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AN EXAMINATION OF THE RELATIONSHIP AMONG ACADEMIC STRESS, COPING, MOTIVATION, AND PERFORMANCE IN COLLEGE

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Empirical evidence suggests that a domain-specific coping style may play an important role in the way students manage stressful academic events and perform at college. The purpose of this research was to examine the extent to which college students' academic coping style and motivation mediate their academic stress and performance. A structural equation analysis showed that the relationship between college students' academic stress and course grade was influenced by problem-focused coping and motivation but not emotion-focused coping. As expected, greater academic stress covaried with lower course grades; however, students who engaged in problem-focused coping were more likely to be motivated and perform better than students who engaged in emotion-focused coping. Strategies for promoting more effective coping in college students are discussed.

College students confront many challenges in pursuit of their educational goals. When such experiences are perceived as negative, they can have an adverse effect on students' motivation and performance (Ames, 1992; Amirkhan, 1998; Covington, 1993; Perry, 1991; Weiner, 1979). Moreover, if prolonged and perceived as unmanageable, these experiences have been shown to elicit helplessness (Abramson, Garber, and Seligman, 1980; Sedek and Kofta, 1990), depression (Peterson and Barrett, 1987), and stress (Carver and Scheier, 1994; Folkman and Lazarus, 1985), thereby placing some students' academic futures in jeopardy. In comparison, other students have the capacity to successfully withstand the deleterious consequences of negative academic experiences. They are easily encouraged following minor setbacks and generally view negative

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challenging events as surmountable (e.g., Dweck and Leggett, 1988; Perry and Magnusson, 1989; Struthers and Perry, 1996).

To account for the discrepancy in students' responses to negative threatening events, Lazarus (1966) proposed a process in which their perceived capacity to cope with such events plays a central role. According to Folkman and Lazarus (1985), students cope with negative events in three stages: (1) primary appraisal of the situation or realizing the threat, (2) secondary appraisal or bringing to mind the potential responses that can be made, and (3) coping or the execution of coping responses. Nested within this process are two ways of coping: (1) Problem-Focused Coping (PFC) and (2) Emotion-Focused Coping (EFC). Problem-focused coping involves thoughts, actions, and strategies geared toward removing or diminishing a stressful event or its impact, and tends to operate when people believe that something can be done to alter their situation. Emotion-focused coping involves thoughts, actions, and strategies directed toward the management and reduction of distressing emotions associated with a threatening event, and is invoked when one perceives that a stressor must be endured (Folkman and Lazarus, 1980).

Although some researchers have conceptualized coping as a dynamic process that varies over the stages of coping (e.g., Lazarus and Folkman, 1984), others have conceptualized it as a relatively stable process associated with various personality characteristics (e.g., Moos, 1974). Research on the latter position has shown that students who are extraverted (Gallagher, 1990), optimistic (Cantor and Norem, 1989; Carver and Scheier, 1987), and higher in self-esteem (Baumeister, Heatherton, and Tice, 1993; Tice, 1991) and control (Aspinwall and Taylor, 1992) are shielded from the demotivating effects of negative events. Despite these findings, the research on personality characteristics has had limited success in predicting coping (Costa, Somerfield, and McCrae, 1994). However, this limited success may be more informative about specific personality characteristics than individual differences more generally. One individual difference variable receiving increasing research attention is coping style, or one's routine way of managing stressful events (Amirkhan, 1998; Carver and Scheier, 1994; Endler, Kantor, and Parker, 1994).

In one study, Carver, Scheier, and Weintaub (1989) examined the relationship between coping style and situational coping in a sample of college students. Results indicated that compared to their typical stress responses, a difference between students' routine and situational ways of coping emerged. However, there were meaningful correlations found between subscales on the dispositional and situational COPE scale, indicating a degree of consistency between college students' coping style and their situation-specific way of coping.

In a more recent study conducted by Carver and Scheier (1994), both situational and dispositional coping were examined in an actual academic stressful

transaction. Like Folkman and Lazarus (1985), Carver and Scheier focused on the three phases associated with college examination: anticipation (before the exam), waiting (after the exam but before grades are known), and outcome (after grades are known). Results indicated that coping with an academic stressor differed from one stage to another; however, dispositional coping did predict comparable situational coping, albeit at low levels.

