anxiety, and minimally with other psychology diagnoses, and would likely provide more evidence supporting this study's hypotheses.

Further research could have gone into the selection of Communication majors prior to selecting it as one of the research groups. The results revealed that Communication majors had a higher social anxiety rate than expected. Further inquiry into course offerings distinguished a more diverse student body than expected. Although it was expected that most Communication majors would be extroverted, and therefore, less socially anxious, some communication majors focus on print journalism instead of media journalism. It could be assumed that the former track utilizes social interaction and skill less than the latter track. This may have explained the somewhat unexpected and mixed data found among the communication majors. This is not to say that this group should not have been included, as overall, it was still a highly extroverted, and low socially anxious group, merely that future research may want to address within group differences among some academic majors.

A significant methodological addition would be to conduct an intervention study to further pronounce the relationship between social anxiety and perfectionism. For example, one social anxiety group could receive six weeks of cognitive behavioral therapy to manage the social fear, a second social anxiety group could receive a "fake or contrived" cognitive behavioral treatment, and a third social anxiety group could receive no treatment. Social anxiety and perfectionism measures could be given at different stages to determine whether the treatment group's levels of perfectionism and/or social anxiety decreased over time.

Despite the results supporting the study's hypothesis, the findings are not necessarily generalizable to other college campuses. The university selected for this study is located in a large metropolitan city on the east coast, where social interaction among students on campus and

among the community might be more than at other colleges and universities. For example, would the same levels of perfectionism and/or social anxiety be found at a small rural school in the Midwest or at a highly competitive Ivy League school? Future study should include students from several different types of colleges and universities (e.g. Urban, Rural, Private, Public, etc). Although these methodological variations may not affect the established relationship between social anxiety and perfectionism, the prevalence of these constructs may be different, and therefore yield different conclusions and implications for research, policy, and practice.

Policy Recommendations

Several specific policy recommendations may ultimately yield benefits to the student. The following would be important ways to initiate this process: 1) write letters to psychology department chairs to encourage their research to include a broad range of college students due to the prevalence of psychological issues among this population, 2) write letters to psychology, counseling, and university associations, and 3) meet with directors of residential life and their staff.

1) Write letters to psychology department chairs

As discussed in Chapter Two, the prevalence of mental illness on college campuses has barely been explored. Although there is an abundance of psychological research involving college students, these projects are usually run by students and faculty, and often involve psychology undergraduates meeting degree requirements. In addition, their professors' research interests are frequently unrelated to the difficulties that college students may experience. This is not to say that psychology majors are not valid participants, but the crisis on many college campuses, from the increase of depression, suicide, violence, anxiety, and alcohol and drug abuse, perhaps warrants professors to target these prevalent topics. Clinicians working in college

counseling centers may want to include the findings found in this study to psychology, sociology, and other related academic department chairs to inspire research.

2) *Write letters to psychology, counseling, and university associations*

One avenue to also get this message out is through various policy recommendations to psychological and educational agencies and associations. This can be done from basic letter writing to the appropriate divisions of the American Psychological Association (APA), American Counseling Association (ACA), or Association of American Colleges and Universities (AACU) to convey not just the findings of this and other research, but include suggestions for action. These might include: selecting a pertinent keynote speaker on the subject for a future conference, request or encourage funding to members who are conducting research on such areas as: college mental health in general, the impact of perfectionism on college success or failure, and the prevalence of social anxiety in colleges and its impact on student academic choice etc.

3) *Meet with directors of residential life and their staff*

To target policy change more directly, residential life directors have a great deal of impact on how their staff helps and educates their students. Residential advisors have the most and easiest access to the students, especially freshman who are looked after more closely and go through a good deal of education during their first semester. At the University of South Carolina, the freshman students attend a class titled, “University 101,” which provides information in an open forum setting to discuss the challenges of college. Counselors working in colleges may want meet with directors of residential life to contribute to the curriculum of their “University 101” course, or other orientation setting/class that could reach the students directly. This curriculum should include education on the possible negative impacts of perfectionism, its relationship to social anxiety, and ways to cope with the related stress during college.

