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Prediction of Stress Appraisals from Mastery, Extraversion, Neuroticism, and General Appraisal Tendencies [1]

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Several personality dimensions (mastery, extraversion, and neuroticism) and a new General Appraisal Measure were used to predict stress appraisals made by college students in specific situations. Using multiple-regression techniques, mastery and general appraisal tendencies predicted appraisals for an intellectual task. Path analysis supported a structural model with general appraisal tendencies as a mediator between mastery and specific appraisal. In the second study mastery, extraversion, neuroticism, and general appraisal tendencies predicted appraisals for an academic stressor. Path analysis again supported the mediational nature of general appraisal tendencies from personality variables to specific appraisal. We discuss a potential causal mechanism between personality dimensions and appraisal patterns.

Many situational variables and some person variables are influential in the stress appraisal process (Lazarus & Folkman, 1984). Situational variables include novelty, imminence, duration, uncertainty, and ambiguity. Person variables include beliefs about control and one's goals and commitments to those goals. An interaction of primary appraisal (evaluation of the event's significance) and secondary appraisal (perception of one's coping

[1] The authors wish to thank the many students who acted as experimenters in Study 2 and helped with data entry. Special thanks go to James Johnson, Ann Schuller, Lori Schumacher, and Brandon Vancura for all their hard work. Thanks also go to Gus Carlo for comments on an earlier draft of this manuscript.

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ability) results in perceiving the situation as threatening, challenging, or irrelevant to the individual.

While noting that some person variables predict appraisal, such as situation-specific beliefs of control, Lazarus has argued that general person variables (e.g., mastery, extraversion) are inadequate to predict appraisals in specific contexts; and beyond goals, commitments, and specific beliefs, Lazarus has not generally included person variables in his research (e.g., Folkman & Lazarus, 1985; Lazarus & Folkman, 1984). However, noting that a large body of literature indicates that general person variables (traits) do act as antecedents to the appraisal process, numerous authors (e.g., Costa & McCrae, 1990; Krohne, 1990) have recently called for an inclusion of personality into Lazarus's model of stress.

Several stable dimensions of personality have been associated with appraisals. Those dimensions include hardiness (Florian, Mikulincer, & Taubman, 1995; Kobasa, 1979; Rhodewalt and Agustdottir, 1984; Rhodewalt & Zone, 1989; Wiebe & Williams, 1992); Type A personality (Smith & Rhodewalt, 1986); locus of control (Anderson, 1977; Fame, Sebellico, Gnugnoli, & Coralio, 1992; Jorgensen & Johnson, 1990; Parkes, 1984; Vitaliano, Russo, & Maiuro, 1987); general self-efficacy, helplessness (Jerusalem, 1992; Morgan, Owen, Miller, & Watts, 1986); traits less relevant for control such as sensation seeking (Horvath & Zuckerman, 1992); trait negative/positive affectivity (Elliot, Chartrand & Harkins, 1994); insecurity (Martin & Lee, 1992); depression-prone personality types (Mongrain & Zuroff, 1989); and extraversion and neuroticism (Gallagher, 1990). We conceptualize a dispositional appraisal dimension related to, but not synonymous with, these dimensions.

Various literatures have suggested the practical importance of appraisal dispositions. For example, styles of attributions are related to long-term health outcomes (Peterson, Vaillant, & Seligman, 1988; Scheier & Carver, 1985; Smith & Rhodewalt, 1986), and to mortality rates (Friedman et al., 1995). In the tradition of this literature, we focused upon general appraisal dispositions, conceptualizing such general appraisals as personality dimensions that predispose consistent appraisals across various situations.

As is true for attributional styles, those who characteristically *appraise* events as threatening may have greater long-term health risks than those who make more positive appraisals. A measure assessing such tendencies could be used to identify individuals with potentially harmful appraisal styles, allowing for interventions such as cognitive therapy, designed to reduce health risks. Such a measure may also be useful in exploring the complex relationships between life events, personality and health (Florian et al., 1995).

While other useful measures of attributional style exist, they generally assess which causal beliefs an individual adopts in situations defined as successes

and failures. Those beliefs about causation are usually assessed on specific dimensions of internality, stability, and controllability. The intent of a general appraisal measure would be to more directly assess appraisal dispositions as conceptualized by Lazarus and colleagues-simply assessing whether individuals tend to assess situations as threatening (potentially harmful) or challenging (potentially beneficial), and whether or not they typically anticipate that their coping efforts will be successful.

