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The effects of social anxiety and social skills on academic performance

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Abstract

This 2-year longitudinal study examined whether social anxiety, social skills, and other academic variables affect college grade point average (GPA) and academic persistence. First-year students ($n = 253$) provided baseline data. Those who reported emotional control (e.g. hiding emotions) were less likely to persist. For GPA over the first 2 years of college, predictors included social skills, institutional commitment, academic and social adjustment, high school class rank, quantitative aptitude scores, gender, and ethnicity. Emotional control became a significant predictor of lower GPA by the third semester. Those with higher college adjustment scores, higher class ranks, higher quantitative aptitude scores, and female gender were more likely to earn higher GPAs. Social anxiety did not emerge as a significant predictor of college persistence or GPA.

Keywords: Academic persistence; Emotional control; Student retention; Class rank; Social competence

1. Introduction

Little is known of the real-life consequences of social anxiety, nor of its course over the entire life span. Social Phobia (also known as Social Anxiety Disorder) has a lifetime prevalence of between 3 and 13% (APA, 1994), and is characterized by extreme distress and/or avoidance of situations in which the individual fears criticism or embarrassment. The purpose of this study was to examine what role, if any, high trait social anxiety plays in an individual's undergraduate

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academic career. The present study also sought to determine whether these effects interact with the student's level of social skills and with college adjustment measures.

1.1. Social anxiety and social skills in the undergraduate experience

Trait social anxiety at high (or even clinical) levels is quite prevalent within a college population. Beidel, Turner, Stanley, and Dancu (1989) found that 19% of undergraduates in their sample met the criteria for a diagnosis of social phobia. The authors did not test the effects of social anxiety on retention or achievement, but did collect confirming evidence from students' significant others (romantic partners, roommates, parents, and siblings), and found that others tended to corroborate students' self-assessments of high levels of social anxiety. Strahan and Conger (1998) found that 33% of a group of undergraduate men recruited from an introductory psychology course at an American university reported social phobia symptoms on the SPAI (Social Phobia and Anxiety Inventory, Turner, Beidel, Dancu, & Keys, 1989) comparable with those of diagnosed social phobics (Beidel et al., 1989).

Because the present study participants were not diagnosed as having social phobia, and were merely classified by level of self-reported social anxiety, the term "socially anxious" will be used to identify those with extremely high levels of social anxiety. However, there appear to be few differences in cognitions and physiological responses between nonclinical participants with clinical levels of social anxiety and diagnosed social phobics (Turner, Beidel, & Larkin, 1986).

Given that social anxiety is quite prevalent in the undergraduate population, what might be some of its effects on academic integration of the students who suffer from social anxiety? The evidence is only indirect. For example, in highly competent (honors) students, high trait social anxiety may contribute to significant levels of student discomfort and dissatisfaction with the undergraduate experience (Langston & Cantor, 1989). In addition, students high in social anxiety tend to underutilize active coping strategies, and report greater evaluation anxiety at critical junctures (Zeidner, 1994). Particularly important for the college setting is the possibility that highly socially anxious individuals may "self-medicate" by engaging in alcohol consumption in order to decrease their distress in social situations (Jefferson, 1995).

More direct evidence about the impact of social phobia on academic performance comes from Turner, Beidel, Borden, Stanley, and Jacob (1991). They found that 91% of a sample of 99 individuals with social phobia reported interference with their academic adjustment. For example, these individuals reported receiving poor grades due to lack of class participation, avoiding classes requiring public speaking, making decisions not to attend graduate school, and deciding to transfer to another college in order to avoid giving oral presentations. There is also some evidence that, for male students at least, high degrees of social anxiety correlate with lower self-image and lower grade point average (GPA; DiMaria & DiNuovo, 1990). So some evidence exists to suggest that social anxiety could have a detrimental effect on a student's college adjustment.

Additionally, there is the question of whether social skill deficits may play a part in poor college adjustment. In discussing this question, it is important not to make assumptions. It is by no means clear that the socially anxious are always socially incompetent, as some clinicians may assume. The socially anxious tend to underrate their performance in many social settings, and to ruminate on their performance even when it seems quite competent to objective observers (Alden & Wallace, 1995; Edelman, 1985; Lucock & Salkovskis, 1988; Pozo, Carver, Wellens, & Scheier, 1991; Strahan & Conger, 1998). This means that self-report of social anxiety may bear little

relationship to actual social competence as assessed by others. Thus, an individual may experience high levels of social discomfort, and may perceive herself or himself to be socially inadequate, but may appear to others to be socially competent.

Social skills do play an important part in college adjustment and academic success. Social problem solving has been shown to have a small positive correlation with academic success (D'Zurilla & Sheedy, 1992). In a group of undergraduates, Riggio, Watring, and Throckmorton (1993) found that a self-report measure of social skills correlated between +0.27 and 0.31 with measures of life satisfaction, college satisfaction, and college participation.

1.2. Presumed effects of anxiety and competence on academic persistence

Social anxiety as a predictor of academic persistence was examined in this study for a number of reasons. These had to do with the nature of the disorder, its prevalence in the undergraduate population, and inferences drawn from the models of student persistence put forth by Tinto (1975, 1993) and Bean (1980, 1982, 1985; Metzner & Bean, 1985). There is a large body of work examining these models, and it is beyond the scope of this article to discuss them in any depth. Briefly, however, Tinto (1975, 1993) suggests that students' willingness and ability to integrate themselves into the social and cultural life of the college community has a major impact on whether they will persist academically. He proposes that student intentions, personal goals, and institutional commitments mediate the effects of other variables such as student socio-economic status (SES) and ethnicity, and they in turn shape the degree of academic and social integration that ultimately affects the students' decisions to stay or leave.

Bean (1985) suggests that five kinds of variables contribute to student decisions to drop out (background and defining variables, academic variables, environmental variables, social integration variables, and intent-to-leave variables). He views student satisfaction and institutional commitment, along with social integration, as intervening variables in the decision to drop out or persist in college.

Cabrera, Castañeda, Nora, and Hengstler (1992) provide a summary and test of the two models in explaining student persistence. These authors conclude that both models view persistence as determined by a complex set of interactions, and not readily explained by such obvious or simple explanations as insufficient funds (Cabrera, Nora, & Castañeda, 1992). Most importantly for the purposes of this study, they note that both models posit better retention when the student is socially integrated into the life of the campus. Presumably, then, the socially anxious student would avoid taking part in extracurricular activities and other events that promote a sense of integration into campus life, and would be at greater risk for dropping out of college/university. Expanding this work further, Cabrera, Nora, and Castañeda (1993) used structural equations modeling to test an integrated model of student retention. They found that social integration of students had an impact on their college persistence, probably mediated by students' "intent to persist" and institutional commitment.

