Individual Differences in Emotional Creativity: Structure and Correlates

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ABSTRACT The structure and correlates of emotional creativity were explored in a series of six studies, using a specially constructed measure of individual differences—the Emotional Creativity Inventory (ECI). Analyses of the ECI suggest that three facets of emotional creativity can be distinguished empirically as well as theoretically, namely, preparedness (understanding and learning from one's own and others' emotions), novelty (the ability to experience unusual emotions), and effectiveness/authenticity (the skill to express emotions adroitly and honestly). Women score higher than men on emotional preparedness and effectiveness/authenticity, but not on the novelty of their responses. People who score high on the ECI are considered by their peers to be more emotionally creative, presumably on the basis of everyday behavior. Associations between emotional creativity as measured by the ECI and a variety of other personality variables (including the Big Five personality traits, mysticism, self-esteem, authoritarianism, locus of control, alexithymia, and ways of coping) are examined, as is the relation between emotional creativity and prior traumatic experiences.

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"It's like some out-of-body experience. It really is dreamlike. You wish everybody could experience this sometime in their life. It's very emotional. It's not only emotional, it's exhausting and exhilarating. You want to soak it up. You wish everyone could." That is the way Joe Torre, manager of the New York Yankees, described his feelings when the Yankees won the World Series in baseball for the first time in 18 years (quoted by Curry, 1996). Extreme or unusual situations may elicit novel emotions in almost anyone. In ordinary circumstances, however, people differ in their ability to experience new or unique emotions. Such individual differences, their correlates and antecedents, are the focus of this report.

Theoretical Background

Until recently, emotions were viewed as phylogenetically primitive responses, closely attuned to physiological arousal and divorced from "higher" thought processes. That view is changing. Salovey and Mayer (1990) have coined the term *emotional intelligence* to refer to "the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (p. 189; for general reviews, see Mayer & Salovey, 1997; also, Goleman, 1995). The present article deals with a related construct, namely, *emotional creativity* (Averill & Nunley, 1992; Averill & Thomas-Knowles, 1991). Emotional creativity stands to emotional intelligence in roughly the same relation as cognitive creativity stands to cognitive intelligence. A certain degree of intelligence or talent is required for performance to be creative within a particular domain. Intelligence, however, is no guarantee of creativity.

The idea of emotional creativity is based on a social-constructionist view of emotion as extended to individual development (Averill, 1980, 1984, 1990). Central to such a view is the notion that emotions are constituted, not just regulated, by social expectations and rules. To the extent that emotions are socially constituted, they are subject to transformation—fundamentally, not just superficially (e.g., in overt expression). Emotional transformation is most evident on the broad social level, for example, in the historical development of, and cross-cultural divergencies among, emotional syndromes (Harré, 1986; Harré & Parrott, 1996; Mesquita & Frijda, 1992; Russell, 1991; Scherer & Wallbott, 1994).

However, transformation also occurs on the individual level. To a certain extent, each person is a "culture" unto him- or herself.

Criteria for Creativity

For a response to be considered creative, it should meet (in some variable combination) three main criteria: novelty, effectiveness, and authenticity.

Novelty. This is the most commonly cited criterion for creativity. A response may be novel in comparison to an individual's own past behavior, or it may be novel in comparison to typical behavior in the society as a whole. The latter (group) comparison is the more relevant for our present purposes. However, it should be kept in mind that creativity is not a "thing apart," unique to only a few individuals. All learning and development involves the acquisition of novel behavior (from the individual's perspective), and hence some degree of creativity.

Effectiveness. Not all novel responses are creative; some are simply bizarre or eccentric. To be considered creative, a response must be of potential benefit to the individual or group. Most emotions are ways of dealing with problems, such as correcting a wrong (anger), escaping from danger (fear), making retribution (guilt), protecting a relationship (jealousy), and so forth. In these cases, effectiveness, at least in the short run, depends on achieving the aim inherent to the emotion. But even emotions that ostensibly have no aim or purpose beyond themselves, such as joy or grief, can be expressed well or poorly, appropriately or inappropriately.

Authenticity. A creative response reflects in some fashion the individual's own values and beliefs about the world; it is an expression of the self (Morgan & Averill, 1992). Imagine a highly talented art student who copies the painting of an old master in every detail. Since the two paintings are *ex hypothesi* exactly the same, they are equally distinct (novel) and aesthetic (effective). Yet only the original is considered truly creative; the copy, we may say, lacks authenticity. In the picturesque words of Arnheim (1966), authenticity involves the "pregnant sight of reality" (p. 299). An authentic response is alive with new possibilities. Conversely, an inauthentic response is a copy or caricature; cut off from the source of its vitality, the self, it leaves little room for further development.

