Cognition, Anxiety, and Prediction of Performance in 1st-Year Law Students

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Two models to predict academic performance using ability, affective, and cognitive variables were evaluated using students in their 1st year of law school. Participants were assessed before the beginning of classes and prior to and immediately following 2 anxiety-arousing 1st-year academic milestones: a final exam and an oral argument. In the path analysis for the exam model, only the Law School Aptitude Test was predictive of performance. Trait anxiety predicted self-efficacy for cognitive control, which predicted thoughts, which in turn predicted state anxiety. State anxiety, however, did not predict exam grades. In the oral argument model, a clear path of significant predictors could be traced from communication apprehension to self-efficacy for affective control, to state anxiety, and finally to oral argument score. Thus, different processes appear to operate in each of the 2 academic tasks. The implications of the results for law school education and future research are discussed.

Law school has long been documented as a stressful experience, with the first year being especially problematic (e.g., McIntosh, Keywell, Reifman, & Ellsworth, 1994; Schick, 1996). Many law students suffer from elevated levels of anxiety and depression (Dammeyer & Nunez, 1999; Shanfield & Benjamin, 1985). The origins of such psychological distress appear to be a number of sources in the law school learning environment, including threats to self-esteem from the competitive atmosphere, class ranking, overwhelming workload, intimidating Socratic teaching methods, and single end-of-semester exams with little prior performance feedback (Carney, 1990). Although it has been suggested that academic success in law school may be related to student personality (Boyle & Dunn, 1998), the extent to which anxiety and stress impact law school performance has remained largely unexamined.

Models of Performance

Drawing on both previous research and anxiety theory, the present study aimed to develop and test two models of first-year law school performance. Recent conceptualizations of anxiety have focused on the importance of negative cognition in the form of self-deprecatory thoughts and low self-efficacy (Beck & Emery, 1985). Further, models that suggest paths of influence may more thoroughly explain performance than would the examination of individual variables in relation to outcome (Ozer & Bandura, 1990). For example, in a study of performance on doctoral dissertation oral exams, Arnkoff, Glass, and Robinson (1992) proposed a model that incorporated cognitive and affective variables into a sequential path. Results demonstrated the importance of thoughts and self-efficacy in the prediction of anxiety. Self-efficacy for cognitive control was predictive of students’ thoughts prior to and during their doctoral oral examinations. The fact that neither thoughts nor anxiety predicted student performance is likely due to the restricted range of performance scores, as all students passed the exam, and 90% scored at or above the midpoint of the rating scale.

A further study used a path model to predict oral examination performance in soldiers being evaluated by a military board, where performance outcome was based both on soldiers’ ability to answer questions and on their military bearing and composure (Glass et al., 1995). Dispositional anxiety was found to predict preexamination anxiety but not self-efficacy for performance. Preexamination anxiety predicted negative thoughts, which in turn predicted performance independently of the anxiety experienced during the evaluation.

Although path models have proven informative in a variety of contexts, no study to date has used such models to investigate predictors of law school performance. Researchers have also tended not to look at predictors of outcome on varying tasks in one population. In the law school setting, an understanding of predictors of success in different tasks could have important implications for law school educators and for counselors working with law students.

Models of Examination and Oral Argument Performance

In this study, we chose to investigate two distinct yet stressful first-year law school academic milestones: the final examination in
students' first-semester course on contracts, and a second-semester oral argument of a case in front of a panel of judges. Final examinations in law school are highly stressful in that they typically determine the entire grade for a course, often involve the novel experience of having to present answers in written form (as opposed to the verbal form used in class), and pose questions often different from those asked in class (Kissam, 1989). The oral argument often fosters competitiveness in students (Auerbach, 1984) and can be intimidating due to the prospect of having to speak in public in an evaluative setting. The ability to perform at a high level on both types of tasks has important academic and career implications. Two models were thus proposed, in which we hypothesized that performance on examinations and oral argument is a function of a series of variables organized into three phases: (a) an antecedent phase, (b) a preperformance phase, and (c) a performance phase. Performance outcome was measured by examination grades and by judges' ratings of oral argument performance.

Antecedent Phase

Antecedent phase constructs consisted of dispositional anxiety variables and ability variables, both of which were theorized to play a role in the development of self-efficacy and ultimately to affect actual task performance. Trait anxiety (a personality characteristic associated with a relatively high level of chronic anxiety and a likelihood of experiencing anxiety easily), test anxiety, and anxiety in public speaking situations have been shown to correlate with undergraduate performance (e.g., Hunsley, 1985; Seipp, 1991). These three constructs were thus expected to play a similar role in law students' responses to their final examination and oral argument tasks. In addition, we included measures of academic ability (undergraduate grade point average [GPA] and standardized test scores on the Law School Aptitude Test [LSAT]), which have been found to be directly predictive of law school academic performance (Linn & Hastings, 1984; Powers, 1982).