College students with high social anxiety may thus be adversely affected in the following ways. First, they experience the social isolation and lack of campus-life integration that follows from their social withdrawal. Second, they experience considerable discomfort from interacting with many groups of strangers (in classes, residence halls, and other settings), a discomfort which is a hallmark of social anxiety. Third, students with high levels of anxiety frequently find it difficult to interact with authority figures. They may find that interacting with teaching faculty and class

mates (e.g. obtaining clarification about course requirements) is so overwhelming that it is preferable to muddle through when in doubt.

We have found no published efforts, to date, integrating current knowledge about social anxiety and/or social competence with the problem of student retention. This is somewhat surprising given the incidence of social anxiety among undergraduates and the variety of mechanisms by which it could affect adjustment. Studies that suggest a role for social anxiety in faculty interactions are those of Kowalski (1982), and Pascarella and Terenzini (1980), who found that anxiety about interacting with faculty contributed to undergraduates' decisions to drop out of school. Also of some relevance is the finding that students who receive mentoring and guidance from faculty report greater confidence about their college careers and more satisfaction with their academic life (Cosgrove, 1986).

Based on the earlier concerns, the following are the hypotheses tested in the present study:

1. Socially earlier students would show a higher drop-out rate, and lower GPAs, overall, than their non-socially anxious counterparts.
2. Social skills, as they affect academic and social integration, would be inversely related to dropout. No prediction was made for how social skills might affect student grades.
3. College adjustment constructs such as self-reported sense of belonging would predict improved retention, although they not necessarily have an impact of grades received.
4. Self-report of social anxiety would be inversely related to self-report of a variety of different social skills, based on the types of cognitions and self-evaluations common among those with high social anxiety.

2. Methods

2.1. Baseline data collection

2.1.1. Recruitment of participants

Approximately 1600 randomly selected first-year students were contacted with an invitation to serve as participants in the study. These students received invitations via campus mail and US mail in the first 2 weeks of classes. For their participation, they were offered an opportunity to win prizes donated by local merchants. Over 800 of the initial sample then registered to participate by returning the response portion of the invitation, by calling to register, or by responding to a follow-up call made by research assistants. Of these, 253 students actually completed the testing. This low turnout may be due to the fact that these students were in their first 4–6 weeks of the undergraduate college experience, with multiple new demands on their time. Reflecting the ethnic composition of the campus, the students in this sample were predominantly European-American. Of the 253 participants, 15 were African-American, 22 were Asian-American, 200 were European-American, nine were Hispanic-American, and two listed their ethnic identification as "other".

2.1.2. Instruments

The primary measure of social anxiety was the Social Phobia and Anxiety Inventory, or SPAI (Turner et al., 1989). Sample questions, to which students respond by endorsing a value on a

seven-point scale ranging from "never" to "always", include: "I feel anxious when entering social situations where there is a small group", "I feel so anxious about attending social gatherings that I avoid these situations", and "My voice leaves me or changes when I am talking in a social situation". The SPAI is capable of discriminating between social-phobic and non-social-phobic individuals, and it accurately predicts social distress and has a test–retest reliability of 0.86 (Beidel et al., 1989).

Social competence of study participants was measured using the Social Skills Inventory (SSI; Riggio, 1986, 1989), a social competence inventory, containing 90 items such as "At parties, I can immediately tell when someone is interested in me". Responses are made on a five-point scale ranging from 1 (Not at all like me) to 5 (Exactly like me). The SSI has good test–retest reliability (0.81 to 0.96 for its subscales; Riggio, 1989). Scoring yields six subscales (Emotional Expressivity, Emotional Sensitivity, Emotional Control, Social Expressivity, Social Sensitivity, and Social Control), as well as a total SSI score. The subscale definitions, excerpted from Riggio (1989), are defined as follows:

- Emotional Expressivity: "the skill with which individuals communicate nonverbally"
- Emotional Sensitivity: "skill in receiving and interpreting the nonverbal communications of others"
- Emotional Control: "ability to control and regulate emotional and nonverbal displays."
- Social Expressivity: "skill in verbal expression and the ability to engage others in social discourse."
- Social Sensitivity: "ability to interpret the verbal communication of others."
- Social Control: "skill in role-playing and social self-presentation"

The College Affiliation Questionnaire (CAQ) is a 13-item measure of academic persistence adapted from Cabrera et al. (1993) by K.G. Rice (personal communication, June 1995), containing such items as "It is important for me to get a college degree" and "My education at this university will help me secure future employment" (see Appendix). While the authors did not report reliabilities for most of its subscales, subsets of this instrument measuring social adjustment and academic adjustment have been found to have adequate alphas (ranging from 0.75 to 0.92) in several studies (Cabrera et al., 1993; Rice & Mirzadeh, 2000; K.G. Rice personal communication, 29 August 2000). Of particular interest to us, given the nature of this study, were the items relating to the students' social integration. Cabrera et al.'s (1993) instrument included items measuring "Finance Attitudes", "Institutional Commitment", "Goal Commitment", "Social Integration", and "Academic Integration".

The students' self-report of variables such as the graduating class rank achieved by the student, and their Scholastic Achievement Test (SAT) scores, were compared with those provided by the Registrar's office. It was apparent that students were quite accurate at reporting class rank, but were very poor historians when it came to providing SAT scores. Therefore, the university records of SAT scores were used instead, since they came directly from the educational testing service and were presumably subject to less error. The math and verbal scores were coded as SATM and SATV, respectively.

2.1.3. Procedures

Participants filled out questionnaires in small group testing sessions (with 4–15 students per session) held in the first 4–6 weeks of classes. These sessions were conducted on campus,

proctored by a graduate student and/or by undergraduate research assistants. Approximately 2 weeks after completion of the questionnaire sessions, a drawing for prizes occurred, and the students who had been awarded prizes were contacted, and collected their winnings.

2.2. Follow-up data collection

The Informed Consent Form signed by study participants gave the researcher permission to access their Registrar's Office records, in order to obtain their GPA and enrollment status for 2 years after enrollment. The Registrar's office provided a listing of this information, as well as of information describing how study participants compare with a group of randomly selected non-participants. These variables, enrollment status and GPA for each semester, are the outcome measures we sought to predict.

3. Results

3.1. Descriptive analyses

3.1.1. Prevalence of symptoms of social anxiety

In order to investigate the degree of social anxiety existing in the sample, SPAI Social Phobia subscale cutoffs of 90 for women and 100 for men were applied to the sample. These were based on the average Social Phobia subscale scores for a group of diagnosed social phobics (Beidel et al., 1989). The Social Phobia subscale was used alone, rather than subtracting the Agoraphobia Subscale score as recommended by the authors, due to the findings of Herbert, Bellack, and Hope (1991) that suggested it may be a better measure of social phobia. This procedure yielded a total of 55 individuals who reported experiencing social anxiety at clinical levels. Of these, 37 were women and 18 were men. They represent 22% of the 248 participants who provided usable information on the SPAI. This suggests a level of social anxiety in the sample of participants comparable to that found in the literature (Turner et al., 1989). These individuals were not diagnosed with social phobia, but the evidence suggests that their social anxiety is at very high levels. A two-way ANOVA yielded no significant main effects for gender and ethnicity on the Social Phobia subscale of the SPAI. The interaction of gender and ethnicity approached significance ($P = 0.0502$), but was not interpreted due to small sample sizes. The pattern, however, was that African-American women reported higher levels of social anxiety (with a mean of 86.2) than did African-American men (with a mean of 67.8). This is congruent with one recently published account of the prevalence of social anxiety in African-American women (Neal-Barnett, 1997).