One reason that might account for the low correlation between dispositional and situational coping is the application of a general coping style scale to a specific academic situation. That is, students may not approach stressful academic situations with general routine coping strategies. Instead, they may bring with them a preferred set of tailored academic coping strategies that enable them to adapt to academic-specific situations. In other words, because Carver et al.'s (1989) COPE scale was designed to measure coping in the general population across many different situations, it may be less sensitive in measuring how college students specifically cope in an academic setting. For instance, COPE is comprised of more general thoughts, actions, and strategies than academic-specific ways of coping such as asking questions in class and studying harder. Thus, the primary purpose of the present study was to examine the relationship among academic stress, coping, motivation, and performance in college students using an academic-specific measure of students' coping style.

We predicted that the relationship between stress and course grade should be mediated by students' academic coping style (cf. Endler, Kantor, and Parker, 1994). Specifically, we anticipated that a positive relationship should be found between stress and both PFC and EFC, suggesting that students should be more likely to invoke coping strategies following greater stress (Carver and Scheier, 1994). Because PFC involves strategies geared toward altering or diminishing a stressful event or its impact (see Pearlin and Schooler, 1978), it was predicted to relate positively with motivation. However, because EFC involves strategies directed toward managing the emotional distress associated with a stressful transaction, it was not expected to relate to motivation (cf. Endler, Kantor, and Parker, 1994). Finally, a positive relationship between motivation and course grade was expected (cf. Aspinwall and Taylor, 1992). Previous research has examined the relationship among coping, stress, health, adjustment, and so on, in one structural equation model, and motivation and performance in another (Aspinwall and Taylor, 1992). That is, two separate coping and motivation models were tested suggesting orthogonality between these processes. It is posited in this article, however, that these processes are related (cf. Lazarus, 1991), and therefore, should be tested within the same model. It is likely that negative academic events that are perceived as stressful, and subsequent performance more generally, would be influenced by coping style and motivation.

METHOD

Participants

The participants were 203 college students who also received course credit in exchange for their participation. The participants were enrolled in a variety of faculties including arts, human ecology, engineering, management, education, science, physical education, nursing, and social work.

Materials

Academic Stress

Students' stress associated with their introductory psychology course was assessed with three items concerning how *worried*, *helpless*, and *stressed* they felt about their performance. Because the focus of the study was to test our model in an academic-specific situation, we chose domain-specific items of perceived stress rather than a more general perceived stress scale. Each item was assessed with a 10–point Likert scale. The anchor labels for the scales were (1) not at all and (10) a great deal, and were summed so that higher scores indicated greater stress ($\alpha = .84$).

Student Coping Instrument (SCOPE)

Based largely on Carver et al.'s (1989) dispositional COPE scale, 48 items assessing various thoughts, actions, and strategies associated with routine coping following poor academic performances were used to measure students' coping style. These items were administered to 312 college students using the following stem, "When I do poorly on an important test at school/University, typically . . . ." Then students responded to items such as: I think about how I might best handle the problem, I buy a study guide, I drop out of the class I'm doing poorly in. Responses to the items are made using a 10-point Likert scale ranging from (1) "extremely uncharacteristic" of them to (10) "extremely characteristic" of them.

Next, a factor analysis with a principal component extraction and varimax rotation was performed on these items. Ten factors emerged that had eigenvalues greater than 1.0. The items in each subscale were then summed and subjected to a second order factor analysis (i.e., using scale totals as the raw data for the factor analysis). Two factors with eigenvalues greater than 1.0 were interpreted. Factor 1, which was labeled Problem-Focused Coping (PFC), consisted of 15 items and four subscales: General Active Coping (factor loading = .77), Academic Planning (.77), Active Study Coping (.67), and Efficacy (.62).

Factor 2 was labeled Emotion-Focused Coping (EFC) and consisted of 15 items and four subscales, Emotional Venting (.41), General Emotional Support (.37), Denial (.78), and Academic Disengagement (.72). The reliability of SCOPE was within acceptable limits, overall $\alpha = .80$, PFC $\alpha = .80$, EFC $\alpha = .70$. See Table 1 for the 30 items and factor loadings.