Such a measure for general appraisal would necessarily be more narrowly constructed than usual for personality traits, but should be relatively consistent, since the research reviewed above suggests that appraisal dispositions are highly related to other broad and stable personality traits. In the absence of a measure of general appraisal tendencies in the stress literature, a general appraisal measure (GAM) was developed by the first author.3 It is a measure based on assessments of how individuals typically make appraisals in a variety of hypothetical situations that could be experienced as challenging or threatening. It was thought that by aggregating responses across different situations, appraisal variance due to the particulars of a given situation would be attenuated, allowing general appraisal variance to be observed. The assumption underlying the development of the GAM was that subjects' responses to a variety of situations would provide a general appraisal measure that would be trait-like, with continuity across time and relevance to a wide variety of situations.

The medication model underlying our hypothesis specifies that general appraisal tendencies are linked loosely to several broad dimensions of personality. Thus, while we conceptualize the general appraisal tendency as trait-like, we see it as a narrow trait (in contrast to broad "Big-5" traits) that is derived from broader traits. Specifically, we hypothesized that several broad personality dimensions, including mastery, extraversion, and neuroticism, would affect appraisals in specific situations largely, but not entirely, as a result of their evocation of the general appraisal tendency. In other words, general appraisal should be a mediator between those major personality traits and specific appraisals. In order to establish the usefulness of the GAM, we designed two studies to test whether it was a significant predictor of appraisals made in response to specific real situations.

From the literature on personality dimensions and appraisals reviewed above, it is clear that both control (e.g., hardiness) and noncontrol traits (e.g., extraversion) are influential in stress appraisals. While traits such as locus of control may lead to challenge or threat appraisals through their influence on the perception of one's ability to cope with and control an

[3] The GAM is available from the first author, on request.

event, traits such as extraversion and neuroticism may influence appraisals through selective attention.

Much like the inhibited or uninhibited children studied by Kagan (Kagan & Snidman, 1991), neurotics and extraverts may have physiological predispositions to react to the environment with more negative or positive affect. One result of such a predisposition would be a life-long tendency for neurotics to experience more negative affect than extraverts, and for extraverts to experience more positive affect than neurotics. Such an affect tendency has been supported by recent literature (Christensen, Danko, & Johnson, 1993; Izard, Libero, Putnam, & Hayes, 1993).

As a way to regulate (reduce) their consistent negative affect, neurotics may be hypervigilant to cues in the environment leading to negative affect (i.e., threat cues). Conversely, to regulate (maximize) their positive affect, extraverts may be hypervigilant to environmental cues that lead to positive affect (i.e., challenge cues). That is, extraverts will attend most to the positive elements of a situation, while neurotics will attend most to the negative elements, resulting in more positive or challenge appraisals for extraverts and more negative or threat appraisals for neurotics.

Direct support that extraverts' appraisals differ from those of neurotics in similar situations comes from Gallagher (1990), who found extraversion to be associated with emotions consistent with challenge appraisals (e.g., hopeful), and neuroticism to be associated with emotions consistent with threat appraisals (e.g., anxious), for a recalled academic stressor. Results consistent with a selective attention explanation of Gallagher's findings comes from Larsen and Ketelaar (1991). These investigators experimentally demonstrated that neuroticism was associated with stronger emotional responsivity than was extraversion to a negative mood induction procedure, while the extraversion dimension was associated with stronger emotional responsivity than was neuroticism to a positive mood induction procedure.4 Other investigators have found an association between neuroticism and high sensitivity to criticism (Atlas, 1994) and with the perception of negative emotionality in ambiguous visual stimuli (Mayer, Dipaolo, & Salovey, 1990).

These data indicate that neuroticism and extraversion are influential in appraisals, and that this influence may result from attentional biases for negative or positive situational cues. Because much of the stress literature has focused on control-relevant traits, and because the reviewed literature indicates a relationship between non control-relevant traits and appraisals (e.g., Horvath & Zuckerman, 1992), we examined the relationship between

[4]Given the strong association between specific emotions and appraisal patterns (Frijda, Kuipers, & ter Schure, 1989; Smith & Ellsworth, 1985, 1987; Smith, Haynes, Lazarus, & Pope, 1993; Smith & Lazarus, 1993), emotionality in this context can be considered an indirect assessment of appraisal.

traits relevant to *both* control (mastery) and noncontrol (extraversion and neuroticism) and appraisals in specific situations in two studies in which we also tested the usefulness of the GAM.