Preperformance Phase

In the second phase, preperformance factors consisted of three aspects of self-efficacy expectations. Self-efficacy expectations are cognitive convictions that individuals have regarding whether they can carry out specific behaviors to achieve a desired outcome. A number of elements, including prior accomplishments and emotional arousal, affect the development and maintenance of self-efficacy expectations (Bandura, 1977). Social cognitive theory also postulates that perceived self-efficacy operates as a cognitive mediator of anxiety arousal and action (Bandura, 1988). Self-efficacy beliefs have therefore been included, along with anxiety and negative thoughts, in previous path models of behavior and performance (e.g., Arnkoff et al., 1992; Ozer & Bandura, 1990). A relationship between self-efficacy for performance and academic achievement has been found (Multon, Brown, & Lent, 1991; Smith, Arnkoff, & Wright, 1990). In addition, self-efficacy for grade attainment on a test was shown to be related to anxiety level on that test (Zohar, 1998).

Research on self-efficacy has also revealed that individuals who believe they can control their affect and negative cognitions may be able to cope better with anxiety and may be less likely to experience intrusive negative thoughts (Arch, 1992; Bandura, 1988). These three aspects of self-efficacy were thus assessed in the present study: self-efficacy for successful performance, self-efficacy for affective control (over subjective anxiety), and self-efficacy for cognitive control (of intrusive, negative thoughts). We posited that antecedent-phase predispositional constructs would influence self-efficacy expectations during the preperformance phase, which in turn would affect performance-phase variables.

Performance Phase

Finally, performance-related constructs, such as the thoughts and state anxiety experienced during the exam and oral argument, were expected to have an effect on actual performance. An individual's thoughts have been theorized to either facilitate coping or interfere with goal behavior (e.g., Arnkoff et al., 1992; Covingtom & Omelich, 1990).

Research on examinations has found that cognition is related to both test anxiety and performance, with negative thoughts correlating positively with test anxiety (Galassi, Frierson, & Sharer, 1981; Kent & Jambunathan, 1989) and negative thoughts, test anxiety, and worry inversely relating to academic performance (Bruch, 1981; Deffenbacher, 1986). However, studies have found that the state of mind (SOM) ratio of positive thoughts to positive-plus-negative thoughts (Schwartz & Garamoni, 1989) may be more relevant to predicting anxiety and academic performance than are negative thoughts alone (e.g., Arnkoff et al., 1992; Schwartz & Garamoni, 1989). Therefore, we elected to use the SOM ratio as the performance-phase cognitive variable for the exam model in the present study.

Although no prior studies have investigated thoughts and self-efficacy in the context of oral argument, research has found that anxious individuals generally have more negative thoughts in speech settings than do less anxious people (Beidel, Turner, & Dancu, 1985; Stopa & Clark, 1993). Further, Glass et al. (1995) found that negative thoughts, but not the SOM ratio, predicted performance on a career-related oral exam. We thus chose to use the construct of negative thoughts as the cognitive variable in the performance phase of the oral argument model.

In addition to thoughts, state anxiety may be an important predictor of success during the performance phase. State anxiety is experienced during a specified period of time and is assumed to vary in intensity as a function of perceived threat (Spielberger & Rickman, 1990). State anxiety in evaluation situations has been examined often. For example, McCleary and Zucker (1991) found anxiety levels in law students to be significantly higher than undergraduate norms. There are also studies demonstrating that state anxiety inversely predicts exam performance (Frierson & Hoban, 1987; Hunsley, 1985). However, state anxiety was not related to performance in path models that also included self-efficacy and negative thoughts (Arnkoff et al., 1992; Ozer & Bandura, 1990).

In summary, the present study sought to predict the performance of first-year law students on a first-semester final exam and on a second-semester oral argument using path-analytic models. The two models incorporated a range of predictor variables, including dispositional anxiety, academic ability/aptitude, self-efficacy expectations, state anxiety, and negative thoughts. Correlates of law school performance, including first-year class ranking in addition
to exam grades and judges’ oral argument ratings, were also calculated.