3.1.2. Social skills and social anxiety

Individuals were classified as either "Socially Anxious" or "Nonanxious" as described earlier. Results from the six Social Skills Inventory subscales were then examined in light of social anxiety classification in a repeated-measures analysis of variance. There was a significant effect for anxiety [$F(5, 1235) = 24.7638$], such that those with high social anxiety (Socially Anxious) reported significantly less social control ($P = 0.0001$) and less social expressiveness ($P = 0.0000$) than did those who did not meet the SPAI cutoffs for social phobia (Nonanxious). The anxious group also

reported significantly more social sensitivity than did the nonanxious group ($P = 0.0000$). See Fig. 1 for the pattern of social skills by anxiety group. The pattern of differences shown by the socially anxious group illustrates the extent to which social anxiety is associated with a diminished sense of social effectiveness. Anxious students report deficits in skillful verbal discourse, social self-presentation, and greater sensitivity to the verbal communications of others, relative to their nonanxious peers.

3.1.3. Representativeness of the sample

Given that only 16% of the invited sample participated in the study, it was necessary to determine to what degree the students who participated are representative of other first-year students in that same cohort. This was done by means of comparing the descriptive data listed earlier with those contained in the Registrar's database, describing a randomly selected group of nonparticipants in terms of gender and academic variables. Table 1 lists means for these participant versus nonparticipant academic variables.

Overall, it appears that the students participating in this study represent a group that is somewhat more academically talented and more female than the first-year student population at the university in question. Moreover, participants persist in somewhat greater numbers than do nonparticipants. Whether these differences are significant is unclear, as no measure of variability was available for the comparison sample.

One possible effect on our results of having a slightly brighter and more committed participant group might be an attenuation of the relationship between our predictors and the measured outcomes

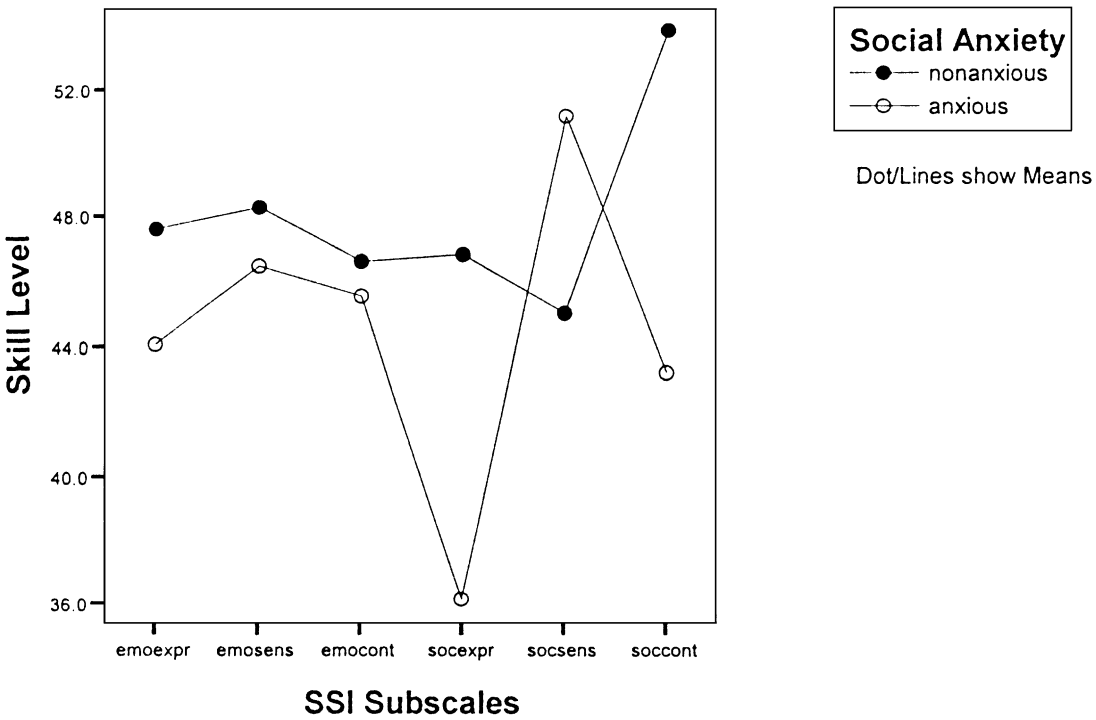

Fig. 1. Social skill levels for socially anxious vs. nonanxious students.

due to a restriction of variability within this sample. However, the range of participants' SAT scores (out of a possible 800) was 230–780 (verbal) and 310–790 (math), with standard deviations of 96.6 and 94.2, respectively, so they do not represent a homogeneous group.

Another effect of sample composition might be that the overrepresentation of women in the study magnified the perceived prevalence of social phobia in this group (see later), since women tend to report higher levels of social anxiety in the general population (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Thus, the 22% prevalence of social anxiety found in this sample might be somewhat larger than the actual prevalence, had representative numbers of men and women been studied. However, the figure of 22% does not differ greatly from the 19% social phobia prevalence rate found by Turner et al. (1989) at a large state university, so it does not appear to be unreasonable.

3.2. Analyses of instruments for predictor selection

3.2.1. Factor structures and subscales of instruments

Given the importance to this study of students' social adjustment, and the fact that numerous researchers have warned about the idiosyncratic patterns of predicting retention at various institutions (e.g. Tinto, 1975), results from the CAQ were subjected to a principal components analysis, with the finding that a three-factor solution seemed satisfactory. Items were selected that had factor loadings of at least 0.60 and that did not have loadings on other factors exceeding 0.30. The first scale thus formed we labeled Institutional Commitment, composed of such items as "I am confident I have made the right decision in choosing to attend this university." It includes items 1, 2, 3, 6, 9, and 11. See the Appendix for the instrument and its derived subscales. The second subscale we labeled Social Adjustment, composed of such items as "It has been easy for me to meet and make friends with other students at this university". It includes items 10 and 12.

Table 1
Comparison of study participants' and nonparticipants' mean scores

Comparison variable	Nonparticipants	Participants
SAT verbal		
Women	530	532
Men	538	577
Total	534	551
SAT quantitative		
Women	531	548
Men	586	614
Total	560	576
Class rank		
Women	78	79
Men	75	80
Total	76	79
% Enrolling second year	86.1	87.6
% Enrolling third year	75.8	80.0

SAT, scholastic achievement test.