Practitioner Recommendations

The following recommendations are pertinent to primarily practitioners working on a college campus: 1) modify CBT interventions to include the construct of perfectionism when treating social anxiety, 2) understand and process the role that the family has had on the client's level of perfectionism and social anxiety (e.g. levels of parental perfectionism, family economic status, relatives with social anxiety, etc), 3) expand group therapy curriculum to include several sessions of education on perfectionism and its relationship to social anxiety, and target treatment (and encourage group members) to help decrease perfectionist tendencies as well as social anxiety symptoms, and 4) include these findings in student and staff campus outreach.

1) Modify CBT interventions

Findings from this study have shown that some college students today have high levels of negative perfectionism. Considering that perfection has been linked to depression (e.g. Blatt, 1995), several anxiety disorders (e.g. Iketani, 2002), and eating disorders (Halmi et. al, 2000), it would be prudent for practitioners to address their client's unconstructive perfectionist tendencies. Research has demonstrated that CBT is one of the most effective therapeutic strategies in the treatment of social anxiety (e.g. Beck, Emory, & Greenberg, 2005), and clinician's can use the same CBT strategies to address Frost's (1990) following areas of perfectionism: doubts about actions, organization, parental perfectionism, parental evaluation, concerns over mistakes, and personal standards. It should be the goal of the clinician to help the client understand fully if, how, and when, these cognitive tendencies occur, as well as how they relate to the client's social anxiety. The clinician should provide tools to eliminate or modify the cognitive tendencies of perfectionism that are negatively impacting the client's social anxiety, while holding on to perfectionist components that may be beneficial. For information on empirically supported strategies, see Barlow, 2003.

2) *Understand and process the role of the family*

Research discussed in Chapter Two, as well as findings from this study, demonstrates that the process and experience of social anxiety is considerably more complex, and involves a multitude of cognitive and ecological components each with interactive effects. Therefore, therapy may need to not only treat the client's negative symptoms but also at least consider these dynamics from an ecologically and multisystemic perspective. One of the most important systems of influence is the family. One effective way to help the client learn about the impact that the family may have is through doing a detailed Genogram. Beyond the important demographic information of different family members, as well as their health and psychological history, it may be beneficial to include details about the personality of each close family member. The clinician and client will want to figure out which other family members may have had perfectionist traits, what the relationship with them was like, and how their personality may have shaped the client's personality. The goal of this information is to help the client understand that the origins of their social anxiety may have historic roots that were learned, and therefore can be unlearned.

3) *Expand group therapy curriculum*

The data that came from this study inspired me to make an immediate change in my clinical work at the University of South Carolina. At the college counseling center I work in, the curriculum for the social/performance anxiety group added an expanded curriculum including two 90 minute group sessions addressing the constructs and impact of perfectionism due to this study's findings. Interestingly, I have found that this to be one area that gets the group talking the most, where they share their personal experiences with their own perfectionism and often about their parents perfectionism.

Most college counseling centers have established group therapy programs, and hopefully this data will encourage counselors to either start a group focusing on social anxiety or perfectionism, or include the topic of perfectionism in your social anxiety group.

4) Student and staff campus outreach

A significant component of working in a college counseling center is providing outreach for the campus community, primarily in the form of education. Counselors working in colleges may want to educate students in the following settings: extracurricular gatherings, student athlete events, fraternity and sorority meetings, church groups meetings, freshman orientation seminars etc. The theme may either involve perfectionism, social anxiety, or both, but there is enough research, most of which is in Chapter Two, to help guide this educational outreach. It is also likely that due to the prevalence of both these issues, these proposed groups will participate actively in the conversation, which is why any good outreach should involve and expect education and student participation.

Recommendations: Conclusion

These ideas for policy change and practitioner development are a part of an important ecological approach that researchers and clinicians need to adopt considering the influence the environment (e.g. family, culture, economy) has on levels of perfectionism and social anxiety. Although the primary theoretical orientation of this study adopted a cognitive approach, these findings force us to understand, and ultimately target, the constructs of perfectionism and social anxiety in a more ecological and multisystemic way.