In this research we attempted to avoid a number of problems that have been frequent in related literatures. First, many of the studies in which personality is linked with appraisals have been retrospective (e.g., Martin & Lee, 1992). Given the likely problems with memory accuracy (Loftus & Palmer, 1974), subjects appraised a current rather than a past stressor.

A second problem with the literature is that there has been little consistency between studies in how stress appraisals were assessed. Emotion terms (Gallagher, 1990) have been used, as have adjustment rates for life events (Jorgensen & Johnson, 1990). Since our work stemmed from and was meant to address Lazarus' stress theory, the items used to assess appraisals were derived directly from Lazarus, with a few theoretically derived additions.

Finally, in most related studies, statistical techniques that allow for high confidence concerning causal inferences have not been often used. To address this, we used multiple regression in a path analytic framework to test a structural model. This technique allowed for a higher level of confidence regarding our causal inferences than has typically been the case in similar studies.

In Study 1 these specific predictions were tested: (1) Mastery and general appraisal would be significant, orthogonal predictors of appraisal for a specific controlled event, and (2) a path analysis would support a model with general appraisal mediating between mastery and appraisal for a specific controlled event.

STUDY 1

Method

Participants

Participants were 48 students (males = 16, females = 32, median age = 19.79) in introductory psychology at a large Midwestern university. All participants received course credit for their participation.

Predictor Variables

Mastery. Mastery was measured by a seven-item scale assessing the extent to which one feels in control of one's life (Pearlin & Schooler, 1978).

Subjects responded on 6-point agree-disagree Likert scales with higher scores indicating lower mastery.

General Appraisal. Subjects completed the General Appraisal Measure containing 21 life events (e.g., fight with roommate, death of a relative, etc.). The life events comprising the GAM were gathered by modifying several events from frequently used life event checklists (e.g., Holmes & Rahe, 1967) as well as writing several events particular to college life. In an attempt to measure primary and secondary appraisal, subjects responded to two items per event: (a) "How stressful would this event be?" (stress items), and (b) "How able would you be to cope with this event?" (cope items). Subjects responded on 7-point Likert scales ranging from *not at all* to *very.*

In keeping with previous research (Tomaka, Blascovich, Kelsey, & Leitten, 1993) and Lazarus' focus on the relational meaning of variables involved in a stress encounter (Lazarus, 1991), the main index of the GAM, called the Appraisal Quotient (AQ), was formed by taking a ratio of the stress-to-cope items for each event, summed across all 21 events and averaged. The resulting AQ ratio increases in magnitude as (1) stressfulness scores increase and (2) perceived coping scores decrease. Therefore scores on the AQ can be viewed as lying on a continuum ranging from, at one pole, a challenge appraisal style (low perceived stress and high perceived coping ability) to, at the other pole, a threat appraisal style (high perceived stress and low perceived coping ability).

Criterion Variables

Specific Appraisal. Appraisal for a specific cognitive task (Raven matrices; Raven, 1958) was assessed by asking the same two questions concerning perceived stress and coping that were used in the GAM. As with the AQ for the GAM, the ratio of the stress item to the cope item was used as an index of specific appraisal, with higher values indicating an appraisal of the Raven as highly stressful and difficult to cope with.

Procedure

On their arrival at the laboratory, the subjects were told that the purpose of the study was to examine the relationship among personality, task performance, and life experience. After the subjects read and signed a consent form, they completed a packet of questionnaires assessing the independent variables and then completed some tasks unrelated to the present study. The subjects were next instructed that the Raven was a test of their ability to recognize patterns in ambiguous shapes, that there would be varying lengths of time for each

problem, and that they should try their best. They were then given a sample problem. The subjects next assessed the task as described above, completed the task, and were debriefed and dismissed.

Results

Internal Reliability

Cronbach's alpha for mastery (seven items; alpha = .68), and the GAM (AQ; 21 items; alpha = .91) were acceptable.

To address the first prediction that mastery and general appraisal would be significant orthogonal predictors of specific appraisal (of the Raven task), hierarchical multiple-regression analyses were performed. A visual inspection of the data of Table I indicates that there was substantial appraisal variation for the AQ and that the Raven was appraised as moderately stressful.

