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ABSTRACT

In this study 445 incoming freshman completed a questionnaire prior to arrival on campus about their outcome expectations with respect to successful college achievement and academic performance goals. During their second semester, 274 of these students responded to a questionnaire where Social-Cognitive Career Theory Constructs were again tested. In the fall semester of the second year, first- and second-semester GPAs were obtained for 255 of the enrolled students. An examination was conducted of the fit of Social Cognitive Career Theory's model of career and academic performance as applied to grade point averages (GPAs). Measures were also looked at to assess the ability of the social-cognitive variables to predict college persistence. Structural equation modeling suggested that the full performance model was not needed to predict GPAs. In the prediction of persistence, all measures of ability and academic performance and the social-cognitive variables assessed during students' second semester were significant predictors. Despite some limitations (low response rate; non-random missing data; a predominance of Caucasian and female respondents), this study presents several implications for intervention. Because the social-cognitive model may not explain all reasons a student leaves college, an integration of models may be most useful. (Contains 2 figures, 2 tables, and 14 references.) (JDM)

The Social-Cognitive Model Applied to Academic Performance and Persistence

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Abstract

Poor college performance and early withdrawal can present vocational problems for college students. We examined the fit of Social Cognitive Career Theory's (Lent, Brown, & Hackett, 1994) model of career/academic performance as longitudinally applied to first-year college grade point averages (GPAs), and we assessed the ability of the social-cognitive variables to predict college persistence. Structural equation modeling suggested that the full performance model was not needed to predict GPAs; a more parsimonious model was sufficient with this sample. In the prediction of persistence using logistic regression, all measures of ability/academic performance and social-cognitive variables assessed during students' second semester were significant predictors. Implications for intervention and research are presented.

The first year of college proves to be a developmental challenge for many young adults. Most strikingly, approximately 25% of college students do not persist beyond their freshman year (Cone, 1991). Although college withdrawal can be a positive step for some individuals (Peng & Fetters, 1978), the high attrition rate among first-year college students presents vocational problems for many students, and it also presents challenges for institutions of higher education (Hayden & Holloway, 1985; Tinto, 1975).

Most efforts to understand college attrition have focused on the student's match with the institution, as measured by academic performance, satisfaction with the institution, and financial resources (Bean, 1980, 1982, 1985; Cabrera, Castañeda, Nora, & Hengstler, 1992; Cabrera, Nora, & Castañeda, 1993; Tinto, 1975). With the exception of academic performance, empirical support for these constructs has been mixed (Cabrera et al., 1992, 1993), highlighting the need for alternative theoretical explanations for premature college withdrawal. Social Cognitive Career Theory (SCCT), which explains performance as a function of ability, self-efficacy, outcome expectations, and performance goals (Lent, Brown, & Hackett, 1994), may help explain both academic performance and freshman-to-sophomore persistence.

Many studies have documented the bivariate relations in the SCCT model as applied to performance and persistence within specific academic fields (e.g., Lent et al., 1994; Lent, Brown, & Larkin, 1984, 1986; Lent, Lopez, & Bieschke, 1991). However, we could not find a test of the entire social-cognitive model as applied to general academic performance or freshman-to-sophomore persistence. The primary purposes of this study, therefore, were to determine the extent to which the SCCT model of task performance (see Figure 1) fits academic performance during the freshman year and the extent to which SCCT factors predict freshman-to-sophomore persistence. We collected longitudinal data throughout students' freshman year to capture the dynamic and cyclical nature of the social-cognitive theory.

Method

A random sample of 1,000 entering freshmen at a large Midwestern university was selected for eligibility for participation in this study. Prior to their arrival on campus, we assessed students' academic self-efficacy, outcome expectations with respect to successful college performance, and academic performance goals via a mail survey. We used pre-established measures of these constructs whenever possible. We also obtained students' permission to access their university records to verify their high school class rank and ACT scores. Incentives and follow-up mailings were used to increase the response rate. Four-hundred forty-five students returned this questionnaire.

During the students' second-semester, we again assessed the SCCT constructs via a second mail survey. Incentives and follow-up mailings were again used. Two-hundred seventy-four students (representing 62% of those who responded to the pre-college questionnaire) returned this second-semester questionnaire.