Emotions as Creative Products

Most research on creativity has dealt with the conditions (personal and situational) that lead to a *product* that is judged creative, for example, a painting or scientific discovery. What, precisely, is the product in the case of emotional creativity?

Consider an artist who makes creative use of naturally occurring objects, such as pieces of driftwood. In this case, the creative product is the total arrangement or context in which the object is placed. The object itself, the piece of driftwood, need not undergo change. Similarly, a critic might argue, emotions are naturally occurring (i.e., biologically shaped) reactions to environmental events; they may be expressed in creative ways, but since they do not undergo change in the process, they are not creative products in their own right.

This argument assumes that emotions are immune to change—an assumption contrary to the social-constructionist view outlined earlier. Emotions are not like pieces of driftwood. A more appropriate, but still limited, analogy might be with a wood carving. The shape of a carving is determined, in part, by the wood from which it is made; however, its ultimate form—what makes it the kind of carving it is—is determined by the skills of the artist working within a cultural tradition. Sometimes, an artist may break with tradition and develop a new form of expression, in which case the effectiveness (aesthetic value) of the product may not be immediately apparent.

Pursuing the above analogy, emotional creativity also admits of degrees and kinds. At the lowest level, emotional creativity involves the particularly effective application of an already existing emotion, one found within the culture; at a more complex level, it involves the modification ("sculpting") of a standard emotion to better meet the needs of the individual or group; and at the highest level, it involves the development of a new form of emotion, based on a change in the beliefs and rules by which emotions are constituted.

Emotional Preparedness

Wallas (1926) outlined four stages of the creative process: preparation, incubation, illumination, and verification. The criteria for creativity outlined earlier (novelty, effectiveness, authenticity) pertain to the final stage of verification; that is, they represent standards for evaluating a

response as creative. Equally important for the assessment of individual differences in creative potential is the initial stage of preparation.

Preparation can be either short- or long-term. In an oft-cited account, Poincaré (1908/1952) described how he had been working on a mathematical problem for weeks (preparation), but with little success. He set the problem aside while on a trip (incubation). Then, one day while he was stepping on a bus, the solution suddenly occurred to him (illumination). After returning to his hotel, he constructed the relevant proofs (verification).

Poincaré's account illustrates short-term preparation, that is, preliminary work focused on an immediate problem. But Poincaré was an accomplished mathematician before the above incident occurred. Years of preparation are typically required before an individual is capable of truly creative accomplishments within a given field (Hayes, 1981; Weisberg, 1986). Such long-term preparedness or expertise is an important determinant of individual differences in creative potential.

Is there anything equivalent to long-term preparedness in the field of emotion? Some people consider emotions to be an important part of their lives; they think about and try to understand their emotions, and they are sensitive to the emotions of others. We may assume that, on average, such people are better prepared emotionally than are their more indifferent (but not necessarily less reactive) counterparts.

The importance of preparedness can be illustrated by the technique of method acting, where aspiring actors learn to experience as well as express emotions (Bloch, 1993). To a certain extent, we are all method actors. Our training is not formal, of course, but as children and later as adults, we learn from parents, teachers, and peers how to be emotional according to the scripts laid down by society. Popular culture (e.g., as manifested in stories and songs) is also an important medium for emotional education. But perhaps most important is direct experience with emotionally arousing events, and reflection on, or learning from, those experiences (cf. Study 6).

Overview of the Studies

Integral to the present research was construction of a self-report *Emotional Creativity Inventory* (ECI). This inventory focuses on the preparation and verification stages of emotional creativity outlined above. The ECI is not presented as a finished instrument, suitable for individual

assessment. The goal of the research was not test construction; rather, it was to investigate the structure and correlates of emotional creativity, using the ECI as an exploratory device.

This use of the ECI presumes that it is a valid, if imperfect, measure of individual differences in emotional creativity. Some data on the validity of the ECI have been presented elsewhere (Averill & Thomas-Knowles, 1991; Gutbezahl & Averill, 1996). The present series of studies, especially Study 2 on peer evaluation, represents further validation. But the focus of the research is on emotional creativity as a theoretical construct, and in this respect, the structure of ECI and its correlates should be considered together, as two points from which to triangulate on a third—emotional creativity per se. Other kinds of data—historical, cross-cultural, and individual case studies—are also relevant to our understanding of emotional creativity and have been discussed elsewhere (Averill & Nunley, 1992; Nunley & Averill, 1996).