Method

Participants

Participants were 138 first-year law students (91 men and 93 women, representing 77.5% of the class) recruited during orientation sessions prior to their first semester at a private, mid-Atlantic law school. Participants ranged in age from 21 to 47 years (M = 24.04; 94% of the sample was less than 30 years of age. The majority of the students were unmarried (n = 157), and the remainder identified themselves as married or living as married. Participants were primarily White/Caucasian (n = 154), with the remainder being from various ethnic and racial backgrounds, including African American (n = 11), Asian (n = 9), and Hispanic (n = 6). All participants had taken the LSAT prior to applying to law school. Their mean LSAT score of 154.84 (SD = 4.56) was significantly higher than the national mean of 150, Z = 6.51, p < .01. Participants’ mean undergraduate GPA was 3.10 (SD = .36) and ranged from 1.98 to 3.81.

Measures

Demographic questionnaire. The demographic questionnaire included questions assessing age, sex, education, race and ethnicity, marital status, religious preference, and areas of potential legal specialization.

The LSAT is a standardized aptitude test required for admission to most U.S. law schools, and it assesses comprehension and analytical and logical reasoning. A combined variable of LSAT score and undergraduate GPA correlates highly with first-year law school GPA (Law School Admissions Council [LSAC], 1996).

State-Trait Anxiety Inventory (STAI). The STAI ( Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) was designed to assess both trait and state anxiety, and it consists of two 20-item forms. The STAI–Trait asks participants to rate, on 4-point scales, how often they generally experience certain feelings (e.g., “I am inclined to take things hard”). The STAI–State form uses similar 4-point scales, on which participants rate how they feel “right now” (e.g., “I feel nervous”). Both forms have been used extensively in anxiety research and show good concurrent validity with other anxiety measures. The STAI–Trait has strong test-retest reliability, whereas the STAI–State has demonstrated low test-retest reliability, consistent with the expected variability in state anxiety over time (Spielberger et al., 1983).

Reactions To Tests (RTT). The RTT (Sarason, 1982, 1984) is a 40-item self-report measure of dispositional test anxiety. Four-point rating scales are used to rate the extent to which each item is typical of one’s own reaction to tests (e.g., “I feel distressed and uneasy before tests”). The RTT has shown moderate but significant concurrent validity with other test anxiety measures, as well as an inverse relationship with academic performance (Sarason, 1982).

Personal Report of Communication Apprehension–24 (PRCA-24). The PRCA-24 is a measure of apprehension or anxiety while speaking in public situations. The most recent revision (the PRCA-24; McCroskey, 1993) consists of 24 items on 5-point scales assessing communication apprehension in four areas: dyads, groups, meetings, and public speaking. The PRCA-24 has demonstrated high internal consistency (McCroskey, 1984; McCroskey, Beatty, Kearney, & Plax, 1985) and convergent validity with the STAI–Trait form (Beatty, 1986).

Self-Efficacy Scales (SES). Two parallel 24-item questionnaires were developed for this study to assess self-efficacy on the final exam (SES–EX) and on the oral argument (SES–OA), consistent with Bandura’s (1986) recommendation that self-efficacy expectations be assessed at the most specific level possible. Both scales consisted of three eight-item subscales designed to assess specific self-efficacy expectations: Cognitive (“I will be able to stop myself from having thoughts unrelated to the contracts final exam,” “I will be able to concentrate only on the argument I’ll be making”), Affective (“I will be able to control my nervousness when I take my contracts final exam,” “I will be able to relax during my moot court argument”), and Performance (“I will do well on my contracts final exam,” “I will be able to argue the case I am given successfully”). Internal consistency of each scale using Cronbach’s alpha was .96.

Checklist of Positive and Negative Thoughts (CPNT). The CPNT (Galassi et al., 1981) was designed to assess thoughts during examinations (e.g., “I won’t have enough time to finish this test”). It has separate subscales for positive and negative thoughts, which allow the calculation of the SOM ratio (Schwartz & Garamoni, 1989). The original checklist format was revised to assess how often students had each of these thoughts, using a scale from 0 (never) to 4 (very often). In addition, one item was dropped because it was not relevant to the law school setting. Brown and Nelson (1983), using a similar modification of the CPNT to assess thought frequency, found strong internal consistency coefficients for both positive and negative thoughts. Galassi et al. (1981) found that highly test-anxious individuals reported significantly higher numbers of negative and fewer positive thoughts compared with controls.