In the regression analysis main effect, vectors were entered for mastery at Step 1, and for the AQ at Step 2. At Step 1, the main effect of mastery accounted for 11% of the variance in specific appraisal, $F(1, 29) = 3.61$, $P < .07$. At Step 2, the AQ accounted for 34% additional variance in the full model [R2 = .45, *F(2,*

Table I. Means, Standard Deviations, and Ranges for All Variables[a]

Variables	Mean	*SD*	Range
	Study 1		
AQ	1.35	0.68	5.65
Raven Stress	2.58	0.99	3.00
Raven Cope	3.16	1.40	4.00
Raven Appraisal	1.01	0.71	3.80
Mastery	17.75	6.36	28.00
	Study 2		
AQ	1.63	0.62	3.49
Exam Stress	7.20	2.57	10.00
Exam Cope	8.48	1.98	9.00
Exam AQ	0.99	0.71	5.46
Exam Problem	7.78	2.15	10.00
Exam Emotion	8.35	2.00	9.00
Mastery	31.69	5.16	27.00
N	68.00	18.77	87.00
E	79.60	18.98	92.40

[a]N = neuroticism; E = extraversion. AQ = Appraisal Quotient.

28) = 11.48, $P < .001$], with only the AQ [β= .68, $t(28) = 4.16$, $p < .003$] producing a significant standardized partial regression coefficient.

Mediation Analysis

To address the second prediction, a test of a structural model with the AQ acting as a mediator between mastery and specific appraisal was performed (see Baron & Kenny, 1986). To test for mediation, three regression equations are performed and the following conditions need to be met: (1) The independent variable (mastery) must account for significant variation in the proposed mediator [the AQ; β = .51, $t(29) = 3.21$, $P < .003$; see Fig. 1]; (2) the independent variable must account for significant variation in the dependent variable [specific appraisal; β = .33, $t(29) = 1.90$, $p < .07$]; and (3) when the dependent variable is regressed on

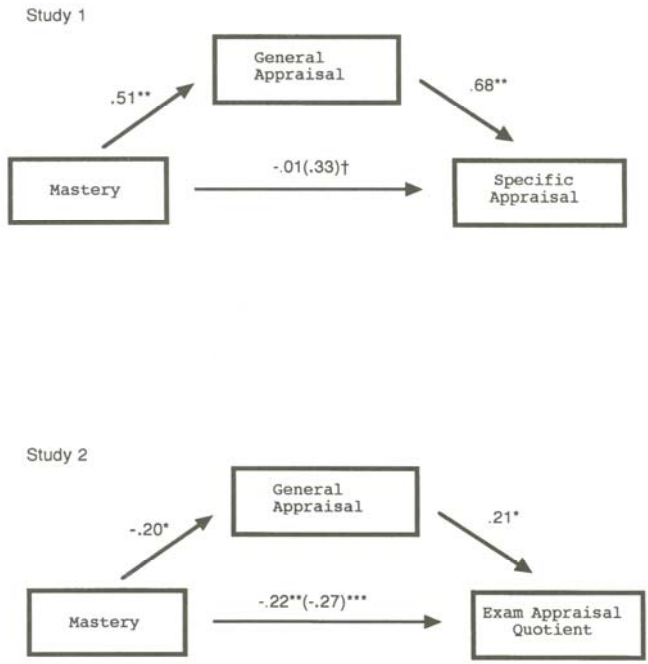

Fig. 1. Standardized beta coefficients from Study 1 and Study 2 of the path analysis of general appraisal, specific appraisal, exam appraisal, and mastery. *Note*. The parenthetical values corresponds to the beta coefficients from the regression equation predicting appraisal from just mastery. $^{\dagger}p < .07$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

both the independent variable and the proposed mediator, the path (i.e., regression coefficient) from the independent variable to the dependent variable must be lower in its significance level than in Condition 2 [$\beta = -0.01$, $t(29) = -.09$, $p > .90$]. Conditions 1, 2, and 3 were met.

To test the significance of the indirect effect of mastery on specific appraisal through the mediation of the GAM ratio, Soble's formula (Baron & Kenny, 1986) was applied. The mediation of the GAM was significant [$t(29) = 2.50$, $P < .02$]. A decomposition of the effects revealed that the indirect effect, as mediated by the GAM, of mastery (.35) accounted for 51 % of the total effect (.68) on specific appraisal (see Schumacker & Lomax, 1996). These results, together with the regression coefficient for mastery being attenuated from .33 to 0 when controlling for general appraisal, indicates that general appraisal may be a powerful mediator between mastery and specific appraisal.