The last factor, Academic Adjustment, contained items such as "I am satisfied with my academic experience." It includes items 4, 5, and 8. These scales demonstrated adequate internal consistency (Cronbach's alphas ranged from 0.73 to 0.85).

It should be noted that these scales parallel those of similar names described by Cabrera et al. (1993), with the exception that they used the terms "Social Integration" and "Academic Integration." Also, our "Institutional Commitment" scale includes items from their scale of that name, along with items they used to measure "Goal Commitment."

3.2.2. Preliminary analyses

Preliminary evaluations were conducted, in an effort to look at variable redundancy and to decide which variables to retain in the prediction model. This stage examined the measurement structure of the set of predictors in an effort to assess both psychometric properties and construct validity of the predictors. The pattern of correlations was congruent with the expected results. For example, the subscales of the SSI that correlated highly with our Social Anxiety measure were Social Expressiveness (−0.58), Social Sensitivity (0.44), and Social Control (−0.75). CAQ measures of social adjustment and academic adjustment show correlations in the expected direction with Social Anxiety (−0.25 and −0.39, respectively). See Table 2 for the initial (pre-data-reduction) table of correlations.

3.2.3. Data reduction

Due to the unsurprising finding of multi-collinearity in the predictor variables, reducing redundancy among the predictors was a primary concern during the preliminary stages of analysis. In order to facilitate this data reduction, preparatory to performing our regression analyses, a principal components analysis (normalized, varimax rotation) was performed to assist in determining which variables would be retained. Measures were selected if they had loadings of at least 0.60 on the factor in question and no loadings of greater than 0.37 on other factors. Logical and logistical considerations also played a part in the decisions to retain, as for example when Social Anxiety (from the social phobia subscale of the SPAI) was chosen rather than the Social Sensitivity subscale of the SSI, for purposes of comparability with the clinical literature. Following these analyses, decisions were made regarding which scales (or subscales) to delete, with an eye to reducing redundancy of predictors, while retaining non-overlapping constructs. A list of the remaining relevant variables and their origins follows:

- Social Skill was represented by two variables. The first of these is the Social Adjustment factor from the CAQ, and the second was termed Social Skill, a composite variable combining the Emotional Sensitivity and Social Expressivity subscales of the SSI.
- Social Anxiety was included, represented by the Social Phobia subscale of the SPAI.
- Academic Skill was represented by SATM, since the math portion of the SAT tends to predict retention better than does the verbal portion, and by Class Rank, or graduating high school class rank converted to a percentage.
- Socioeconomic status was a composite variable comprised of a measure of total family income and a measure of the highest degree earned by either of the student's parents.
- College Adjustment, a composite variable, was comprised of the Institutional Commitment and Academic Adjustment factors from the CAQ.

Table 2
Correlations before data reduction

	INSTCO	SOCADJ	ACADADJ	SOPHO	EMOEXPR	EMOSENS	EMOCONT	SOCEXPR	SOCSENS	SOCCONT	SAT-V	SAT-M	HSGPA	SES	INCOME	DEGREE	GENDER	ETHNIC
INSTCO	1.000	0.303**	0.497**	−0.110	0.135*	0.122	0.009	0.210**	−0.017	0.156*	−0.009	0.042	0.049	−0.057	0.063	−0.032	−0.075	0.009
SOCADJ	0.303**	1.000	0.232**	−0.380**	0.319**	0.374**	0.052	0.604**	−0.115	0.394**	−0.041	−0.031	−0.010	−0.099	−0.003	−0.021	−0.044	−0.001
ACADADJ	0.497**	0.232**	1.000	−0.247**	0.119	0.017	−0.029	0.162*	−0.196**	0.217**	0.077	0.147*	0.119	−0.075	0.085	−0.024	−0.018	0.058
SOPHO	−0.110	−0.380**	−0.247**	1.000	−0.321**	−0.259**	−0.129*	−0.578**	0.443**	−0.746**	0.039	−0.012	0.005	0.157	−0.100	0.060	0.010	−0.029
EMOEXPR	0.135*	0.319**	0.119	−0.321**	1.000	0.436**	−0.415**	0.594**	0.040	0.432**	−0.099	−0.211**	−0.003	0.038	0.051	−0.040	−0.319**	0.086
EMOSENS	0.122	0.374**	0.017	−0.259**	0.436**	1.000	−0.004	0.561**	0.219**	0.358**	−0.076	−0.132*	0.005	−0.026	0.071	−0.008	−0.185**	0.050
EMOCONT	0.009	0.052	−0.029	−0.129*	−0.415**	−0.004	1.000	0.010	−0.181**	0.099	0.035	0.146*	0.045	−0.130*	−0.018	−0.039	0.367**	−0.065
SOCEXPR	0.210**	0.604**	0.162*	−0.578**	0.594**	0.561**	0.010	1.000	−0.107	0.684**	−0.129	−0.155*	0.025	−0.076	−0.007	−0.124	−0.163**	0.080
SOCSENS	−0.017	−0.115	−0.196**	0.443**	0.040	0.219**	−0.181**	−0.107	1.000	−0.449**	0.074	−0.010	−0.052	0.071	0.056	0.055	−0.080	0.120
SOCCONT	0.156*	0.394**	0.217**	−0.746**	0.432**	0.358**	0.099	0.684**	−0.449**	1.000	0.003	−0.019	0.071	−0.123	−0.038	−0.022	−0.065	−0.012
SAT-V	−0.009	−0.041	0.077	0.039	−0.099	−0.076	0.035	−0.129	0.074	0.003	1.000	0.530**	0.124	−0.124	0.175**	0.028	0.266**	0.142*
SAT-M	0.042	−0.031	0.147*	−0.012	−0.211**	−0.132*	0.146*	−0.155*	−0.010	−0.019	0.530**	1.000	0.130	−0.188**	0.012	−0.048	0.331**	0.154*
HSGPA	0.049	−0.010	0.119	0.005	−0.003	0.005	0.045	0.025	−0.052	0.071	0.124	0.130	1.000	0.004	−0.198**	0.040	−0.002	−0.035
SES	−0.057	−0.099	−0.075	0.157*	0.038	−0.026	−0.130	−0.076	0.071	−0.123	−0.124	−0.188**	0.004	1.000	−0.026	0.209**	−0.074	−0.003
INCOME	0.063	−0.003	0.085	−0.100	0.051	0.071	−0.018	−0.007	0.056	−0.038	0.175**	0.012	−0.198**	−0.026	1.000	−0.009	0.144*	0.184**
DEGREE	−0.032	−0.021	−0.024	0.060	−0.040	−0.008	−0.039	−0.124	0.055	−0.022	0.028	−0.048	0.040	0.209**	−0.009	1.000	−0.079	0.012
GENDER	−0.075	−0.044	−0.018	0.010	−0.319**	−0.185*	0.367**	−0.163**	−0.080	−0.065	0.266**	0.331**	−0.002	−0.074	0.144**	−0.079	1.000	0.191**
ETHNIC	0.009	−0.001	0.058	−0.029	0.086	0.050	−0.065	0.080	0.120	−0.012	0.142*	0.154*	−0.035	−0.003	0.184**	0.012	0.191**	1.000

* Correlation is significant at the 0.05 level (two-tailed).