Study 1 in the series analyzed the psychometric properties of the ECI, including its factor structure. Study 2 examined the extent to which people who score high on the ECI are also judged by their peers to be emotionally creative, presumably on the basis of everyday behavior. Studies 3, 4, and 5 investigated the relation of emotional creativity as measured by the ECI to other, conceptually related personality variables. Finally, Study 6 explored the antecedents of emotional creativity in prior experience.

Study 1. The Emotional Creativity Inventory: Psychometric Properties

METHOD

Initial construction of a scale to measure individual differences in the ability to be emotionally creative was undertaken as part of a master's thesis by Carol Thomas (1989), relevant details of which are presented in Averill and Thomas-Knowles (1991). In two subsequent revisions of the scale, items were deleted, reworded, or added to better reflect the aspects of emotional creativity discussed above (preparedness, novelty, effectiveness, and authenticity). Additional changes resulted in a fourth version of the scale, which was used in the research reported here. Of the 30 items that make up this last version of the ECI, 7 pertain primarily to emotional preparedness; 14 to novelty; 5 to effectiveness; and 4 to authenticity.

Only two of the 30 items constituting the current version of the ECI are reverse-scored. This raises the possibility of response bias. However, data presented below indicate that the ECI is independent of the tendency to endorse positively worded items and, more broadly, of response sets. More importantly, if response bias were a major determinant of scores on the ECI, the relations with other variables found in Studies 2 to 6 would not have been obtained.

To have a sufficiently large number of subjects for factor analyses, Study 1 involved several samples of subjects, including, among others, the ECI data of participants in Studies 3, 4, 5, and 6. (The ECI data from Study 2 afforded an independent check on the structure of emotional creativity as assessed by the ECI.) The combined sample consists of 489 participants (153 men, 331 women, 5 unreported), all undergraduates at the University of Massachusetts, Amherst, a large state university with a diverse population. Ages ranged from 17 to 53, with a median of 20 years.

Items of the ECI were rated on a scale from 1 to 5. Total scores on the 30-item scale could thus range from a low of 30 to a high of 150. The actual range of scores for the sample of 489 participants was 59 to 145, with a mean of 103.46 (SD = 14.68). The distribution of scores was close to normal (skewness = −.08, kurtosis = .00). The average correlation among the 30 items was .23, and the corrected item-total correlations ranged from .26 to .63, with a median of .44.

RESULTS AND DISCUSSION

Factor Structure

A principal components factor analysis was performed. The item loadings on the first unrotated factor are presented in Table 1. As can be seen, the smallest loading was .30. This suggests that the ECI measures a single construct; it does not mean, however, that the ECI cannot be decomposed into more homogeneous subdimensions.

Both orthogonal (varimax) and oblique (oblimin) rotations were performed. Only the first three factors were well defined; the scree test proposed by Cattell (1965) (i.e., the point where the decline in eigenvalues starts to level off) also suggested three primary factors. The eigenvalues of the three factors (and the percentages of variance accounted for) were 7.9 (26%), 3.3 (11%), 1.7 (6%).

The orthogonal and oblique rotations yielded similar results. However, since the factors were not assumed to be independent, only the results of the oblique rotation are reported here. Factor-structure coefficients equal to or greater than .40 are listed in Table 1. (Similar factor structures were obtained when the scores of men and women were analyzed separately.)

Table 1

First Unrotated (Principal Components) and Oblique (Oblimin) Rotated Factor Loadings

All loadings are listed for the first unrotated factor; only loading equal to or greater than .40 are listed for the rotated factors (decimal points omitted). When an item loaded on more than one rotated factor, secondary and tertiary loadings are indicated in parentheses. (R) = reverse-scored.

	ECI Item	1st Unrotated Factor	Oblique Rotated Factor Structure 1st	2nd	3rd
P1.	When I have strong reactions, I search for reasons for my feelings.	62	75		
P2.	I believe people should work on their emotional development as hard as they work on their intellectual development.	56	62		
P3.	I think about and try to understand my emotional reactions.	68	82		
P4.	I am not particularly interested in the emotional aspects of my life. (R)	53	50		
P5.	I think about past emotional experiences to help me cope with current emotional problems.	58	58		
P6.	After an intensely emotional experience, I try to step back and examine my reactions objectively.	52	66		
P7.	I pay attention to other people's emotions so that I can better understand my own feelings.	61	72		
N8.	My emotional reactions are different and unique.	44		69	
N9.	I can imagine myself being lonely, angry, and joyful, all at the same time.	39		50	
N10.	I sometimes experience feelings and emotions that cannot be easily described in ordinary language.	44		61	
N11.	I have felt combinations of emotions that other people probably have never experienced.	42		69	
N12.	I like music, dance, and paintings that arouse new and unusual emotional reactions.	40	42		