Perfectionist tendencies and the experience of social fears are not always created and experienced in isolation, but are often products of the student's culture, family, and community. Although the cognitive symptoms of both of these constructs might be addressed on an

individual basis, it is only through addressing the system from which they stem can lasting change be made. In other words, the chronic desire to look perfect, behave perfectly, study perfectly, and be socially perfect is influenced dramatically by the cultural environment. Probably few would doubt that the adolescent and young adult experience has become increasingly stressful as college admissions become inordinately more competitive, and as companies are firing more than hiring. It is very likely that the depressed economic market is not designed to prepare our youth to feel confident in their future of home ownership, job security, and consistent health insurance. Although these issues may seem distant from the daily social and academic challenges that some students face, they are a part of an intricately connected web of systemic causes, outcomes, and consequences.

Researchers, clinicians, and educators should realize that the content of a problem has an equally complex influential context. If educators and clinicians are able to prevent and intervene in an active personal, local, and global way, I believe we will start to see our empathy and hard work have more of a lasting impact in our client's lives. This ecological viewpoint should encourage many clinicians to at least understand the ecological perspective, and even possibly find realistic ways to intervene across several systems of the student's life (parents, family, community, church, political government, etc). In sum, the objective is to help the client cognitively and behaviorally decrease social anxiety and perfectionist symptoms and tendencies individually and systemically. I believe this integrative approach will increase the chances for lasting change.

Final Summary

This study investigated the relationship between perfectionism and social anxiety in a college-aged student sample. Math and Physics majors were compared to Communication and Music majors on social anxiety and perfectionism measures. Research has shown that

introversion, shyness, and social anxiety is more common among what Holland (1997) referred to as *realistic* (e.g. Engineering, Physics) and *investigative* type vocations (e.g. Accounting, Mathematics) than *artistic* (e.g. Music, Theater) and *enterprising* (e.g. Marketing, Communications) type vocations. This justified the selection of several hundred participants across four academic majors. This sample selection would not only further test a component of Holland's "Person-Environment Fit Theory" (1976), but provide a good backdrop to explore the relationship between social anxiety and perfectionism.

Previous studies have demonstrated that the cognitive component of social anxiety is central in the origin and experience of social anxiety, and several studies have begun to explore how negative forms of perfectionism might be related to social anxiety in similar empirical ways to the depressive disorders, general anxiety disorders, and eating disorders. Only three studies have been conducted exploring the relationship between social anxiety and perfectionism in the past 15 years and have shown mixed results in regards to which dimensions of perfectionism termed by Frost et al. (1994) are related to social anxiety. In addition, these three studies have limited their sample selection to only participants in inpatient treatment for social phobia between the ages of 30 and 50 years. Considering the influx of college counseling needs, the understudied prevalence of social anxiety among college students, and the ever-increasing need for perfectionist traits in getting into college and getting through college, this study sought to extend these previous findings to a non-clinical college student population.

Forty students from each of the four academic majors completed the *Multidimensional Perfectionism Questionnaire* (Frost, 1996), the *Social Phobia Scale* (SPS), and the *Social Interaction Anxiety Scale* (SAIS) to address the following three questions: 1) Do higher rates of perfectionism correlate with higher rates of social anxiety? 2) Do Math and Physics majors have

higher rates of social anxiety than Communication and Music majors? 3) Do Math and Physics majors demonstrate more perfectionism and Communication and Music majors?

The findings revealed a strong correlation between overall perfectionism and social anxiety irrespective of academic major. In other words, the more symptoms of social anxiety a student experiences, the more likely they are to have various perfectionist traits. The correlations were statistically significant across 4 out of the 6 of Frost's MPS, with the remaining two being statistically relevant. Math and Physics majors were found to be significantly more socially anxious than Music majors, but the data from Communication majors was less conclusive. Levels of perfectionism appeared to be high across all four majors. These findings supported previous work in this area but have gone considerably further by expanding these findings to a college student population. In addition, this study also provides something new and understudied in that it assesses levels of perfectionism and social anxiety across four academic majors (Math, Physics, Communications, and Music).