Social Interaction Self-Statement Test—Public Speaking (SISST–PS). The SISST–PS is a revision of the original SISST, a measure of thoughts in social interactions (Glass, Merluzzi, Biever, & Larsen, 1982). The SISST–PS has two similar 15-item positive and negative thought subscales, and it uses a response format from 0 (never) to 4 (very often). To modify the SISST for a public speaking situation, items were rewritten to use pronouns appropriate to this group context (e.g., “I’m really afraid of what they’ll think of me”), as had been done in an earlier revision (Turner & Beidel, 1985). In addition, three positive items from the original SISST that were not relevant to public speaking were replaced by three items from the Scale of Thoughts in Oral Examinations (Arnkoff et al., 1992). Various researchers have reported strong validity coefficients for the SISST (see reviews by Glass & Arnkoff, 1994, 1997) and for its use in public speaking situations (e.g., Beidel, Turner, Jacob, & Cooley, 1989).

Performance. The first-semester final exam grade for the contracts course and the mean oral argument rating across judges served as the primary measures of performance in the path analyses. Although students had exams in three of their four fall courses, two of these courses were taken by some students in the fall and some in the spring. The contracts class was the only class with an exam taken simultaneously by all first-year students in the fall semester. The exam was graded on a scale from 1 to 100 points. For the oral argument, attorneys and judges from the community volunteered to serve as judges for the competition. Participants received an overall performance rating from each member of the panel of three judges who heard their argument, with 30 panels each hearing the arguments of eight students. An average performance rating across judges was calculated for each student. In addition, the judges rated students’ level of observable anxiety from 0 (not at all anxious) to 10 (extremely anxious). Finally, the class ranking of students at the end of their first year, the key measure of achievement used by the law school, served in correlational analyses as a measure of overall academic performance.

Procedure

The study was conducted across five assessment points over the course of the students’ first year, and different numbers of participants were present each time.1 At the law school orientation, prior to the beginning of classes, 184 students volunteered to participate. They signed an informed-1 Analyses were conducted to examine whether patterns of missing data might have influenced the results. Students from the initial sample who continued to participate at one or more of the four subsequent phases of the study did not differ from those who chose not to participate on measures of background ability (i.e., LSAT score and undergraduate GPA) and law
consent form and a release-of-information form, allowing the investigators access to their LSAT scores, undergraduate GPAs, contracts exam grade, oral argument performance ratings, and first-year ranking. Participants then completed the demographic questionnaire and a booklet that contained the STAI-Trait, PRCA-24, and RTT (in counterbalanced order), in order to assess trait anxiety, communication apprehension, and test anxiety, respectively.

Four weeks prior to their first semester final exams, participants \((n = 130)\) completed the SES–EX, which measured their self-efficacy for the final exam. Immediately following their contracts exam, the CPNT and STAI–State measures were administered to participants \((n = 120)\) to assess thoughts and state anxiety. During their second semester of law school, participants \((n = 67)\) completed the SES–OA approximately 4 weeks prior to participating in an oral argument, assessing their self-efficacy for this task. The oral argument was a cocurricular appellate argument required of all first-year students. Students prepared legal briefs for both the prosecution and the defense for one of three assigned hypothetical cases. They then argued only one side of their assigned case against a fellow student assigned to the other side. The participants’ performance did not have an impact on their course grades, but they received specific feedback from the judges. Immediately following the completion of the oral argument, participants \((n = 87)\) completed the SISST–PS and the STAI–State to measure their thoughts and state anxiety during the argument.

### Results

Correlates of Performance

Pearson correlations revealed that the only significant correlate of exam grade was the antecedent aptitude variable of LSAT score (see Table 1). Surprisingly, undergraduate GPA and test and trait anxiety were not related to exam scores, nor were self-efficacy for the exam, state anxiety, or thought variables.

For the oral argument, none of the antecedent variables (such as LSAT, trait anxiety, or communication apprehension) were significantly correlated with performance, but the higher the preperformance level of self-efficacy for the exam, the significantly better the oral argument scores. Self-efficacy for the oral argument was related to performance to a similar degree, but it was not significant due to the much smaller number of participants who completed this measure. At the performance phase, the lower the self-reported state anxiety and the anxiety observed by the judges, the higher the oral argument performance score. Interestingly, positive thoughts were significantly associated with oral argument performance, but negative thoughts were not.

Finally, first-year class rank, a key outcome measure, was most strongly related to antecedent variables. Specifically, both LSAT and undergraduate GPA were predictive of class rank, and men had better academic performance than did women in the first year of law school. In addition, the greater the self-efficacy for the contracts exam, the higher the class rank.