For the purpose of this study, we labeled the modified version of the scale—SCOPE—an acronym for Student Coping Scale. SCOPE consists of eight subscales which measure two ways of coping: Problem-Focused Coping (PFC) involves thoughts, actions, and strategies directed toward altering the source of stressful events, and Emotion-Focused Coping (EFC) involves thoughts, actions, and strategies geared toward the management of the emotional distress associated with stressful events. Responses to the items are made using a 10–point Likert scale ranging from (1) "extremely uncharacteristic" of them to (10) "extremely characteristic" of them.

Motivation

Students' motivation was measured by three items related to expectations and importance for success: How well the students expected to do this year in their introductory psychology course; How important it was for students to do well this year in their introductory psychology course; How important it was for students to do well overall. The items were assessed using a 10-point Likert scale. The anchor labels for the items were (1) not well at all, not at all important and (10) very well, extremely important and were summed to create a composite motivation measure ($\alpha = .98$).

Performance

Students' introductory psychology course grades (%) were obtained from their course instructors.

Procedure

At the beginning of the academic year, groups of approximately 30 students each were administered a questionnaire containing the stress items, SCOPE items, motivation items, and a grades consent form. Students read a general overview of the study that described the nature of the study and what they were to do during the session. Final grades were obtained from course instructors at the end of the academic year. Students were debriefed through a written summary of the research and expected findings.

TABLE 1. Student Coping (SCOPE) Subscales, Factor Loadings ( ), and Alphas

Problem Focus Coping (*PFC* $\alpha = .80$)
(1) Academic Planning
I think about how I might best handle the problem (.87)
I make a plan of action (.86)
I try to come up with a strategy about what to do (.84)
I think hard about what steps to take (.84)
(2) General Active Coping
I do what has to be done one step at a time (.57)
I think about the reason(s) why the situation occurred (.51)
I concentrate my efforts on doing something about it (.47)
I take additional action to try to get rid of the problem (.36)
(3) Efficacy
I feel competent (.77)
I feel confident (.69)
I feel hopeful (.59)
I feel motivated (.51)
(4) Active Study Coping
I buy a study guide (.83)
I use my study guide (.78)
I try a different study technique (.23)

Emotion Focussed Coping (*EFC* $\alpha = .70$)
(1) General Emotional Support
I try to get emotional support from friends and family (.87)
I discuss my feelings with someone (.85)
I talk to someone about how I feel (.81)
(2) Denial
I act as though it hasn't happened (.77)
I refuse to believe that it happened (.75)
I say to myself "this isn't real" (.70)
I pretend that it hasn't really happened (.65)
(3) Emotional venting
I let my feelings out (.84)
I feel a lot of emotional distress and I find myself expressing those feelings (.79)
I get upset an let my emotions out (.76)
I get upset and am really aware of it (.38)
(4) Academic Disengagement
I skip class (.77)
I reduce the amount of effort I put in to solving the problem (.63)
I drop out of the class I'm doing poorly in (.59)
I give up trying to reach my goal (.57)

SCOPE TOTAL $\alpha = .80$

Note. INSTRUCTIONS: Students are instructed to take a moment to imagine themselves doing poorly on a test at school/university. Next, students respond to SCOPE with the items presented in a random order. The students respond to the SCOPE scale based on the following prime:
When I do poorly on an important test at school/University, typically . . .

RESULTS

Structural Equation Model

To examine the role of academic-specific coping and motivation on college students' performance, a structural equation model was conducted. An a priori structural equation model was used to test the relationship between stress and performance, and how the relationship was mediated by students' coping style and motivation. See Figure 1 for the model tested and Table 2 for the zero-order correlations among the variables. All predicted paths had significant correlation coefficients. Because PFC and EFC were correlated ($r = .28$, $p < .05$, $\beta = .09$, $p > .05$), their errors were allowed to covary. Standardized beta coefficients were estimated using the Maximum Likelihood procedure. Bentler's (1990) Comparative Fit Index (CFI) was used to evaluate the fit of the data to the model. The value of this index for our model was CFI = .996, a value of 1 indicates a perfect fit. The fit of the data to the model was therefore acceptable and supported further by a nonsignificant χ^2(2 df, N = 180) = 2.96, $p = .227$.