Prevention and intervention should be enacted on an individual, family, university, and community level to ecologically approach a series of complex and common problems related to how students today push themselves and evaluate themselves. We are living in a highly competitive time in a highly competitive American culture in the depth of a recession. It is undeniably a culture where an independent, confident, perfectionistic, and extroverted student are traits almost required to succeed. It seems that these are the traits that we are nurturing both consciously and unconsciously inside and outside our schools today. This is not to say that some of these aforementioned traits are not important in the development of an actualized self, more that we as educators and psychologists need to provide the support to those students that struggle either adopting these perfectionistic traits or those who are entirely consumed by them. In other words, support for those that are shy and socially anxious, as well as support for those drowning

in their own perfectionist ways. This action follows the theoretical orientation of this paper that places importance on both the cognitive and behavioral side of social anxiety and perfectionism, and how these constructs are mediated within an influential multi-systemic environment.

The findings from this study clearly support the main objection which was to see whether a relationship between social anxiety and perfectionism exist. This study has found not only a relationship, but an alarmingly strong one. This data will hopefully inspire other researchers to replicate this study with different groups of participants in different environments, and most importantly inspire clinicians and college faculty to provide the prevention and intervention strategies to both students at risk, and to students in need.

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Appendices

Appendix A⁷

Diagnostic Criteria for 300.23 Social Anxiety

- A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing.
- B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situational bound or situational predisposed panic attack.
- C. The person recognizes that the fear is excessive and unreasonable.
- D. The feared social or performance situations are avoided or else are endured with intense anxiety or distress.
- E. The avoidance, anxious anticipation, or distress in the feared social or performance situations interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships or there is marked distress about having the phobia.
- F. In individuals under 18 years of age, the duration is at least six months.
- G. The fear or avoidance is not due to the direct physiologic effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., panic disorder with or without agoraphobia, separation anxiety disorder, body dysmorphic disorder, a pervasive developmental disorder or schizoid personality disorder).
- H. If a general medical condition or another mental disorder is present, the fear in Criterion A is unrelated to it; (e.g., the fear is not of stuttering, trembling in Parkinson's disease or exhibiting abnormal eating behavior in anorexia nervosa or bulimia nervosa.)

Specify if:

Generalized: if the fears include most social situations (also consider the additional diagnosis of avoidant personality disorder).

⁷ The Diagnostic and Statistical Manual of Mental Disorders-Text Revision (DSM IV-TR, 2000)

Appendix B

The Social Phobia Scale (SPS)

For each question, write the appropriate number in the box provided to indicate the degree to which you feel the statement is characteristic or true of you:

- 0 = Not at all characteristic or true of me
1 = slightly characteristic or true of me
2 = moderately characteristic or true of me
3 = very characteristic or true of me
4 = extremely characteristic or true of me

- _____ 1. I become anxious if I have to write in front of other people
- _____ 2. I become self-conscious when using public toilets
- _____ 3. I can suddenly become aware of my own voice and others listening to me
- _____ 4. I get nervous that people are staring at me as I walk down the street
- _____ 5. I fear I may blush when I am with others
- _____ 6. I feel self-conscious if I have to enter a room where others are already seated
- _____ 7. I worry about trembling and shaking when I am being watched by other people
- _____ 8. I would get tense if I had to sit facing other people on a bus or a train
- _____ 9. I get panicky that others may see me faint, be ill, or get sick
- _____ 10. I would find it difficult to drink something if I was in a group of people
- _____ 11. It would make me self-conscious to eat in front of a stranger in a cafe
- _____ 12. I am worried that people will think my behavior is odd
- _____ 13. I would get tense if I had to carry a tray across a crowded cafeteria
- _____ 14. I worry I will lose control of myself in front of other people
- _____ 15. I worry I might do something to attract the attention of others
- _____ 16. When in an elevator, I get tense if other people look at me
- _____ 17. I can feel like I stand out when I am waiting in a line

- _____ 18. I get tense when I speak in front of other people
- _____ 19. I worry my head will shake or nod in front of others
- _____ 20. I feel awkward and tense if I know people are watching me

Appendix C

The Social Interaction Anxiety Scale (SIAS)