### Table 1

| Correlates of Contracts Exam Grade, Oral Argument Score, and Final Class Ranking |
|---|---|---|
| Predictor | Exam grade | Oral argument | Class rank* |
| Demographic and ability variables | | | |
| Sex &superscript; | .13 | -.04 | -.29** |
| Age | .12 | .00 | .00 |
| LSAT | .34** | -.10 | -.36*** |
| Undergraduate GPA | -.05 | .09 | -.18* |
| Antecedent Phase Dispositional Anxiety | | | |
| STAI–Trait | -.01 | -.11 | -.01 |
| PRCA–24 (communication apprehension) | -.12 | .03 | .11 |
| RTT (test anxiety) | -.04 | -.15 | .06 |
| Preperformance phase | | | |
| SES–EX | .10 | .21* | -.19* |
| SES–OA | -.10 | .21 | .05 |
| STAI–State (before exam) | -.03 | .02 | .01 |
| STAI–State (before oral argument) | -.10 | -.10 | -.04 |
| Performance phase | | | |
| STAI–State (after exam) | -.16 | -.11 | .07 |
| STAI–State (after oral argument) | -.04 | -.28** | -.05 |
| CPNT–Positive Scale | -.02 | .14 | -.09 |
| CPNT–Negative Scale | -.16 | -.01 | .04 |
| SISST–PS (Positive thoughts) | -.10 | .33** | .20 |
| SISST–PS (Negative thoughts) | .00 | -.12 | .01 |
| Observed anxiety during oral argument | -.04 | -.41*** | -.02 |

*Note. LSAT = Law School Aptitude Test; GPA = grade-point average; STAI = State-Trait Anxiety Inventory; PRCA–24 = Personal Report of Communication Apprehension–24; RTT = Reactions to Tests scale; SES = Self-Efficacy Scale (EX = exam, OA = oral argument); CPNT = Checklist of Positive and Negative Thoughts; SISST–PS = Social Interaction Self-Statement Test—Public Speaking.  
* The student at the top of the class was ranked 1. Thus, lower numbers represent better performance (higher rank).  
* * * p < .05.  
* * * * p < .01.  
* * * * * p < .001.

### Intercorrelations Among Predictor Variables

In contrast to the relatively few significant correlations between predictor and outcome measures, there were numerous significant intercorrelations among predictor variables (see Table 2). Dispositional anxiety scales (trait anxiety, test anxiety, and communication apprehension) were all significantly correlated with each other and with negative thoughts and state anxiety, and they were inversely related to self-efficacy. All three subscales of self-efficacy for the exam were significantly and inversely associated with both state anxiety and negative thoughts during the exam (which were highly correlated with each other). The three oral-argument self-efficacy subscales were significantly inversely related to state anxiety, and self-efficacy for oral argument performance was significantly inversely correlated with negative thoughts on that task. Again, state anxiety and negative thoughts were strongly related. However, LSAT scores did not correlate significantly with any of the other predictor variables.

### Tests of the Causal Models

A recursive (unidirectional) path-analysis model with ordinary least squares for the regression equations was used to test the
Table 2

**Intercorrelations Among Predictor Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
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<td>1. LSAT</td>
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<td>0.00</td>
<td>−0.11</td>
<td>0.03</td>
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<td>0.50**</td>
<td>−0.36**</td>
<td>−0.33**</td>
<td>−0.35**</td>
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<td>−0.20</td>
<td>−0.27*</td>
<td>0.32**</td>
<td>0.17</td>
<td>0.32**</td>
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<td>3. PRCA-24</td>
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<td>−0.39**</td>
<td>−0.23**</td>
<td>−0.22*</td>
<td>−0.13</td>
<td>−0.58**</td>
<td>−0.46**</td>
<td>−0.40**</td>
<td>0.29**</td>
<td>0.22*</td>
<td>−0.21</td>
<td>0.34**</td>
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<td>4. RITT</td>
<td>4</td>
<td>−0.33**</td>
<td>−0.35**</td>
<td>−0.24**</td>
<td>−0.21</td>
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<td>0.21*</td>
<td>0.37**</td>
<td>0.2**</td>
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<td>SES-EX</td>
<td>5</td>
<td>−0.81**</td>
<td>0.77**</td>
<td>0.36**</td>
<td>0.32*</td>
<td>0.31**</td>
<td>−0.32**</td>
<td>−0.14</td>
<td>−0.29**</td>
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<td>6. Cognitive control</td>
<td>6</td>
<td>−0.76**</td>
<td>0.30*</td>
<td>0.35**</td>
<td>0.32**</td>
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<td>−0.08</td>
<td>−0.33**</td>
<td>−0.24*</td>
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<td>7. Performance</td>
<td>7</td>
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<td>0.26</td>
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<td>SES-OA</td>
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<td>−0.36**</td>
<td>−0.41**</td>
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<td>9. Cognitive control</td>
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<td>10. Performance</td>
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<td>−0.37*</td>
<td>−0.30*</td>
<td>−0.30*</td>
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<td>STAI–State</td>
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<td>0.65**</td>
<td>0.32**</td>
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<td>12. Oral argument</td>
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<td>13. CPNT, Negative</td>
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*Note. LSAT = Law School Aptitude Test; STAI = State–Trait Anxiety Inventory; PRCA-24 = Personal Report of Communication Apprehension–24; RITT = Reactions To Tests scale; SES = Self-Efficacy Scales (EX = exam, OA = oral argument); CPNT = Checklist of Positive and Negative Thoughts; SISST–PS = Social Interaction Self-Statement Test—Public Speaking.  
* p < .05.  ** p < .01.*