Table 1, Continued
First Unrotated (Principal Components) and Oblique (Oblimin) Rotated Factor Loadings

All loadings are listed for the first unrotated factor; only loading equal to or greater than .40 are listed for the rotated factors (decimal points omitted). When an item loaded on more than one rotated factor, secondary and tertiary loadings are indicated in parentheses.

	ECI Item	1st Unrotated Factor	Oblique Rotated Factor Structure 1st	2nd	3rd
N13.	I have emotional experiences that would be considered unusual or out of the ordinary.	46		74	
N14.	When in emotional situations, I tend to respond in a unique manner.	45		62	
N15.	I like to imagine situations that call for unusual, uncommon, or unconventional emotional reactions.	49		61	
N16.	When responding emotionally, I can be quite inventive and innovative.	59	(48)	49	
N17.	I would have to be a poet or novelist to describe the kinds of emotions I sometimes feel, they are so unique.	41		57	
N18.	I can experience a variety of different emotions at the same time.	64	(49)	61	
N19.	I prefer movies and books that depict complex and improbable emotional situations.	44		42	
N20.	The range and diversity of my emotional reactions sometimes exceed my ability to describe how I feel.	41	(42)	52	
N21.	I am able to experience a large number of different emotions.	63	(45)	48	48
E22.	I respond well in situations that call for new or unusual emotional responses.	42			46
E23.	I am good at expressing my emotions.	43			78
E24.	The way I experience and express my emotions helps me in my relationships with others.	54	(52)		60
E25.	My emotions help me achieve my goals in life.	55	(48)		49

Table 1, Continued

First Unrotated (Principal Components) and Oblique (Oblimin) Rotated Factor Loadings

All loadings are listed for the first unrotated factor; only loading equal to or greater than .40 are listed for the rotated factors (decimal points omitted). When an item loaded on more than one rotated factor, secondary and tertiary loadings are indicated in parentheses.

	ECI Item	1st Unrotated Factor	Oblique Rotated Factor Structure 1st	2nd	3rd
E26.	My emotions are a major source of meaning in my life; without them, my life would lack significance.	68	60	(44)	(44)
A27.	I try to be honest about my emotional reactions, even when it causes me problems.	61	(50)		63
A28.	My emotions are almost always an authentic expression of my true thoughts and feelings.	55			71
A29.	My outward emotional reactions accurately reflect my inner feelings.	35			69
A30.	I try to disguise and hide my emotions. (R)	30			73

Note. In the actual inventory, the above items were randomized and interspersed with 15 filler items or with items from other scales. Participants were instructed to rate each item on a scale from 1 ("if the statement is much less true of you than of the average person, or if you strongly disagree with the statement") to 5 ("if the statement is much more true of you than of the average person, or if you strongly agree with the statement"). $n = 489$.

The first rotated factor is most clearly represented by the items designed to measure preparedness, that is, the tendency to think about and pay attention to one's own and other's emotions, to try to understand emotions, and to work on emotional development as much as on intellectual development. As might be expected, however, the person who is well prepared is also more likely to be innovative and proficient in responding; hence, there is some overlap between this factor and the other two.

The second rotated factor reflects the ability to be emotionally innovative; it is defined almost exclusively by novelty items. The one exception is item N12 ("I like music, dance, and paintings that arouse new and

unusual emotional reactions"). Although the item explicitly refers to unusual emotional reactions, its highest loading (.42) was on the first—preparedness—factor.

The third factor emphasizes the ability to express one's emotions effectively and openly; all the items designed to measure effectiveness and authenticity have loadings greater than .40 on this dimension. In the self-report format used here, it was not possible to distinguish between effectiveness and authenticity as separate facets of emotional creativity.

The correlations among the three oblique factors were as follows: Preparedness with Novelty, $r = .40$; Preparedness with Effectiveness/Authenticity, $r = .34$; and Novelty with Effectiveness/Authenticity, $r = .11$.