Finally, in the fall semester of students' second year, we obtained first- and second-semester GPAs and students' second-year enrollment status from the registrar. Complete data were available for 255 students (77% women, 23% men; 88% Caucasian, 7% African-American, 5% other ethnicity).

Results

We used structural equation modeling with latent variables to test the goodness-of-fit of the SCCT model specified in Figure 1, using the LISREL 8.3 program's maximum likelihood procedure (Jöreskog & Sörbom, 1999). The SCCT model provided a good overall fit to the data, $\chi^2(163, N = 255) = 295.27$, SRMR = .06, RMSEA = .05, CFI = .94, although not all hypothesized paths were statistically significant. Thus, we estimated a trimmed model in which all non-significant paths in Figure 1 were omitted (see Figure 2). Like the complete SCCT model, the trimmed model provided a good overall fit to the data, $\chi^2(172, N = 255) = 300.92$, SRMR = .06, RMSEA = .05, CFI = .94. Moreover, the trimmed model did not provide a significant difference in overall fit from the model in Figure 1, $\Delta\chi^2(9) = 5.65$, $p > .50$.

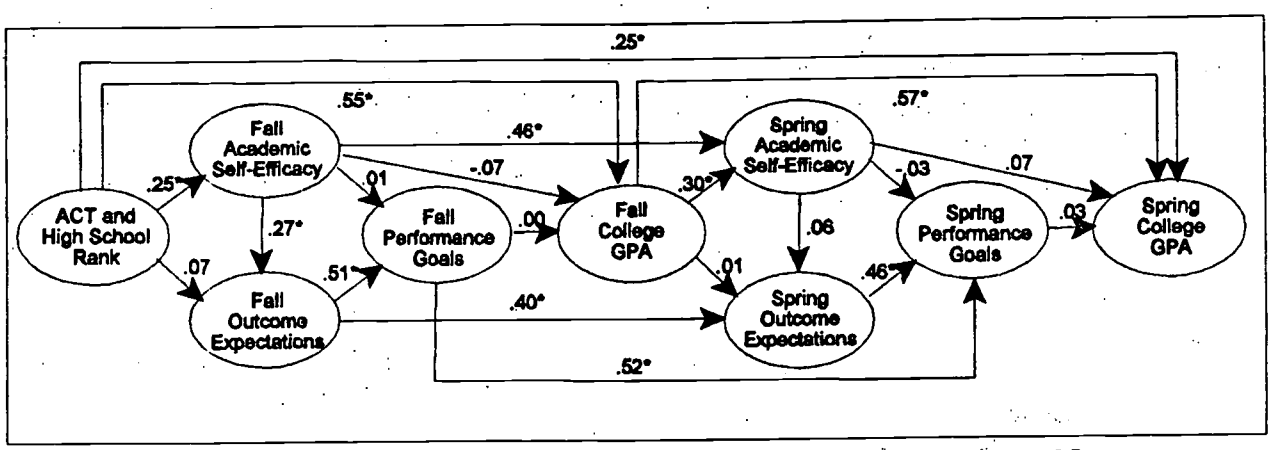

Figure 1. Structural coefficients for SCCT model of academic performance. *$p < .05$.