models. Each of the two performance outcome scores was analyzed separately. All predictors for each dependent variable were entered simultaneously on the same step. For each model, LSAT score was used as the main ability variable, because preliminary analyses and prior research (Wightman, 1993) indicate that the LSAT is likely to be a better predictor of academic performance than undergraduate GPA alone.

Contracts exam model. The path analysis predicting the contracts exam grade is shown in Figure 1, along with the $R^2$ for each endogenous variable. For the antecedent variables, only trait anxiety was predictive of self-efficacy, relating inversely to self-efficacy for cognitive control, affective control, and performance. Although there was no significant relationship between LSAT score and self-efficacy for performance, LSAT scores were strongly predictive of the final exam grade. Test anxiety was found not to be predictive of self-efficacy for the contracts exam. For the preperformance-phase variables, self-efficacy for control of cognitions was significantly related to the SOM ratio of thoughts during the contracts exam. The more self-efficacy for cognitive control 4 weeks before final exams, the more positive the ratio of thoughts during the contracts exam. However, there was no relationship between self-efficacy for affective control and state anxiety immediately following the final exam. Further, self-efficacy for performance was not related to performance outcome.

With regard to the performance-phase variables, SOM was significantly related to state anxiety in that the more positive the SOM ratio, the lower the state anxiety. State anxiety was negatively, but not significantly, related to exam grade, and the SOM ratio was unrelated to performance. When negative thoughts were used in place of the SOM ratio as the measure of cognition in the model, no substantive changes were found.

Oral argument path model. The model and results for the oral argument are shown in Figure 2. For the antecedent variables, LSAT score was not predictive of level of self-efficacy for performance. However, the PRCA-24 was significantly related to self-efficacy in that the higher the communication apprehension, the lower the self-efficacy for performance, affective control, and cognitive control.

In the preperformance phase, the three self-efficacy subscales were differentially effective in predicting performance-phase constructs. The greater the self-efficacy for affective control, the lower the state anxiety. However, self-efficacy for performance was not related to oral argument score.

Findings in the performance phase indicated that negative thoughts were significantly related to state anxiety in that the more frequent the negative thoughts, the higher the state anxiety. Similarly, the higher the level of state anxiety, the lower the oral argument score, although the frequency of negative thoughts alone was not related to performance.

When we substituted the SOM ratio for negative thoughts as the measure of cognition in the path analysis, the relationship between preperformance- and performance-phase variables shifted slightly. State anxiety remained the only predictor of performance, $\beta = -0.47$, $p < .05$, although it was not as strong a predictor as when negative thoughts were included in the model. SOM, like negative thoughts, did not predict outcome, $\beta = -0.03$, $p < .88$, but SOM was an even stronger predictor of state anxiety, $\beta = -0.59$, $p < .001$, than were negative thoughts. However, the predictiveness of self-efficacy for affective control and for cognitive control changed. When SOM was used as the measure of cognition, self-efficacy for cognitive control became a significant predictor of SOM, $\beta = 0.35$, $p < .05$, whereas self-efficacy for affective control was no longer a significant predictor of state anxiety, $\beta = .19$, $p < .16$.

Given the correlational findings, a separate path was also calculated using positive thoughts as the cognitive measure. Self-
efficacy for cognitive control emerged as a significant predictor of positive thoughts, $\beta = .44$, $p < .01$. Self-efficacy for affective control no longer predicted state anxiety, $\beta = -.10$, $p < .09$, but positive thoughts were a strong predictor, $\beta = -.57$, $p < .001$, such that the higher the frequency of positive thoughts, the lower the level of state anxiety. State anxiety was no longer a significant predictor of outcome, $\beta = -.26$, $p < .16$.