For each question, write the appropriate number in the box provided to indicate the degree to which you feel the statement is characteristic or true of you:

- 0 = Not at all characteristic or true of me
1 = slightly characteristic or true of me
2 = moderately characteristic or true of me
3 = very characteristic or true of me
4 = extremely characteristic or true of me

- _____ 1. I get nervous if I have to speak with someone in authority
- _____ 2. I have difficulty making eye contact with others
- _____ 3. I become tense if I have to talk about myself or my feelings
- _____ 4. I have difficulty mixing comfortably with people I work with
- _____ 5. I find it easy to make friends of my own age
- _____ 6. I tense up if I meet an acquaintance on the street
- _____ 7. When mixing socially, I am uncomfortable
- _____ 8. I feel tense if I am alone with just one person
- _____ 9. I am at ease meeting people at parties, etc.
- _____ 10. I have difficulty talking with other people
- _____ 11. I find it easy to think of things to talk about
- _____ 12. I worry about expressing myself in case I appear awkward
- _____ 13. I find it difficult to disagree with another persons point of view
- _____ 14. I have difficulty talking to attractive persons of the opposite sex
- _____ 15. I find myself worrying that I won't know what to do or say in social situations
- _____ 16. I am nervous mixing with people I don't know well
- _____ 17. I feel I'll say something embarrassing when talking
- _____ 18. When mixing in a group, I find myself worrying I will be ignored

- _____ 19. I am tense mixing in a group
- _____ 20. I am unsure whether to greet someone I know only slightly

Appendix D

Multidimensional Perfectionism Scale

Please circle the number that best corresponds to your agreement with each statement below. Use this rating system:

Strongly disagree 1 2 3 4 5 strongly agree

Strongly Disagree.....Strongly Agree

- | | | | | | |
|-----------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1. My parents set very high standards for me. | 1 | 2 | 3 | 4 | 5 |
| 2. Organization is very important to me. | 1 | 2 | 3 | 4 | 5 |
| 3. As a child, I was punished for doing thing less than perfectly. | 1 | 2 | 3 | 4 | 5 |
| 4. If I do not set the highest standards for myself, I am likely to end up a second rate person. | 1 | 2 | 3 | 4 | 5 |
| 5. My parents never tried to understand my mistakes. | 1 | 2 | 3 | 4 | 5 |
| 6. It is important to me that I be thoroughly competent in everything I do. | 1 | 2 | 3 | 4 | 5 |
| 7. I am a neat person. | 1 | 2 | 3 | 4 | 5 |
| 8. I try to be an organized person. | 1 | 2 | 3 | 4 | 5 |
| 9. If I fail at work/school, I am a failure as a person. | 1 | 2 | 3 | 4 | 5 |
| 10. I should be upset if I make a mistake. | 1 | 2 | 3 | 4 | 5 |
| 11. My parents wanted me to be the best at everything. | 1 | 2 | 3 | 4 | 5 |
| 12. I set higher goals for myself than most people. | 1 | 2 | 3 | 4 | 5 |
| 13. If someone does a task at work/school better than me, then I feel like I failed the whole task. | 1 | 2 | 3 | 4 | 5 |
| 14. If I fail partly, it is as bad as being a complete failure. | 1 | 2 | 3 | 4 | 5 |
| 15. Only outstanding performance is good enough in my family. | 1 | 2 | 3 | 4 | 5 |
| 16. I am very good at focusing my efforts on attaining a goal. | 1 | 2 | 3 | 4 | 5 |
| 17. Even when I do something very carefully, I often feel that it is not quite done right. | 1 | 2 | 3 | 4 | 5 |
| 18. I hate being less than the best at things. | 1 | 2 | 3 | 4 | 5 |
| 19. I have extremely high goals. | 1 | 2 | 3 | 4 | 5 |
| 20. My parents have expected excellence from me. | 1 | 2 | 3 | 4 | 5 |
| 21. People will probably thing less of me if | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|------------------------------------------------------------------------------------|---|---|---|---|---|
| I make a mistake. | | | | | |
| 22. I never felt like I could meet my parents' expectations. | 1 | 2 | 3 | 4 | 5 |
| 23. If I do not do as well as other people, it means I am an inferior human being. | 1 | 2 | 3 | 4 | 5 |
| 24. Other people seem to accept lower standards from themselves than I do. | 1 | 2 | 3 | 4 | 5 |
| 25. If I do not do well all the time, people will not respect me. | 1 | 2 | 3 | 4 | 5 |
| 26. My parents have always had higher expectations for my future than I have. | 1 | 2 | 3 | 4 | 5 |
| 27. I try to be a neat person. | 1 | 2 | 3 | 4 | 5 |
| 28. I usually have doubts about the simple everyday things I do. | 1 | 2 | 3 | 4 | 5 |
| 29. Neatness is very important to me. | 1 | 2 | 3 | 4 | 5 |
| 30. I expect higher performance in my daily tasks than most people. | 1 | 2 | 3 | 4 | 5 |
| 31. I am an organized person. | 1 | 2 | 3 | 4 | 5 |
| 32. I tend to get behind in my work because I repeat things over and over. | 1 | 2 | 3 | 4 | 5 |
| 33. It takes me a long time to do something "right". | 1 | 2 | 3 | 4 | 5 |
| 34. The fewer mistakes I make, the more people will like me. | 1 | 2 | 3 | 4 | 5 |
| 35. I never felt like I could meet my parents' standards. | 1 | 2 | 3 | 4 | 5 |