Subscale formation. For subsequent analyses, the 7 preparedness items were summed to form one subscale with a coefficient alpha of .82. Similarly, the 14 novelty items (alpha = .84) and the 9 effectiveness/authenticity items (alpha = .83) were summed. The correlations among these subscales or facet scores were as follows: Preparedness with Novelty, $r = .51$; Preparedness with Effectiveness/Authenticity, $r = .57$; and Novelty with Effectiveness/Authenticity, $r = .34$. In other words, the Novelty and Effectiveness/Authenticity subscales are the most distinct, with Preparedness linked to each.

Reliability

The coefficient alpha of the 30-item ECI scale (based on 489 subjects) was .90. The entire scale thus shows a high degree of internal consistency. Test-retest reliability was examined by administering the ECI in a course at the beginning and end of the semester, three months apart. The test-retest correlation was .91 ($n = 45$).

Gender Differences

Of the total sample of 489 subjects, 153 were men and 331 were women. Five subjects did not indicate their sex and hence are excluded from any analyses of gender differences. The mean total scores on the ECI were significantly higher for the women than for the men (104.60 versus 100.86, $t(482) = 2.63$, $p < .01$, $d = .26$). To further explore potential gender differences, separate analyses were done on the items designed to measure

Preparedness, Novelty, and Effectiveness/Authenticity. The results are presented in Table 2.

There were statistically significant differences between men and women on the Preparedness and, to a lesser extent, the Effectiveness/Authenticity items. Compared to men, women tend to think more about their own emotions, to be more attentive to the emotions of others, and to experience their emotions as more effective and authentic. There were no statistically significant differences between men and women on the Novelty subscale.

Social Desirability

A tendency to respond emotionally in an unusual fashion, differently from other people, is often viewed negatively, almost as a sign of psychopathology (e.g., Lovejoy & Steurwald, 1992). This raises the possibility that scores on the ECI (especially the Novelty subscale) might be artificially lowered due to a tendency to deny undesirable behavior. On the other hand, emotional sensitivity and authenticity are desirable traits, especially among college students. This raises the possibility that scores on the ECI (especially the Effectiveness/Authenticity subscale) might be artificially raised by a tendency to endorse favorable items.

To explore these possibilities, the ECI was administered to 69 persons (31 men and 38 women), followed by the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964). The Marlowe-Crowne scale (MC) can be divided into two components, termed denial and

Table 2
Differences Between Women (n = 331) and Men (n = 153) in Response to the Preparedness, Novelty, and Effectiveness/Authenticity Items of ECI and to the Total Score

ECI	Women		Men			Effect
Facet	Mean	*SD*	Mean	*SD*	*t*	Size *d*
Preparedness	27.54	4.24	25.66	4.72	4.38***	.43
Novelty	46.29	8.13	45.82	7.18	.54	.05
Effectiveness/ Authenticity	30.81	5.98	29.37	5.89	2.48*	.24
Total	104.60	14.53	100.86	14.64	2.63**	.26

Note. *$p < .05$, **$p < .01$, ***$p < .001$.

attribution (Jorgensen, Schreer, Baskin, & Kolodziej, 1992; Lane, Merikangas, Schartz, Huang, & Prusoff, 1990). The denial component (MC-Dn) consists of the sum of the 15 commonly true but undesirable items that are keyed false (e.g., "I like to gossip at times"). The attribution component (MC-At) consists of the sum of the 18 improbable but desirable items keyed true (e.g., "I never resent being asked to return a favor"). For the sample of 69 subjects, the coefficient alpha for the MC-Dn was .73; for the MC-At, .64; and for the MC-Total, .79.

No statistically significant correlations were found between the ECI and its facets, on the one hand, and the Marlow-Crowne scale and its facets (Denial and Attribution), on the other. The size of the correlations ranged from –.12 to +.12, with that between the ECI-Total score and MC-Total score being a meager $r = .01$. The correlations for men and women considered separately were correspondingly negligible.

To summarize, the ECI can be treated as a single scale with high internal consistency and test-retest reliability. However, it is both conceptually and empirically possible to distinguish among subsets of items assessing Preparedness, Novelty, and Effectiveness/Authenticity; and, as the results with gender differences (Table 2) suggest, it can be informative to do so. Finally, scores on the ECI are not unduly influenced by social desirability, or by a tendency to endorse items in a positive direction.