**Discussion**

In summary, results of the path analysis for the exam model revealed that among the antecedent variables, only LSAT score directly predicted performance. Trait anxiety predicted self-efficacy for cognitive control, which was predictive of SOM ratio, which in turn predicted state anxiety. Neither the SOM ratio nor state anxiety, however, predicted performance on the exam. In the oral-argument model, a clear path of significant predictors could be traced from communication apprehension to self-efficacy for affective control, to state anxiety, and finally to oral argument score. In addition, negative thoughts were also predictive of state anxiety. Specific findings relevant to the models will now be discussed.

**Antecedent-Phase Predictions**

Findings with regard to the LSAT were as expected in the exam model. Consistent with the literature (e.g., LSAC, 1996; Wightman, 1993), the LSAT was a reliable predictor of exam performance (and of first-year class rank, as well). The LSAT is a standardized test designed to assess the ability to deal with novel situations and problems with logical and careful analysis (Powers, 1982). Not surprisingly, it did not correlate with oral argument performance, as standardized tests are poorer predictors of clinical performance in law school (Powers, 1982). The two models also differed with regard to the other antecedent variables. As hypothesized in the exam model, trait anxiety was predictive of all three self-efficacy domains. Although test anxiety was not predictive of self-efficacy in the exam model, communication apprehension was predictive of self-efficacy for the oral argument. This unexpected result in the exam model may be due to the overlapping variance of trait and test anxiety. It should be noted that simple correlations did show significant inverse relationships between test anxiety and self-efficacy. Trait anxiety was not included as an antecedent variable in the oral argument model, because the much smaller number of participants necessitated fewer variables in the analysis. In this case, the specific dispositional anxiety measure of communication apprehension was highly predictive of all three self-efficacy domains.

**Preperformance-Phase Predictions**

With regard to the preperformance-phase variables, the two models were similar in that self-efficacy for performance did not
predict performance, contrary to most studies reviewed by Mutton et al. (1991). However, a recent path-analytic study by Rouxel (1999) also failed to support a direct (or indirect) effect of self-efficacy on academic performance. The lack of predictive ability in the exam model is consistent with social cognitive theory stating that past and vicarious experiences influence the formation of self-efficacy expectations (Bandura, 1977). Participants had no prior experience with law school final exams, which are different from any they had taken as undergraduates, and had no prior performance feedback in the course. Later in law school, perhaps even by the end of the first year, after students have had experience with a number of exams, self-efficacy for performance would be expected to be related more strongly to exam outcome.

For the oral argument, although some students had done an optional oral argument in their first semester, most were still relative novices. The earlier argument was also before a panel of upper level students, not actual attorneys and judges from the community. Thus, the lack of specific past experience may have led to weaker relationships between self-efficacy and outcome.

As hypothesized, self-efficacy for affective control was a significant predictor of state anxiety in the oral argument model, but it failed to predict in the exam model. The opposite was true for self-efficacy for cognitive control, which predicted cognition (the SOM ratio) in the exam model but showed only a trend toward predicting negative thoughts during the oral argument. When SOM was substituted as the cognitive measure in the oral argument model, however, the path to state anxiety became the same as for the exam model. This finding is consistent with that of Arnoff et al. (1992), who found that self-efficacy to control thoughts and anxiety predicted the SOM ratio, which in turn predicted state anxiety.

**Performance-Phase Predictions**

Positive thoughts appeared to play an important role in oral argument performance. The mean SOM ratio of positive-to-positive plus negative thoughts was .71, considerably greater than that of .59 during the exam. Although negative thoughts did predict state anxiety in the oral argument model, the strongest relationships between cognition and state anxiety occurred when positive cognitions were included, either as part of the SOM ratio or alone. In addition, there was a trend in the path model for positive thoughts to predict performance, and the simple correlation was significant.

The importance of positive thoughts in this model is different from that found in most previous literature, which has primarily found a debilitating impact of negative thoughts (Arnoff & Smith, 1988; Kendall, 1984). The high SOM ratio for the oral argument may be a function of this task, which, unlike exams, was one of the few things students did during their first year in which they could feel like a practicing attorney. Further, it had no consequences for course grades, and students had been told that to be a convincing
advocate, they had to believe in their case and feel it was winnable. The strongest correlate of state anxiety was the SOM ratio (−.63), suggesting that it is important to take positive as well as negative thoughts into account.