Discussion of Study 1

The results from Study 1 support our first prediction that mastery was a marginal, and the AQ a significant, predictor of specific appraisal. Subjects high in mastery and in the *general tendency* to appraise events more as challenges than as threats (as seen by low AQ scores) appraised the Raven task more often as a challenge than subjects low on mastery and high on the AQ. The results from the test of the structural model support the mediational nature of general appraisal, with subjects high in mastery generally appraising events more as challenges as evidenced by lower scores on the AQ, and with this tendency leading to the Raven task being appraised as a challenge.

STUDY 2

A common problem in stress research is that "in duration, severity, and complexity, experimental stressors must fall short of the stressors of everyday life" (Coyne & Lazarus, 1980, p. 148). Given that our main stressor in Study 1 (Raven task) was viewed as only moderately stressful (see Table I), in Study 2 we examined appraisals for an externally valid academic stressor (an exam).

Academic stressors have often been used in stress research because of their inherent importance for the subjects (Folkman & Lazarus, 1985; Mechanic, 1962). We followed this tradition by assessing the appraisals college freshman

made concerning their first psychology exam. We also examined personality traits associated with control and those not considered relevant to that dimension, and their relation to appraisals, and we adopted a prospective experimental design by predicting exam appraisals from measures collected one month earlier.

In Study 2 we predicted that (1) neuroticism, extraversion, mastery, and general appraisal would be significant, orthogonal predictors of appraisal for a psychology exam and that (2) a path analysis would support a model with general appraisal mediating between mastery and appraisal of a psychology exam.

Method

Participants

Students taking an introductory psychology course *(N* = 134; males = 55, females = 79) at a large Midwestern university participated in the study for course credit.

Predictor Variables

Mastery. Mastery was measured by the same scale as in Study 1 (Pearlin & Schooler, 1978) and coded so that higher values indicated higher mastery.

Extraversion and Neuroticism. The 92-item Interpersonal Adjective Scale was used to measure extraversion and neuroticism (Trapnell & Wiggins, 1990). Subjects rated the relevance of each adjective for their own personality on 8-point agree-disagree Likert scales.

Social Desirability. A true/false 33-item scale was used to assess the extent to which subjects responded in a socially desirable way (Crowne & Marlowe, 1964).

General Appraisal. Subjects responded to the GAM as in Study 1 except we used 11-point Likert scales ranging from *very* to *not at all.* The main index of the GAM (the AQ) was computed as in Study 1. The low correlation found between the AQ and the Social Desirability Scale *(r* = -.03) indicates that responses on the GAM were not related to self-presentational demands.

Criterion Variables

Specific Appraisal. Subjects responded on II-point Likert scales ranging from (1) *not at all* to (11) *a great extent* to four items assessing appraisals

for a just-completed psychology exam: (1) "How stressful was this event?" (2) "How able were you to cope?" (3) "To what extent did you feel you would be able to deal emotionally with this situation?" and (4) "To what extent did you think that you would be able to influence things to make or keep the situation the way you wanted it?" Items 1 (Exam Stressfulness) and 2 were meant to index primary and secondary appraisals, while Items 3 and 4 (Exam Emotional Appraisal and Exam Problem Solving Appraisal, respectively) were meant to index emotion- and problem-focused coping (Lazarus & Folkman, 1984). As in Study 1, the ratio of the stressfulness-to-coping ratings for the exam was also computed and used as a criterion variable (Exam Appraisal Quotient).

Procedure

During the first week of the fall semester, the students participated in a study on "life experiences." Once the participants arrived at the lab, it was explained that the study involved two periods of assessment, the first occurring that day and the second occurring on the day of their first psychology exam. It was explained that, during both assessments, personality questionnaires would be completed and recent life events asked about. The subjects completed informed consents and the packet of questionnaires including mastery, the Social Desirability Scale, the GAM, and the Interpersonal Adjective Scale.

Approximately 4 weeks later, on the day of the first exam in their Introduction to Psychology course, the subjects were instructed to go directly from the exam to the nearby lab for completion of Packet 2. The subjects usually arrived in the lab within 5 min of their completion of the exam to complete the second packet of questionnaires including the GAM and the four appraisal items for the exam. Following completion of Packet 2, the subjects were thanked, debriefed, and dismissed.