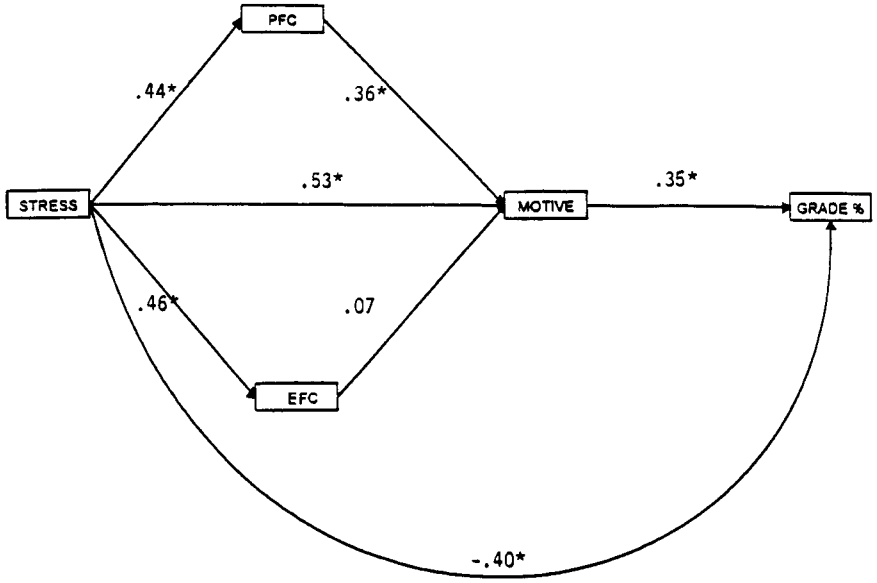

FIG. 1. Path diagram for college students' stress, coping style, motivation, and grade.
Note. χ^2(2 df, N = 180) = 2.96, $p = .23$, CFI = .996, Method of Estimation = Maximum Likelihood, Significant paths $^*p < .05$, Path values = standardized β coefficients; Stress = Academic Stress, PFC = Problem-Focused Coping, EFC = Emotion-Focused Coping, Motivation = Academic Motivation, Grade % = Introductory Psychology Course Grade %.

TABLE 2. Zero-Order Correlations and Standard Deviations of the Structural Equation Model Variables

	1	2	3	4	5
1. Stress	1.000				
2. PFC	0.443**	1.000			
3. EFC	0.458**	0.275**	1.000		
4. Motiv	0.725**	0.619**	0.415**	1.000	
5. Grade	–0.148*	0.100	0.047	0.059	1.000
M	6.96	72.92	55.23	11.68	71.72
SD	5.43	18.07	13.89	10.19	10.96
R	—	.90	.89	.60	.96

Note. PFC = Problem-Focused Coping, Motiv = Motivation, R = Residual Error from the structural equation model.
**$p < .01$, *$p < .05$, N = 180.

As can be seen in Figure 1, college students' stress at the beginning of the academic year (Time 1) directly and positively predicted their use of PFC ($\beta = 0.44$) and EFC ($\beta = 0.46$), their motivation ($\beta = 0.53$), and inversely predicted their introductory psychology course grade at the end of the academic year ($\beta = -0.40$, Time 2, all ps < .05). Additional direct positive relationships emerged between PFC and motivation ($\beta = 0.36$) and motivation and grade ($\beta = 0.35$, ps < .05). These relationships accounted for meaningful proportions of variance in motivation (64%) and grade (8%). A nonsignificant path was found between EFC and motivation ($\beta = .07$, $p > .05$) suggesting no relationship between students' EFC style and their motivation at the beginning of the academic year. Surprising was the significant positive correlation between academic stress and motivation. One possible explanation for this finding might be attributed to the nature of the motivation items. Of the three motivation items used, two focused on the importance or value of doing well. It could be that academic stress jeopardized students' academic goals, thereby making them more important or valuable.