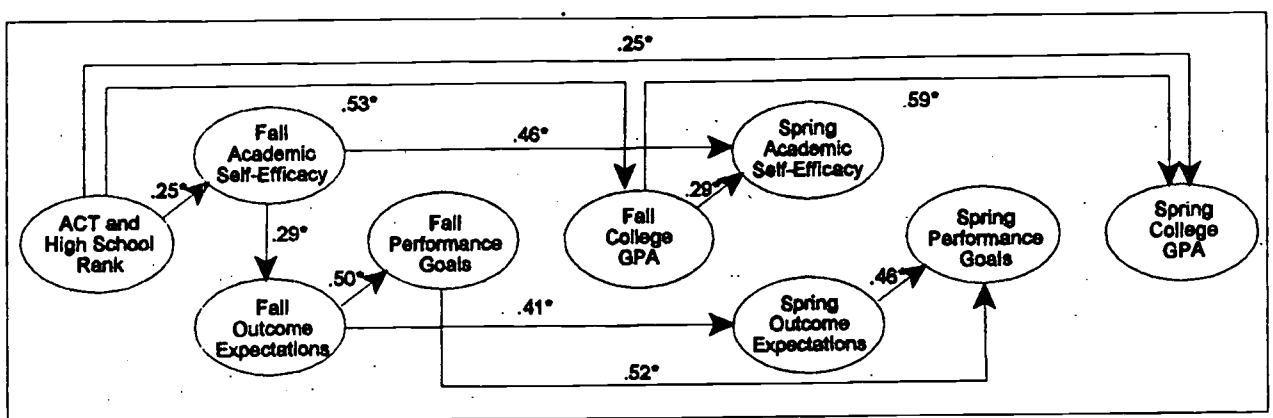

Figure 2. Structural coefficients for trimmed SCCT model. *$p < .05$.

We then used hierarchical logistic regression to assess whether the social-cognitive factors predicted freshman-to-sophomore persistence. Social-cognitive predictors were entered into the logistic-regression equation hierarchically based on the temporal order specified by SCCT. The log-likelihood ratios are presented in Table 1, and the individual contributions of predictors of persistence are presented in Table 2. Second-semester measures of the social-cognitive constructs added significantly to the prediction of persistence after controlling for ability, first-semester GPA, and first-semester estimates of self-efficacy, outcome expectations, and performance goals.

Table 1
Log Likelihood Ratios from the Hierarchical Logistic Regression Analyses

	Model Total		Difference from Previous Block	
Block	-2LL	df	-2LL	df
0. Intercept	180.66	0		
1. High School Rank, ACT Scores	172.98	2	7.68*	2
2. Pre-College Self-Efficacy, Outcome Expectations, and Performance Goals	166.97	5	6.01	3
3. First-Semester GPA	159.61	6	7.35**	1
4. Second-Semester Self-Efficacy, Outcome Expectations, and Performance Goals	138.35	9	21.27***	3
5. Second-Semester GPA	131.39	10	6.96**	1

Note. N = 255. *p < .05; **p < .01; ***p < .001.

Table 2
Individual Predictors of Persistence

Measure	B	SE B	Wald χ^2	Odds Ratio
High School Rank	.00	.02	.01	1.00
ACT Scores	.03	.08	.13	1.03
Pre-College Self-Efficacy	.01	.02	.14	1.01
Pre-College Outcome Expectations	.19	.17	1.17	1.21
Pre-College Performance Goals	-.49	.25	3.68	.61
First-Semester GPA	-.03	.50	.00	.97
Second-Semester Self-Efficacy	.02	.02	1.18	1.02
Second-Semester Outcome Expectations	.29	.13	5.10*	1.33
Second-Semester Performance Goals	.69	.24	8.22**	1.99
Second-Semester GPA	1.18	.47	6.41*	3.25

Note. N = 255; B is the log of the odds ratio. *p < .05; **p < .01; ***p < .001.

Discussion

These findings suggest that SCCT can adequately explain first-year college performance and freshman-to-sophomore persistence. The structural equation modeling procedure suggested that, although the model provided a good fit to the data, not all of the social-cognitive constructs specified by Lent et al. (1994) were necessary to explain academic performance. Thus, the social-cognitive model of general academic performance could be more parsimonious than currently conceptualized, at least with the measures we used and with this sample. College persistence was predicted by multiple measures of social-cognitive constructs. Consistent with the performance

model (Lent et al., 1994), factors such as performance goals, outcome expectations, and academic performance could help explain persistence in college.

Despite some limitations (e.g., a low response rate, non-random missing data, a predominance of Caucasian and female respondents), this study presents interesting implications for future research and intervention. First, it would be useful to investigate further this study's findings that several paths from SCCT's model of performance may be omitted when predicting college GPAs using students from different institutions and alternative measures of the social-cognitive constructs. Second, it may be useful to integrate social-cognitive constructs into other theoretical models of college persistence (e.g., Bean, 1980; Tinto, 1975). Because the social-cognitive model may not explain all reasons a student may leave college, an integration of models may be most useful for counselors working in a college setting. Finally, there is potential value in increasing students' degree to which they perceive that earning a college degree will produce useful outcomes for them (if that is the case) and helping them set high, but realistic, performance goals. Such interventions may occur via academic advising, peer mentoring, or classroom intervention. Through these theory-based interventions, it may be possible to reduce attrition and its associated negative effects.

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