Results

Internal Reliability

As in Study 1, all measures exhibited acceptable internal reliability. Cronbach's alphas were: AQ index of the GAM (21 items; alpha = .85), the I-month test-retest of the GAM (AQ; r = .85), extraversion (16 items; alpha = .87), and neuroticism (18 items; alpha = .88). As in Study 1, there was substantial variability in responses to the GAM (see Table I). The data also indicated that the

Table II. Standardized Beta Coefficients from Hierarchical Multiple Regression Predicting Four Types of Exam Appraisals

			Exam Stressfulness		
	R	R^2	Neuroticism	Appraisal Quotient (AQ)	
Step 1	.24	.06	.24[b]		
Step 2	.34	.11	.16 ($p < .08$)	.25[b]	
			Exam Appraisal Quotient (Exam AQ)		
	R	R^2	Mastery	Neuroticism	AQ
Step 1	.26	.07	−.26[a]		
Step 2	.31	.10	−.21[a]	.18[a]	
Step 3	.35	.13	−.20[a]	.13	.17 ($p < .06$)
			Exam Problem Solving Appraisal		
	R	R^2	Neuroticism	AQ	
Step 1	.19	.04	−.20[a]		
Step 2	.26	.07	−.26[a]	.20[a]	
			Exam Emotional Appraisal		
	R	R^2	Extraversion	AQ	
Step 1	.21	.04	−.21[a]		
Step 2	.35	.12	−.16 ($p < .08$)	.28[a]	

[a] $p < .05$.
[b] $p < .01$.

psychology exam was appraised as moderately stressful, supporting our choice of an exam as the appraised stressor.

To address our first prediction, hierarchical multiple-regression analyses were performed to determine the relationship of mastery, extraversion, and neuroticism as predictors of each criterion of Exam Stressfulness, Exam Appraisal Quotient, Exam Problem Solving Appraisal, and Exam Emotional Appraisals Because much of the literature on personality and appraisals has focused on traits relevant for control, for all the regression analyses a vector of the predictor variables including mastery, neuroticism, and extraversion was entered in a stepwise procedure in block one, followed by entry of the AQ in block two. This conservative entry procedure in block

5Because 14 subjects failed to complete the measures in Packet 2, the sample size for these analyses was reduced to $N = 120$. I

one will allow for an assessment of the relative and unique contributions of one control trait (mastery) compared to the contributions from two noncontrol traits (neuroticism and extraversion) in predicting appraisals. Entering the AQ last will allow for an assessment of the contribution of the AQ to appraisal predictions after controlling for other personality dimensions.

The top portion of Table II presents the beta coefficients for the predictors in the regression analysis using Exam Stressfulness as the criterion. As Table II shows, neuroticism, and not extraversion or mastery (which failed to enter the model), was a significant predictor at Step 1, but only the AQ produced a significant beta coefficient in the full model *[F(2,* 115) = 7.52, $p < .001$].

The ratio of exam stressfulness to perceived ability to cope with the exam (Exam Appraisal Quotient), was used as the criterion for the next regression analysis. As Table II shows, mastery and neuroticism were significant predictors in Block 1, while in Block 2 the AQ just failed to reach significance in the full model *[F(3,* 114) = 5.64, $P < .001$].

The extent to which subjects perceived themselves able to influence their exam performance (Exam Problem Solving Appraisal) served as the criterion for the next regression analysis. As Table II shows, neuroticism and the AQ were significant predictors in the full model *[F(2,* 115) = 4.38, $P < .01$].

Subjects' perceived ability to cope emotionally with the exam (Exam Emotional Appraisal) served as the criterion for the next regression analysis. As Table II shows, extraversion entered the model at Step 1, and failed to reach significance in the full model after the AQ was entered *[F(2,* 115) = 7.92, $P < .001$].

Mediation Analysis

To address our second prediction a test of a model with general appraisal acting as a mediator between mastery and specific appraisal was performed, using the multiple regression approach used in *Study* 1. Mastery accounted for significant variation in the proposed mediator (general appraisal) and in the Exam Appraisal Quotient (P = -.20, *t(116)*= -2.20, $p < .03$; P = -.27, *t(116)* = -2.99, $p < .003$, respectively; see Fig. 1). Regressing the Exam Appraisal on mastery and general appraisal simultaneously substantially attenuated the regression coefficient of mastery (P = -0.22, *t(116)* = -2.51, $P < .01$).