To examine whether paths directly from the two ways of coping to students' grades were related, an alternative model was tested. The results show an acceptable fit of these data to the model, method of estimation = Maximum Likelihood, CFI = .998 which was supported by a nonsignificant χ^2(1 df, N = 180) = 1.47, $p = .225$. However, the relationship between PFC and EFC and students' course grade were weak and nonsignificant (ps > .05, βs = .10, .11, respectively). A χ^2 difference test was then calculated between the original model and

the saturated model to determine whether the direct paths significantly improved the fit statistics. The findings indicate no significant improvement in the fit when the direct paths are included, χ^2 (1 df, N = 180) = 1.49, $p > .05$ (compared to χ^2 critical [df model #1 − df model #2 = 1 df] = 1.49).

DISCUSSION

A negative event can elicit a complex set of cognitive, affective, and behavioral responses depending on a person's perceived capacity to deal with that event (Lazarus, 1966). When a student feels that he or she cannot improve his or her future performance, then he or she is likely to experience stress, motivational deficits, and attenuated performance (Aspinwall and Taylor, 1992). However, experiencing negative events does not invariably mean that future goal attainment is perceived as unlikely. In fact, many students experience negative events and feel upset, but also believe that they have the ability to cope successfully and as a result become motivated to achieve their goals. A growing body of research is beginning to show that students have a relatively enduring way of managing stressful events that can account for these differences (Aspinwall and Taylor, 1992; Carver and Scheier, 1994; Carver, Scheier, and Weintraub, 1989; Endler, Kantor, and Parker, 1994; Terry, 1994); however, a low correlation between dispositional and situational coping has also been found. This may be due to greater use of general rather than domain-specific measures of students' coping style. The purpose of this research was to examine the capacity of a academic-specific measure of college students' coping style to predict students' academic motivation and performance.

The relationship between academic stress and course grade was predicted to be mediated by students' coping style and motivation. Our findings confirm the hypothesis that students' academic stress is inversely related to their course grade. The results further confirm the hypothesis that the relationship between college students' stress and course grade is qualified by their academic coping style and motivation. Specifically, greater academic stress is associated with greater problem-focused coping and emotion-focused coping. Because PFC involves strategies directed toward altering or diminishing a stressful event, however, it was predicted to covary with academic motivation. In contrast, given that EFC involves strategies geared toward managing emotional distress, it was neither predicted or found to relate to motivation. In turn, academic motivation positively relates to course grade as expected. This study extends previous research by demonstrating that academic specific coping styles significantly predict college students' management of stress at college. In addition, this research indicates that coping and motivation are related processes and should be considered within the same model.

One unexpected finding was the positive relationship between academic stress

and motivation. This finding may be explained by two of the items used to measure academic motivation—importance for doing well in their course and importance for doing well overall. In other words, because academic stress threatens students' course grade, the value of doing well becomes more salient.

These data suggest that college instructors who encourage their students to make a study plan, manage their time, and use their study guide, should facilitate greater motivation and performance. College instructors who understand how students' motivation and performance is affected by their way of coping can teach students to be more effective copers, and therefore, they will be better equipped to teach students more effectively. In addition, these data also suggest that students who take advantage of study skills and time management courses should be able to more effectively manage many of the academic stresses that are characteristic of college life. Thus, institutions of higher education that offer such courses would appear to be serving their students well.

Moreover, the provision of a remedial intervention to assist ineffective copers who are at risk would appear to be salient. The results of this research indicated that students' problem-focused coping plays a meaningful role in their motivation and performance, whereas emotion focused coping does not. Given that PFC and EFC are characterized by thoughts and strategies used by individuals to reduce the effects of negative events, interventions such as attributional retraining, mental simulation training, and strategy training would be important avenues to consider for future research and practice. For instance, students who are unlikely to engage in PFC may do so because they believe that there is nothing they can do to improve their situation (i.e., stable, uncontrollable attributions). Attributional retraining (Perry, Hechter, Menec, and Weinberg, 1993) can be used to change dysfunctional attributions such as stable and uncontrollable ones to more functional ones (e.g., unstable and controllable). In turn, such attributions are posited to facilitate thoughts and strategies to directly cope with academic stress.

Additional research should examine the role that EFC plays in coping and self-regulation. That is, whether EFC effects other academic variables such as adjustment to college given that it did not relate to motivation. Because college students will face many challenges throughout their higher education that will influence the fulfillment of their goals, it is important to understand how they will or will not manage these challenges. A more in-depth understanding of this process could lead instructors to assist students more effectively and students to become more adaptive.

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