** Correlation is significant at the 0.01 level (two-tailed).

- Emotional Control and Gender were included separately into the prediction equations.
- Finally, Ethnicity represented the last variable. Due to the categorical nature of this variable, and the constraints of the statistical software package in use (Statistica™ 5.1), this was recoded as three "dummy" variables: African-American versus non-African-American (AA), European-American versus non-European-American (EA), and Asian versus non-Asian (AS).

3.3. Prediction of outcomes

The outcomes of enrollment status by the end of two years, semesters completed, and cumulative GPA at the end of each of the first four semesters (GPA1–GPA4) were predicted by means of a backwards stepwise regression analysis. Enrollment Status is a categorical variable (students either "retained" or "stopped out" or "dropped out," coded, respectively, 1, 2, and 3). In order to be considered a "stop-out," a student had to have at least one semester of the four examined, in which she/he did not register for courses or withdrew by the college deadline, and then had to be re-enrolled and taking classes by Semester 4 (the final semester of data collection). Due to the categorical nature of the outcome measure of enrollment status, the extent of the correlations obtained between the "tri-serial R" and the predictor variables was expected to be somewhat attenuated.

3.3.1. Prediction of enrollment status after 2 years

One possible problem with the use of multiple linear regression in this case is the use of categorical outcomes (in, stopout, or dropout) in the prediction of Enrollment Status. This carries with it some theoretical problems, given that the model assumes continuous outcomes. However, Dey and Astin (1993) addressed this issue, comparing linear regression with logistic regression with probit analysis techniques in this sort of study, and concluded that there was little practical difference between the methods in predicting student retention.

A backward stepwise multiple regression was performed using all of the predictor variables described above, which were entered as a block. The variables were then deleted sequentially, based on lowest probability of F-to-remove, leaving only Class Rank and Emotional Control. The resulting multiple R was 0.3876, with $F(2, 197) = 17.4195$, $P = 0.0000$. The remaining significant predictors, Emotional Control and Class Rank, do an excellent job of predicting retention over the first two years of undergraduate study. Class Rank predicts in the expected direction, with a beta weight of 0.29, $P = 0.0001$, such that those with higher class rank tend to persist to a greater degree than those with lower class ranks. This is consistent with a large body of research (e.g. Aspinwall & Taylor, 1992). Emotional Control, with a beta weight of -0.26, $P = 0.0000$, was another strong predictor of enrollment status, such that students with higher degrees of Emotional Control were significantly more likely to drop out, even when controlling for their academic ability. Of the original sample of 253 students, 203 re-enrolled for their third year of classes, at the conclusion of data collection for this study. Social Anxiety was the last of the nonsignificant predictors to be removed, with a beta weight of -0.1296 ($P = 0.0618$). Thus, while it was not a significant predictor, the direction of the relationship was as hypothesized.

3.3.2. First Semester GPA

A similar approach was taken to predicting first semester GPA. Upon reducing the list to all significant variables having a $P \leqslant 0.05$, the resulting R was 0.5660, with $F(3, 196) = 30.8001$, $P = 0.0000$. Greater degrees of college adjustment (College Adjustment) strongly predicted higher GPA (with a beta weight of 0.26, $P = 0.0000$). SATM also predicted higher GPA (with beta weight 0.48, $P = 0.0000$), such that students with higher mathematics SAT scores tended to receive higher college grades. Finally, gender also predicted GPA1 (with beta weight of 0.27, $P = 0.0000$). When there was a significant difference related to GPA, it occurred in the direction of women receiving higher GPAs than did men.

3.3.3. Second semester cumulative GPA

As described for first semester GPA, earlier, cumulative GPA at the end of the first academic year (or GRAD2), was predicted. Removing predictors stepwise until all the remaining predictors had a $P \leqslant 0.05$ relationship to the outcome resulted in a multiple R of 0.5588, with $F(4, 194) = 22.0218$, $P = 0.0000$. Here, Social Adjustment, a measure of how socially integrated one feels on campus (with this measure having been taken in the first few weeks of classes) bears a negative relationship to cumulative GPA over the first year of college (with beta weight of -0.22, $P = 0.0007$). College Adjustment, a measure of one's commitment to college and to the particular institution one has chosen, is also a very strong predictor at this point (with beta weight 0.32, $P = 0.0000$). High school class rank (Class Rank) predicts higher GPA, with a beta weight of 0.38 and $P = 0.0000$). Finally, ethnicity shows up as a predictor here, with African-American students having a lower cumulative GPA than students of other ethnicities, at this juncture in their academic histories (beta weight -0.23, $P = 0.0001$).

3.3.4. Third semester cumulative GPA

In similar fashion, the prediction of third-semester cumulative GPA (or GRAD3) was accomplished. The resulting prediction equation had a multiple R of 0.5201, with $F(2, 187) = 34.6778$, $P = 0.0000$. Once again we find Class Rank and SATM exerting their powerful effects, with students of higher class rank and higher SAT math scores receiving higher cumulative grades by their third semester of college (with beta weights of 0.26 and 0.34, and $P = 0.0004$ and 0.0000, respectively).

3.3.5. Fourth semester cumulative GPA

Finally, the same process was repeated for GRAD4, or fourth-semester cumulative GPA. This yielded an identical roster of predictors as for GRAD3, with the addition of College Adjustment, and a multiple R of 0.5457, with $F(3, 176) = 24.8895$, $P = 0.0000$. This prediction equation is much the same as that for the preceding cumulative semester, with the addition of College Adjustment. This suggests that the equation has stabilized somewhat, either because the predictor variables can be expected to exert a relatively stable effect from this point on, or because the outcome variable being predicted already contains so much variability from previous semesters (since cumulative GPA is being predicted). The beta weights assigned to College Adjustment, Class Rank, and SATM are 0.23, 0.30, and 0.19, with $P = 0.0003$, 0.0017, and 0.0031, respectively.

3.3.6. Re-examination of initial hypotheses

1. Socially anxious students did not show a higher drop-out rate, or lower GPAs, overall, than their non-socially anxious counterparts.
2. Social skills did not decrease academic drop-out in any global fashion. One type of social skill, in fact, emotional control, was related to higher drop-out likelihood, and one measure of social adjustment predicted lower GPA by the end of the first year of college.
3. College adjustment measures affected GPA throughout the first 2 years of college, but did not have an impact on retention.
4. Self-report of social anxiety was negatively related to self-report of social expressiveness and social control, and was positively related to self-report of social sensitivity.