To test the significance of the indirect effect of mastery on Exam Appraisal through the mediation of general appraisal, Soble's formula (Baron & Kenny,

1986) was applied as in Study 1. The mediation of general appraisal was moderately significant, *t(116)* = 1.55, *P* < .20, and effects decomposition revealed that 14% of the total effect of mastery on the Exam Appraisal (.312) was accounted for by the indirect effect of mastery (.04). These results indicate that general appraisal may be a partial mediator of the relationship between mastery and Exam Appraisal.

In order to more fully examine our hypothesis that general appraisal would mediate between mastery and Exam Appraisal, we submitted model (a) in Fig. 2 to a structural equation modeling procedure (LISREL 8). To support full mediation (i.e., total effect = indirect effect), a model with the direct path from mastery to Exam Appraisal set to 0 must fit the observed data. Overall, model (a) provided a poor fit to the data, *X?* (1, *N* = 118) = 6.23, *P* < .01. These results indicate that general appraisal may not mediate the total effect of mastery to Exam Appraisal. General appraisal may mediate only part of the effect, such that the direct effect of mastery remains significant.

To examine this possibility we tested the just-identified model [see Fig. 2(b)].6 From the standardized path coefficients shown in Fig. 2, it is clear that mastery has a direct effect on Exam Appraisal, as well as an indirect effect (.05) which was mediated by general appraisal. Additionally, effects decomposition revealed that indirect effect of mastery accounted for 17% of the total effect of mastery on Exam Appraisal (.28). These results indicate that in Study 2, as in Study 1, general appraisal was a plausible mediator of the relationship between mastery and appraisals made in a specific context.

Because of this replication of the model tested in Study 1, we submitted several other mediational models to an analysis using LISREL 8. We tested three models [see Fig. 2. (c), (d), and (e)] in which the direct paths were set to O. These models proposed a mediation between two personality dimensions (neuroticism and extraversion) and the appraisal items they significantly predicted (Exam Stressfullness, Exam Problem Solving Appraisal, and Exam Emotional Appraisal) from the multiple regression analysis (see Table II).

Overall, models (c), (d), and (e) provided acceptable fits to the data as evidenced by chi-square analyses and the goodness-of-fit index (GFI), *(X2* (1, *N* = 118) = .35, *P* > .60, GFI = 1.0; *X2* = 3.01, *P* > .06, GFI = .98; *X2* = 3.04, *P* > .08, GFI = .98, respectively). Effects decomposition revealed that for model (c) the indirect effect of neuroticism (.11) accounted for 40% of the total effect of neuroticism on Exam Stressfullness (.28).7 For model

[6]Just-identified models are models where the number of estimated parameters equals the number of possible correlations among the variables. All models of this sort will provide a perfect fit to the data and thus *X2* (1, *N* = 118) = 1.0, *p* = 1.0.

[7]The total effects necessary for effects decomposition were obtained by submitting the just-identified models (i.e., estimating the direct as well as the indirect paths) to LISREL 8.

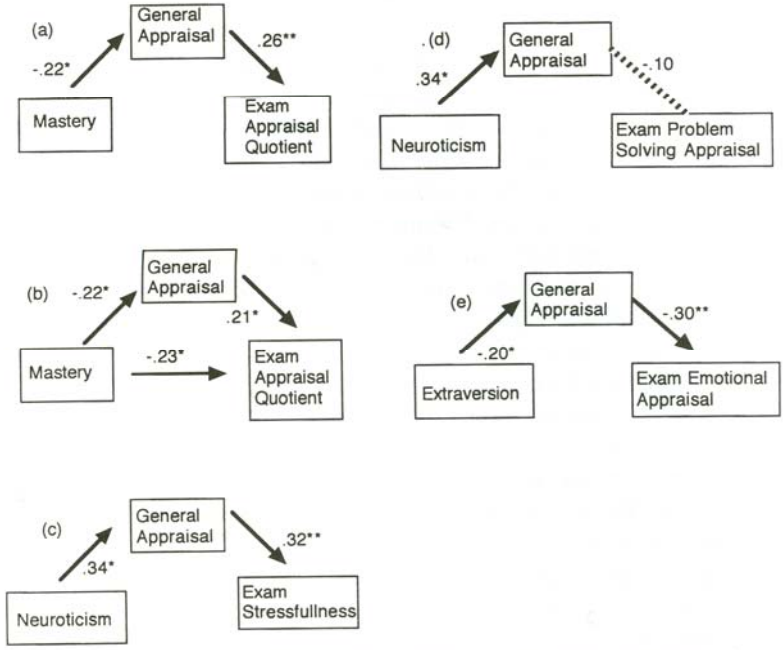

Fig. 2. Standardized path coefficients for mediation models tested in Study 2. $*p < .05$. $**p < .01$.