Study 2. Peer and Self-Ratings of Emotional Creativity

To explore the relation between the ECI and actual behavior, several laboratory studies have been conducted in which participants were asked to write stories or draw pictures of emotionally relevant events (Gutbezahl & Averill, 1996; see also, Averill & Thomas-Knowles, 1991). Controlling for writing and drawing ability, the performance of subjects who scored high on the ECI was judged more creative than the performance of subjects who scored low. For example, high ECI subjects wrote more emotionally innovative endings to a hypothetical conflict situation, and when asked to draw various emotions, they drew more complex pictures and made better use of color and space (Gutbezahl & Averill, 1996).

There is no guarantee, of course, that the ability to describe emotions in writing, or to portray them visually, has any substantial relation to the way emotions are experienced in daily life. One way to explore the

everyday experience of emotion is through peer evaluations. Can people recognize individual differences in emotional creativity among their friends and acquaintances, presumably based on extended observations of everyday behavior? Study 2 was designed to address this question. The study also provided an independent check on the psychometric properties of the ECI, since none of the participants in Study 2 were included in the analyses reported in Study 1 (see Table 1).

METHOD

Fourteen students in an honors course in Personality (4 men and 10 women, hereafter referred to as "peers") were instructed to select pairs of individuals (hereafter referred to as "acquaintances"), matched for gender and roughly for age. One member of each pair was to be, in the opinion of the student-peer, more emotionally creative than the other. (Descriptions of the three criteria for emotional creativity—novelty, effectiveness, and authenticity—were provided to the students and discussed in class.) Each acquaintance was given the ECI to complete.

Each of the fourteen peers returned completed inventories from four to six matched pairs of acquaintances, for a total of 128 persons in all (54 men and 74 women, with a median age of 20 years, range 17–56). Most of the acquaintances were friends and colleagues from the university or workplace, although a few (8%) were relatives (siblings, parents, aunts or uncles). The median length of time acquaintances were known to the peers was one year (range: 3 months to 25 years).

RESULTS AND DISCUSSION

Although the number is smaller than desirable, data from the 128 acquaintances allow a check on the psychometric properties of the ECI.

The ECI: Structure and Internal Consistency

Factor analysis (principal components, oblimin rotation) revealed three interpretable dimensions similar to those reported in Table 1. When the factor structure coefficients for the two Preparedness factors (i.e., from Studies 1 and 2) were correlated over the 30 ECI items, the correlation was .71; that for the two Novelty factors was .93; and that for the two Effectiveness/Authenticity factors was .91. Based on the 128 participants (acquaintances) in Study 2, the coefficient alpha for the seven Preparedness

items was .80; for the 14 Novelty items, .89; and for the 9 Effectiveness/Authenticity items, .80. For the entire 30-item ECI scale, the coefficient alpha was .91. These coefficients are comparable to those reported earlier in Study 1.

Peer Evaluations

For initial analysis, the more creative member of each pair of acquaintances was placed in a high emotionally creative group, and the other member in a low emotionally creative group. Two-way analyses of variance were performed, with group (high versus low creativity) and gender (men versus women) as the independent variables and scores on the ECI as the dependent variable. The mean ECI scores for the high and low creativity groups were 110.95 and 95.20, respectively; statistically, the difference was highly significant (F (1,124) = 33.78, p <.001, d = 1.04). The main effect for gender was also statistically significant (99.93 for men and 105.38 for women, F (1,124) = 4.08, p <.05, d = .36). There was no interaction between creativity grouping and gender.

When the three facets of the ECI (Preparedness, Novelty, Effectiveness/Authenticity) were examined separately, the results paralleled those reported above for the total score, except that there were no significant differences between men and women on the Novelty items. This is the same pattern of results as obtained in Study 1 (see Table 2).

The placement of acquaintances in high and low creativity groups represents a categorical judgment—a judgment, moreover, that was relative to each matched pair of acquaintances. To obtain a more continuous and absolute measure (i.e., one comparable across pairs), peers also rated their acquaintances for emotional creativity on a 5-point scale. The correlation between these peer ratings and the acquaintances' total ECI scores was .48 (p <.001). A correlation of this size is in the upper portion of the distribution of correlations typically found between peer- and self-ratings of personality traits (McCrae & Costa, 1990). Correlations of similar magnitude were obtained for the male acquaintances (.48) and the female acquaintances (.47) considered separately, and for each subscale of the ECI (Preparedness, r = .44; Novelty, r = .36; and Effectiveness/Authenticity, r = .38).

We may conclude from these data that scores on the ECI reflect more than a person's beliefs or implicit theories about emotions; they are also associated with everyday behavior, such that friends and colleagues are

able to identify with a fair degree of accuracy how a person will score on the ECI.