4. Discussion

4.1. Relationships between social anxiety and social skills

While not the primary focus of this study, significant effects were found for relationships between Social Anxiety and the social subscales of the SSI. All three measured aspects of the social communication process were found to be problematic for the highly socially anxious. The socially anxious study participants reported problems with Social Expressivity, which "assesses skill in verbal expression and the ability to engage others in social discourse," Social Sensitivity, which "assesses the ability to interpret the verbal communication of others," and Social Control, which "assesses skill in role-playing and social self-presentation" (preceding three quotes from Riggio, 1989). Not surprisingly for those familiar with the nature of social phobia, the highly socially anxious reported significantly less social control and significantly less social expressiveness than did the other groups, along with a heightened social sensitivity. This conforms to the clinical picture, and the heightened social sensitivity seen is reminiscent of the body of research on sensitivity of the socially anxious to social threat cues (Hope, Rapee, Heimberg, & Dombeck, 1990; Mattia, Mathews & MacLeod, 1985, 1986; Heimberg, & Hope, 1993; McNeil et al., 1995).

4.2. Roles of the "Usual predictors" in predicting retention

Overall, class rank was a better predictor of the outcomes of interest than was the SAT math score. Presumably, class rank is a complex composite variable that includes such elements as achievement, some contribution of basic academic problem-solving facility (which may also be referred to as "intelligence" or *g*), organization and task completion skills, and conscientiousness about completing assignments, whereas SAT scores represent primarily achievement along with some estimate of *g*. Whatever latent variables may be subsumed within Class Rank, it remained the strongest predictor (or tied for strongest) for nearly all the outcome measures assessed in this study, a robust finding that suggests the reliance placed on it in the admissions process is not unfounded.

The roles of gender and ethnicity should also be addressed. In this sample, they did not contribute significantly to a measure of academic persistence (Enrollment Status), but they did contribute to varying degrees to measures of academic success (GPA variables). Gender contributed to first semester GPA alone, then dropped out as a significant predictor. This suggests that once men in this study persist past the first semester of college, they do not perform worse academically than do women, even when cumulative measures are used.

Ethnicity does exert a significant effect on some measures of academic success, notably in the second semester of school, but not on measures of academic persistence. Considering the low numbers of students representing ethnic minorities in this study, these results should not be overinterpreted.

4.3. Role of social phobia

Social phobia was found to exist in significant, even clinical levels, in a number of students. This corresponds with previous research, and suggests that a number of students might benefit from interventions designed to alleviate their discomfort, promote better social adjustment, and improve their functioning in the classroom. However, Social Anxiety did not reach significance as a predictor of the outcomes of interest. Thus, while students must be experiencing considerable anxiety, they seem to manage their anxiety and stay in college. It may be that, though college and its social challenges may be quite stressful for them, they are differentially sensitive to the stigma of dropping out of college and not "making it" in the eyes of others. The option of transferring to another school would be quite stressful for a socially anxious student, as well, since it would involve another highly anxiety-provoking social milieu change.

In the first semester, Social Anxiety did show a small (and not significant) relationship with GPA, such that higher degrees of Social Anxiety were associated with lower GPA. This may be due to unwillingness on the part of the socially anxious individual to ask for help from other students and to discuss assignments with professors, or to a host of other possible mechanisms.

The nature of the campus in question and the types of courses typically taken in the first 2 years should be considered before assuming that social anxiety does not impair academic effectiveness or persistence; on a large campus, with introductory classes numbering in the hundreds of students, opportunities for class presentations and group discussions are somewhat rare, and it is in the advanced, seminar-style courses that participation requirements most often take effect. Thus, these students, in their first 2 years of college, may not have reached the point at which very high levels of social anxiety would exert the most harmful effects. This is a question that could usefully be addressed at campuses of different kinds.

It is also possible that Social Anxiety exerts its effect on retention and performance indirectly. For example, its correlation with College Adjustment is -0.22, which is modest but significant at alpha $= 0.01$, and College Adjustment has a clear effect on the indices of academic success used in this study.

Still, the evidence from this study does not suggest that individuals with high degrees of social anxiety are necessarily occupationally incapacitated, as one might sometimes gather from reading the literature. There are those who seem to manage quite well despite their fears. It may be that the academic environment is relatively nonthreatening to socially anxious individuals, especially

when compared to the alternatives (jobs, dating, etc.). It may also be that some academic disciplines are embraced more by the socially anxious than are others, but information on student majors was not collected in the present study to answer this question, which awaits further study.

4.4. Role of "Emotional Control"

This variable was surprising in the strength of its association with Enrollment Status, given that there was no literature available on the subject at the writing of this paper. Representative items on the Emotional Control scale of the SSI include "People can always tell when I dislike them no matter how hard I try to hide my feelings" and "I am not very skilled in controlling my emotions," both of which would be reverse-scored. One possible explanation for the finding that those who control emotions to high degrees are prone to drop out may be that those who invest great effort in controlling emotions are less likely to connect on any real level with others. Thus, they may see themselves as socially well-adjusted, and may indeed have friends, but the person others are spending time with is, to some degree (according to self-report), a façade. This relates indirectly to Pennebaker and Beall's (1986) and Pennebaker, Kiecolt-Glaser, and Glaser's (1988) findings that disclosure of emotions contributes to greater physical health; perhaps it also contributes to greater academic health. There may also be direct and practical reasons for this finding; those who are willing to express their frustrations or needs to others in a new setting may be more likely to receive instrumental assistance, such as information about resources on campus, help with homework problems, and so on. The literature on coping and on help-seeking lends support to the notion that greater emotional expressivity facilitates coping and adjustment (Butler, Giordano, & Neren, 1985; Cepeda-Benito & Short, 1998; Heppner, Walther, & Good, 1995)

4.5. Additional considerations

The CAQ's College Adjustment Scale, representing both institutional commitment and academic adjustment, did a good job of predicting three of four semester GPA indices, with high levels of significance. It did not however predict enrollment status (or semesters completed). This finding is rather counterintuitive, since one would assume à priori that higher levels of commitment and satisfaction with the college environment would predict dropout, but not necessarily GPA, and the opposite was found in this study. It may be that feeling committed to one's institution and one's role as a student are associated with greater likelihood of performing the required tasks, with less energy wasted in wondering whether one should leave; this would free up energy for completion of class assignments and immersion into the student role. Or again, it may be that students who feel that they are content and are where they should be experience less dysphoria and therefore avoid the concentration difficulties and low energy associated with that emotion. Since a measure of dysphoria was not taken, this question cannot be answered by this study, but it raises interesting possibilities for further study.