Appendix E

Brief Demographics Survey

Please circle the following that applies to you:

Gender: Male
 Female

Age: 17-18 years
 19-20 years
 21-22 years
 23 years or older

Race: Caucasian
 African-American
 Hispanic
 Asian
 American –Indian
 Other

Campus Status: Live on campus
 Live off campus

Appendix F

*Informed Consent Form***Department:** Counseling Psychology**Name of Investigator:** Daniel Villiers**Title of Project:** Social Behavior & Self Evaluation

Dear Prospective Participant,

We are inviting you to take part in a research study. This form will tell you about the study, but the researcher will explain it to you first. You may ask this person any questions that you have. When you are ready to make a decision, you may tell the researcher if you want to participate or not. You do not have to participate if you do not want to. If you decide to participate, the researcher will ask you to sign this statement and will give you a copy to keep.

The purpose of this project is to explore social behavior and the self-evaluation of college students, in other words, learning how a student thinks, feels, and behaves socially. This study will provide important data for colleges and Universities so that they make find ways to make the higher education experience healthy, supportive, and productive. If you decide to take part in this study, you will be asked to complete three different forms related to the study. This process should not take more than twenty minutes to complete, and will occur via the mail or during class time. The only requirement for participation is that you have declared your major course of study in either, Math, Physics, Communications, or Music, and are a part of the freshman, sophomore, and junior year. Seniors are not able to participate in this study.

There will be no foreseeable risks to you in participating in this brief study. **Your part in this study will be confidential.** You will be assigned a code, which will be written on the self addressed envelope (that you are returning the forms in) so that no one, not even I, can match a name to the responses. This process will guarantee complete confidentiality. If you agree to participate in the study, you will receive a \$10 gift card to Borders book store. Your participation will provide important information for faculty, staff, and counselors who work at colleges and Universities around the country; therefore, we hope you will consider taking part.

Your participation in this research is completely voluntary. You do not have to participate if you do not want to. Even if you begin the study, you may quit at any time. If you do not participate, you will not be given the \$10 gift certificate, but if you decide to quit the study, you still will be given the gift certificate.

Thank you for your time. If you have any questions, do not hesitate to call me at (617) 959 4249, or e-mail at villiers.d@neu.edu

Sincerely,

Daniel Villiers, M.Ed., M.A.
Psychology Doctoral Candidate

Signature of person agreeing to take part

Date

Printed name of person above

Signature of person who explained the study to the
Participant above and obtained consent

Date

Printed name of person above

** If you have any questions about your rights as a participant, you may contact Human Subject Research Protection, Division of Research Integrity, 413 Lake Hall, Northeastern University Boston, MA 02115 tel. 617-373-7570. You may call anonymously if you wish.*