Study 3. Emotional Creativity and the Big Five Personality Traits

METHOD

Recent research suggests that five broad dimensions provide a fairly comprehensive guide to personality: emotional stability versus *neuroticism,* introversion versus *extraversion,* satisfaction with the familiar versus *openness to experience,* hostility versus *agreeableness,* and indifference versus *conscientiousness* (Digman, 1990; McCrae, 1992). The most widely used inventory to assess these dimensions is the NEO Personality Inventory (NEO-PI) developed by Costa and McCrae (1985).

To explore the association between emotional creativity and these Big Five personality dimensions, the ECI and the NEO-PI were administered to 149 students (43 men, 104 women, 2 unspecified; median age = 20, range = 18–45), recruited from a variety of undergraduate psychology classes. The two inventories were administered in counterbalanced order in small group sessions. In addition to completing the ECI and NEO-PI, students were asked to provide their scores on the verbal and mathematical sections of the Scholastic Assessment Test (SAT).[1]

RESULTS AND DISCUSSION

With respect to scholastic aptitude, eight subjects did not indicate their SAT scores, leaving a sample of 141 (40 men, 99 women, 2 unspecified) for this variable. No statistically significant relation was observed between the ECI total score and either the verbal ($r = .11$) or the mathematical ($r = -.04$) portion of the SAT. Neither did the correlations of the men and the women reach statistical significance when analyzed separately. Further discussion of possible relations between emotional creativity and intellectual ability will be delayed until the presentation of additional data from Study 5, reported below.

1. Data on the NEO-PI were collected as part of a first-year graduate project by Jennifer Gutbezahl. As explained earlier, the factor analyses reported in Study 1 included the ECI data from this sample of participants, as well as data from participants in Studies 4, 5, and 6, reported below.

The correlations between the ECI and the five factors assessed by the NEO-PI are presented in Table 3.[2]

Neuroticism

As a personality dimension, neuroticism can be interpreted as a predisposition to negative affect (e.g., Watson & Clark, 1984). But neuroticism also implies an unusualness ("abnormality") of response, and to that extent has features in common with emotional creativity; however, unlike the emotionally creative response, neurotic behavior is ineffective or inauthentic.

The above considerations suggest a positive correlation between the Novelty subscale of the ECI and the Neuroticism dimension of the NEO-PI, but a negative correlation between Effectiveness/Authenticity and Neuroticism. Table 3 indicates that such is the case. The correlations are small but statistically significant, or at least marginally so ($r = .20$, $p < .05$, between the Neuroticism total score and the Novelty items of the ECI, and, in the opposite direction, $r = -.14$, $p = .07$, between Neuroticism and the Effectiveness/Authenticity items). The difference between these two correlations (.20 and −.14) is statistically significant ($T_2 = 3.54$, $df = 146$, $p < .01$).[3]

Being opposite in direction, the above correlations tend to cancel each other out, so that no statistically significant relation was found between the ECI total score and Neuroticism total score ($r = .08$). Of the six facets that make up the Neuroticism scale of the NEO-PI, the ECI total score was significantly correlated only with Impulsiveness ($r = .25$, $p < .01$); this correlation was due primarily to the Novelty subscale of the ECI.

2. The Neuroticism, Extraversion, and Openness dimensions of the NEO-PI can be broken down into six more homogeneous facets each. For the version of the NEO-PI used here, no facet scores were available for the Agreeableness and Conscientiousness dimensions. A revised version of the NEO-PI provides facets for all five dimensions (Costa & McCrae, 1992).

3. Significance levels are based on Steiger's (1980) T_2 statistic for the difference between two dependent correlations. T_2 has a t distribution with $df = n - 3$. All tests of significance reported in this paper are two-tailed, even when results are in a predicted direction.

Table 3
Correlation of the ECI with the Big Five Personality Dimensions as Measured by the NEO-PI

Personality Dimension	Emotional Creativity Inventory			
	Prep	Novelty	E/A	Total
Neuroticism	.06	.20*	−.14	.08
1. Anxiety	.20*	.13	.00	.13
2. Hostility	−.14	.02	−.06	−.06
3. Depression	.05	.21*	−.30***	.01
4. Self-consciousness	.08	.11	−.16	.02
5. Impulsiveness	.11	.30***	.12	.25**
6. Vulnerability	−.04	.13	−.12	.01
Introversion-Extraversion	.05	−.03	.28***	.11
1. Warmth	.21*	.06	.35***	.24**
2. Gregariousness	−.11	−.16	.18*	−.06
3. Assertiveness	−.04	−.11	.22**	.00
4. Activity	.09	−.03	.13	.06
5. Excitement-seeking	−.13	.06	.04	−.03
6. Positive emotions	.20*	.10	.24**	.22**
Openness to Experience	.47***	.56***	.31***	.58***
1. Fantasy	.19*	.46***	.08	.34***
2. Aesthetics	.33***	.49***	.21*	.45***
3. Feelings	.55***	.35***	.56***	.59***
4. Actions	.17*	.21*	.09	.21*
5. Ideas	.24**	.30***	.09	.28***
6. Liberal values	.27**	.22**	.15	.25**
Agreeableness	.31***	.06	.25**	.23**
Conscientiousness	.08	−.20*	.22**	.00