Neither Bean nor Tinto directly address the role that a construct like emotional control might play in predicting enrollment status. Indeed, how to integrate this construct into their models

would depend on whether Emotional Control was construed as a trait or as a reaction to a new and possibly unwelcoming environment, or both. The current study provides no insight into this distinction, and might be illuminated by studies examining the long-term temporal stability of the subscale. Riggio (1989) appears to construe Emotional Control and the other subscales in a trait-like way.

4.6. Suggestions for further study

Several caveats should be offered in closing. First, the history of the prediction of undergraduate retention is replete with warnings against overgeneralizing the results. Considerable variation between institutions exists in the nature and relationship of the predictor variables, and even within an institution, different patterns have at times been found for different cohorts. Additionally, the sample size ($n = 253$) was rather small, as such studies go, and despite concerted efforts to oversample in the ethnic minority groups, those numbers were also quite small, limiting the numbers of analyses that could be performed. So the usual recommendation that further study be conducted is à propos, to determine whether this effect can be replicated at other institutions as well. Varying the types of institutions studied (2-year, 4-year residential versus commuter, and private versus public) would also be beneficial. It may well be that factors such as Social Anxiety and Emotional Control would exert different effects on campuses that vary in size and in degree of community perceived by the students.

Several other issues also merit further consideration. For example, we speculated earlier that social anxiety could play a greater role in advanced courses, or at small colleges where class presentations and class participation represent a larger portion of the academic burden. This issue certainly requires further study. Additionally, the strong role played by Emotional Control should be investigated further, with both qualitative and quantitative studies, in order to clarify how emotional control might function in other settings, or in other aspects related to undergraduate retention and academic competence. Additionally, Emotional Control is much higher in men, overall, than in women. It would be interesting to know whether it functions differently in interaction with gender-role stereotypes, such that high-Emotional-Control men, since they conform to the stereotype, are less affected than are women with high levels of Emotional Control. These participants are also very young, with a modal age of 18, and are therefore still in the process of trying to establish their social and gender roles. Young men at this age may adopt roles that include stereotypical suppression of emotion.

4.7. Implications for intervention

Any implications for treatment should be understood to be based on this small sample, and therefore to be quite preliminary and in need of further study. Regardless of further findings on the role of social anxiety in adjustment to college, there are several clear implications for intervention that derive from this study. First, significant numbers of students suffer from levels of social anxiety as high as those reported by social phobics in treatment. This means that they are experiencing high degrees of distress, which presumably impair their social functioning and well-being, if not their grades or dropout in the first 2 years of undergraduate study.

Social phobia is quite treatable and responds well to cognitive and behavioral interventions such as exposure (Brown, Heimberg & Juster, 1995; Feske & Chambless, 1995) and to pharmacological treatment (Gould, Buckminster, Pollack, Otto, & Yap, 1997; Smolin & Conger, 1998), though it does not necessarily dissipate on its own in response to social successes (Wallace & Alden, 1997). Facilitating the prospect of treating young college students is the fact that group sessions are in fact an appropriate and economical means of addressing this disorder. Attempts to involve first-year students in a social phobia treatment group (with referrals from their advisors and/or Dean of Students office) should yield good results in terms of improved student comfort and ability to function effectively in social situations. Additionally, the finding that such a high proportion of the (admittedly small) sample of African-American women in the study had clinical levels of social phobia suggests that this group of participants, and perhaps participants at other large schools (Neal-Barnett, 1997) might be at high risk for social phobia.

High degrees of Emotional Control, on the other hand, have not generally been considered to be an issue of clinical concern, but findings of this study suggest that perhaps they should be. At least in an academic setting, high Emotional Control is problematic. Students who are less concerned with monitoring and controlling their emotional expression, for whatever reason, are not as likely to drop out. Perhaps educational material could be made available to first-year students on the benefits of expressing feelings and finding support networks where it feels safe to express feelings; in line with the work of Pennebaker and Beall (1986), this could also be expected to exert positive effects on the degree to which students become ill and require the use of the student health center. Thus, expressing feelings could contribute both to a student's academic and physical health.

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Appendix. College Affiliation Questionnaire (CAQ)

Read each statement carefully and decide which response best applies to you.

A	B	C	D	E
Not at all like me	**A little like me**	**Like me**	**Very much like me**	**Exactly like me**

1. It is important for me to get a college degree.
2. I am confident I have made the right decision in choosing to attend _____.
3. My close friends rate _____ as a quality institution.
4. I have performed academically as well as I anticipated I would at _____.
5. I am satisfied with my course curriculum here at _____.
6. My education at _____ will help me secure future employment.
7. I am satisfied with the amount of financial support (grants, loans, family, jobs) I have received while attending _____.
8. I am satisfied with my academic experience.
9. It is very important for me to graduate from _____ as opposed to graduating from some other school.
10. Since coming to _____ I have developed close personal relationships with other students.
11. It is important for me to finish my program of study.
12. It has been easy for me to meet and make friends with other students at _____.
13. I feel I belong at _____.

Subscales Used in this Study:

a. Institutional Commitment: Includes items 1, 2, 3, 6, 9, and 11.

b. Social Adjustment: Includes items 10 and 12

c. Academic Adjustment: Includes items 4, 5, and 8

d. College Adjustment: Includes items 1, 2, 3, 4, 5, 6, 8, 9, 11

References

Alden, L., & Wallace, S. (1995). Social phobia and social appraisal in successful and unsuccessful social interactions. *Behaviour Research and Therapy*, *33*, 497–505.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.

Aspinwall, L., & Taylor, S. (1992). Modeling cognitive adaptation: a longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology*, *63*, 989–1003.

Bean, J. (1980). Dropouts and turnover: the synthesis and test of a casual model of student attrition. *Research in Higher Education*, *12*, 155–187.

Bean, J. (1982). Student attrition, intentions, and confidence: interaction effects in a path model. *Research in Higher Education*, *17*, 291–320.

Bean, J. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal*, *22*, 35–46.

Beidel, D., Turner, S., Stanley, M., & Dancu, C. (1989). The Social Phobia and Anxiety Inventory: concurrent and external validity. *Behavior Therapy*, *20*, 417–427.

Brown, E., Heimberg, R., & Juster, H. (1995). Social phobia subtype and avoidant personality disorder: effect on severity of social phobia, impairment, and outcome of cognitive behavioral treatment. *Behavior Therapy*, *26*, 467–486.

Butler, T., Giordano, S., & Neren, S. (1985). Gender and sex-role attributes as predictors of utilization of natural support systems during personal stress events. *Sex Roles*, *13*, 515–523.

Cabrera, A., Castañeda, M., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *Journal of Higher Education*, *63*, 143–164.

Cabrera, A., Nora, A., & Castañeda, M. (1992). The role of finances in the persistence process: a structural model. *Research in Higher Education*, *33*, 571–593.

Cabrera, A., Nora, A., & Castañeda, M. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *Journal of Higher Education*, *64*, 123–139.