The fact that state anxiety was not predictive of exam grades (and only LSAT scores predicted exam performance) is consistent with some previous literature. Although anxiety may indirectly affect performance, findings on the relationship of test anxiety and performance have been mixed (Brown & Nelson, 1983; Hunsley, 1985). Aronoff et al. (1992) also failed to find relationships between graduate students’ thoughts and anxiety and their performance on doctoral dissertation orals, whereas ability measures such as Graduate Record Examination (GRE) scores and graduate GPA were highly correlated with rated performance. In contrast, the oral argument model showed state anxiety to be highly related to judges’ ratings of oral argument performance, just as Glass et al. (1995) found in their study of soldiers taking a career-related oral examination before a panel of their superiors. Evaluations of performance on public-speaking tasks like the oral argument largely depend on the speaker’s appearing calm and competent. Effective cognitive control for the oral argument may have consisted of generating positive thoughts that enabled students to feel less anxious. They may have thus appeared less anxious, more enthusiastic, and more persuasive, which in turn may have affected judges’ ratings of the quality of their performance.

Implications for Future Research and Legal Education

This study offers a unique examination of models predicting performance on two law school tasks, with different paths for exams and oral argument. It may be that for academic exams, which in law school essentially determine students’ grades in each course, standardized aptitude tests such as the LSAT serve as the most reliable predictor of performance. The LSAT was also the strongest correlate of first-year class rank. Thus the stress and anxiety experienced by first-year law students so often documented in the literature (see Dammeyer & Nunez, 1999), although causing significant distress, did not appear to have an impact on their academic performance. In contrast, dispositional anxiety variables and cognitions may be the most useful predictors when the performance task, in this case an oral argument, is one in which outcome is in part a function of how calmly and confidently individuals can present themselves.

Although LSAT and undergraduate GPA did correlate significantly with first-year class rank, the models explained relatively little of the variance in performance. Thus some of the factors that were examined in a study of variables predicting passage of the bar exam, such as ethnicity, socioeconomic status, need to work while in law school, and academic expectations (Wightman, 1998) could be important additions to the predictive power of our model. Other possible factors could be students’ ability to understand what is valued and what is not (i.e., knowing “how to play the game”; G. Niedzielko, personal communication, June 15, 2000), as well as good analytical and writing skills (G. Watson, personal communication, July 5, 2000).

Future studies might also focus more on the role of positive thoughts, as they were significantly related to oral argument performance in the present investigation. Additionally, it could be advantageous to examine oral arguments with academic consequences, in which successful performance is seen as much more important than in the present study. Finally, it may prove useful to look at the strength and generality of self-efficacy expectations later in the course of law school, after students have taken several exams, and note the role of past performance on the development of self-efficacy for law school success.

The results of this study have implications for law students experiencing anxiety, as well as for law school programs interested in furthering the welfare of their students. It has been suggested that law schools initiate stress management programs (Gutierrez, 1985; McCleary & Zucker, 1991), and based on the differential findings from the two models in the present study, the approaches may need to vary depending on the type of task generating anxiety. Results of the exam model suggest that the focus might be on identifying cognitive patterns and negative thoughts that serve as triggers for anxiety. The goal of such an intervention would be to help students challenge and develop a sense of control over debilitating cognitions, in order to minimize distress (e.g., Beck & Burns, 1979).

However, to improve exam performance, academic interventions (such as tutoring and study-skills training) may be necessary. For example, Wangerin (1988) has suggested that students be taught metacognitive skills in time management, efficient reading, note taking, and reviewing material. Teaching specific lawyering skills, such as legal analysis and research, can be based on principles of cognitive science in order to impart to students the conceptual tools needed to analyze cases and apply rules of law (Blasi, 1995). In addition, students could be better prepared for the novel experience of taking law school exams if they were given practice on this type of task before the end of the semester, thus building a sense of self-efficacy that might be related to later performance. The recent movement toward creating academic support programs (ASPs) to help minority and nontraditional students acquire necessary metacognitive skills incorporates many of these strategies (Knapplund & Sander, 1995; Lustbader, 1997).

From the oral argument model, goals for assisting law students who have difficulties in public-speaking situations could center on maximizing performance by reducing anxiety. Law school administrators could help by actively sanctioning and encouraging students to seek out counseling services (Carney, 1990; Gutierrez, 1985). Cognitive–behavioral approaches (St. Lawrence, McGrath, Oakley, & Sult, 1983) might again be especially useful in targeting communication apprehension, so that students could better manage their anxiety and thus increase their self-efficacy for affective control, resulting in lower anxiety during oral argument and better performance. Making videotaped oral arguments with judges’ ratings available for student observation might also be beneficial for reducing communication apprehension, as would giving first-year law students the opportunity to videotape their own practice arguments and review them with faculty or advanced students. Improved academic performance and lower levels of anxiety could make the law school experience a more positive and valuable one for the many students who now experience the law school environment as difficult, stressful, and debilitating.

References


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