(d), the indirect effect of neuroticism (.03) accounted for 14% of the total effect (.22) of extraversion on Exam Problem Solving Appraisal, and, for model (e), the indirect effect of extraversion (.06) accounted for 27% of the total effect (.22) of extraversion on Exam Emotional Appraisal.

Because of the consistent finding that general appraisal acted as a mediator between several personality dimensions and several types of appraisals, we submitted all other possible mediation models (Le., setting direct paths to 0) involving either extraversion, neuroticism, or mastery; and either Exam Stressfullness, Exam Appraisal, Exam Problem Solving Appraisal, or Exam Emotional Appraisal; with general appraisal as the mediator. Overall, all models (except the model involving neuroticism and Exam Appraisal) provided acceptable fit to the data as evidenced by chi-square analyses and GFI. Indirect effects accounted for proportions of the total effects that were comparable to that found earlier. These findings, while post-hoc, further support our conceptualization of the mediational nature of general appraisal.

[8]The results from this analysis are available from the first author upon request.

Discussion of Study 2

The results support our first prediction that neuroticism, mastery, extraversion, and general appraisal would account for significant amounts of variance in exam appraisals. Neuroticism significantly predicted Exam Stressfulness, Exam Appraisal Quotient, and Exam Problem Solving Appraisal; mastery significantly predicted Exam Appraisal; and extraversion significantly predicted Exam Emotional Appraisal. After controlling for other aspects of personality, the AQ accounted for a significant amount of variance in three of the four exam appraisal dimensions, while marginally ($p < .06$) predicting a fourth (Exam Appraisal Quotient).

As in Study 1, general appraisal acted as a mediator between mastery and Exam Appraisal Quotient. This finding supports our second prediction, and indicates that the relationships among general appraisal, mastery, and specific appraisals may conform to a mediational model. Three additional causal models involving mediation by general appraisal tendencies between several personality and specific appraisal dimensions were also supported. These findings, along with the post-hoc analyses of other models, strongly support our conceptualization of general appraisal as mediating between various dimensions of personality and appraisals made in specific contexts. General appraisal appears to be an important factor in understanding the relationship between personality and patterns of appraisals in specific situations.

Overall the findings from Study 2 indicate that subjects low in mastery and extraversion, and high in neuroticism and in the tendency to *generally* appraise events as more threatening, appraised the exam as more stressful, and their ability to cope with it was lower than subjects with the reverse pattern.

GENERAL CONCLUSIONS

Together Studies 1 and 2 demonstrated the ability of mastery, extraversion, neuroticism, and general appraisal to predict appraisals made in specific situations. It is clear that some broad personality dimensions *and* the narrow general appraisal dimension are influential in stress appraisals.

Traits that are both relevant to, and not relevant to, control were found to predict exam appraisals. This is supportive of the reviewed literature and suggests that the relationship between personality and appraisals includes control *and* noncontrol components. The causal pathway from noncontrol traits such as extraversion and neuroticism to appraisal patterns is unknown, but one possibility involving selective attention was discussed earlier. Although our findings do

not provide a direct test of this possibility, they are consistent with earlier research (Gallagher, 1990; Larsen & Ketelaar, 1991) and strongly conform to the theoretically derived prediction that neuroticism will be associated with threat appraisals, and less strongly conform with the prediction that extraversion will be associated with challenge appraisals. A more direct examination of the relationships between selective attention, neuroticism and extraversion, and appraisal patterns is needed.

Path analysis from both Study 1 and Study 2 indicate that general appraisal acted as a mediator between several personality and specific appraisal dimensions. Subjects higher in mastery and extraversion, and those lower in neuroticism, tended to *generally* appraise situations as less threatening, and this tendency led to appraisals of the exam as easier to cope with emotionally, and as less threatening. It is clear that, to understand how personality influences specific appraisals, general appraisal tendencies need to be considered.

Given the complexity of the appraisal process, these findings need to be replicated and examined further. Other causal models involving different personality dimensions than those used here need to be examined to allow for a better understanding of the interrelationships among the dimensions of general appraisal, personality, and specific appraisals.

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