Cepeda-Benito, A., & Short, P. (1998). Self-concealment, avoidance of psychological services, and perceived likelihood of seeking professional help. *Journal of Counseling Psychology*, *45*, 58–64.

Cosgrove, T. (1986). The effects of participation in a mentoring-transcript program on freshmen. *Journal of College Student Personnel*, *27*, 119–124.

Dey, E., & Astin, A. (1993). Statistical alternatives for studying college student retention: a comparative analysis of logit, probit, and linear regression. *Research in Higher Education*, *34*, 569–581.

DiMaria, F., & DiNuovo, S. (1990). Gender differences in social and test anxiety. *Personality and Individual Differences*, *11*, 525–530.

D'Zurilla, T., & Sheedy, C. (1992). The relation between social problem-solving ability and subsequent level of academic competence in college students. *Cognitive Therapy and Research*, *16*, 589–599.

Edelman, R. J. (1985). Dealing with embarrassing events: socially anxious and non-socially anxious groups compared. *British Journal of Clinical Psychology*, *24*, 281–288.

Feske, U., & Chambless, D. (1995). Cognitive behavioral versus exposure only treatment for social phobia: a meta-analysis. *Behavior Therapy*, *26*, 695–720.

Gould, R. A., Buckminster, S., Pollack, M. H., Otto, M. W., & Yap, L. (1997). Cognitive-behavioral and pharmacological treatment for social phobia: a meta-analysis. *Clinical Psychology: Science and Practice*, *4*, 291–306.

Heppner, P., Walther, D., & Good, G. (1995). The differential role of instrumentality, expressivity, and social support in predicting problem-solving appraisal in men and women. *Sex Roles*, *32*, 91–108.

Herbert, J., Bellack, A., & Hope, D. (1991). Concurrent validity of the Social Phobia and Anxiety Inventory. *Journal of Psychopathology and Behavioral Assessment*, *13*, 357–368.

Hope, D. A., Rapee, R. M., Heimberg, R. G., & Dombeck, M. J. (1990). Representations of the self in social phobia: vulnerability to social threat. *Cognitive Therapy and Research*, *14*, 177–189.

Jefferson, J. W. (1995). Social phobia: a pharmacologic treatment overview. *Journal of Clinical Psychiatry*, *56*, 18–24.

Kowalski, C. (1982). College dropouts: some research findings. *Psychology: A Quarterly Journal of Human Behavior*, *19*, 45–49.

Langston, C., & Cantor, N. (1989). Social anxiety and social constraint: when making friends is hard. *Journal of Personality and Social Psychology*, *54*, 649–661.

Lucock, M. P., & Salkovskis, P. M. (1988). Cognitive factors in social anxiety and its treatment. *Behaviour Research and Therapy*, *26*, 297–302.

Mathews, A., & MacLeod, C. (1985). Selective processing of threat cues in anxiety states. *Behaviour Research and Therapy*, *23*, 563–569.

Mathews, A., & MacLeod, C. (1986). Discrimination of threat cues without awareness in anxiety states. *Journal of Abnormal Psychology*, *95*, 131–138.

Mattia, J. I., Heimberg, R. G., & Hope, D. A. (1993). The revised Stroop color-naming task in social phobics. *Behaviour Research and Therapy*, *31*, 305–313.

McNeil, D., Ries, B., Taylor, L., Boone, M., Carter, L., Turk, C., & Lewin, M.(1995).Comparison of social phobia subtypes using Stroop tests (1995). *Journal of Anxiety Disorders*, *9*, 47–57.

Metzner, B., & Bean, J. (1985). The estimation of a conceptual model of nontraditional undergraduate student attrition. *Research in Higher Education*, *27*, 15–38.

Neal-Barnett, A. (1997). *To be young, anxious, and black*. Symposium conducted at the meeting of the American Psychological Association, Chicago, IL.

Pascarella, E., & Terenzini, P. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education*, *51*, 61–75.

Pennebaker, J., & Beall, S. (1986). Confronting a traumatic event: toward an understanding of inhibition and disease. *Journal of Abnormal Psychology*, *95*, 274–281.

Pennebaker, J., Kiecolt-Glaser, J., & Glaser, R. (1988). Confronting traumatic experience and immunocompetence: a reply to Neale, Cox, Valdimarsdottir, and Stone. *Journal of Consulting and Clinical Psychology*, *56*, 638–639.

Pozo, C., Carver, C., Wellens, A. R., & Scheier, M. (1991). Social anxiety and social perception: construing others' reactions to the self. *Personality and Social Psychology Bulletin*, *17*, 355–362.

Rice, K. G., & Mirzadeh, S. A. (2000). Perfectionism, attachment, and adjustment. *Journal of Counseling Psychology*, *47*, 238–250.

Riggio, R. (1986). Assessment of basic social skills. *Journal of Personality and Social Psychology*, *51*, 649–660.

Riggio, R. (1989). *Manual for the social skills inventory*. Palo Alto, CA: Consulting Psychologists Press.

Riggio, R., Watring, K., & Throckmorton, B. (1993). Social skills, social support, and psychosocial adjustment. *Personality and Individual Differences*, *15*, 275–280.

Schneier, F., Johnson, J., Hornig, C. D., Liebowitz, M. R., & Weissman, M. M. (1992). Social phobia: comorbidity and morbidity in an epidemiologic sample. *Archives of General Psychiatry*, *49*, 282–288.

Smolin, J. & Conger, J. (1998). *Pharmacological treatments for social phobia: a meta-analytic and methodological review*. Poster session presented at the annual meeting of the Midwestern Psychological Association, Chicago, IL.

Strahan, E., & Conger, A. J. (1998). Social anxiety and its effects on performance and perception. *Journal of Anxiety Disorders*, *12*, 293–305.

Tinto, V. (1975). Dropout from higher education: a theoretical synthesis of recent research. *Review of Educational Research*, *45*, 89–125.

Tinto, V. (1993). *Leaving college: rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

Turner, S., Beidel, D., Borden, J., Stanley, M., & Jacob, R. (1991). Social phobia: axis I and II correlates. *Journal of Abnormal Psychology*, *100*, 102–106.

Turner, S., Beidel, C., Dancu, C., & Keys, D. (1989). An empirically derived inventory to measure social fears and anxiety: the Social Phobia and Anxiety Inventory. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, *1*, 35–40.

Turner, S. M., Beidel, D. C., & Larkin, K. T. (1986). Situational determinants of social anxiety in clinic and nonclinic samples: physiological and cognitive correlates. *Journal of Consulting and Clinical Psychology*, *54*, 523–527.

Wallace, S. T., & Alden, L. E. (1997). Social phobia and positive social events: the price of success. *Journal of Abnormal Psychology*, *106*, 416–424.

Zeidner, M. (1994). Personal and contextual determinants of coping and anxiety in an evaluative situation: a prospective study. *Personality and Individual Differences*, *16*, 899–918.