Note. $n = 149$. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Introversion-Extraversion

The relation between emotional creativity and introversion-extraversion is conceptually complex. On the one hand, emotional creativity is facilitated by an awareness of, and focus on, one's own thoughts and feelings, which is more compatible with introversion than with extraversion. On the other hand, most emotions occur in social interaction; and since extraverts are socially more outgoing and adept, they have greater opportunity to engage in and refine their emotional behavior.

The ECI total score was largely independent of Introversion-Extraversion as a whole ($r = .11$, see Table 3). However, the ECI total score was significantly correlated with two of the six facets of Extraversion, namely, Warmth ($r = .24$, $p < .01$) and Positive Emotions ($r = .22$, $p < .01$). These correlations primarily reflect the influence of the Effectiveness/Authenticity subscale of the ECI, which was correlated .28 with the Extraversion total score, .35 with the Warmth facet, and .24 with the Positive Emotions facet.

Openness to Experience

The total score of the ECI correlated $r = .58$ ($p < .001$) with the total score on Openness to Experience. The ECI total score, as well as the novelty items of the ECI, were also significantly correlated with all six of the facets that make up the Openness dimension: The highest correlation was with the Feeling facet ($r = .59$); the lowest, with the Actions facet ($r = .21$). In short, emotional creativity (as measured by the ECI) and openness to experience (as measured by the NEO-PI) are overlapping constructs. The overlap is most evident with respect to the novelty of experience, and somewhat less so for effectiveness/authenticity.

Agreeableness

The correlation between the Agreeableness dimension of the NEO-PI and the ECI total score was .23 ($p < .01$). People who score high on Agreeableness are described as compassionate, good-natured, and cooperative as opposed to proud, skeptical, and competitive. Based on this description, we might expect Agreeableness to be more highly related to the Preparedness and Effectiveness/Authenticity subscales of the ECI than to the Novelty subscale. That was, in fact, the case. Statistically significant relations were observed between Agreeableness and Preparedness ($r = .31, p < .001$) and between Agreeableness and Effectiveness/ Authenticity ($r = .25, p < .01$); no relation was found between Agreeableness and Novelty ($r = .06$). (The difference between the Agreeableness-Preparedness and Agreeableness-Novelty correlations, that is, between .31 and .06, is statistically significant, $T_2 = 3.31$, $df = 146$, $p < .01$).

Conscientiousness

No statistically significant relation was found between Conscientiousness and the ECI total score ($r = .00$). However, Conscientiousness did show a significant negative correlation with the Novelty subscale of the ECI ($r = -.20$, $p < .05$) and a positive correlation with the Effectiveness/Authenticity subscale ($r = .22$, $p < .01$). The difference between these correlations is statistically significant ($T_2 = 4.81$, $df = 146$, $p < .01$).

These relations, though small, are conceptually reasonable. People who score high on the Conscientiousness dimension are described as well-organized, disciplined, and achievement-oriented, as opposed to easygoing and somewhat lackadaisical. Hence, their emotions might be expected to be conventional (lacking in novelty) and, in the ordinary course of events, effective and authentic.

To summarize the results of Study 3 briefly, of the Big Five personality traits, Emotional Creativity, as measured by the ECI, is most closely associated with Openness to Experience, as measured by the NEO-PI. Emotional Creativity is largely independent of Neuroticism, Introversion-Extraversion, and Conscientiousness—but for somewhat different reasons in each case. For example, people who score high on Neuroticism tend toward novel but ineffective emotional responses, whereas people who score high on Conscientiousness show the opposite tendency. Although neither introverts nor extraverts have an advantage in terms of overall emotional creativity, extraverts may have more positive affective experiences and warm interpersonal relations. Finally, people who score high on Agreeableness also tend to think about and value their emotions (preparedness), and are effective in responding; they are not, however, more innovative than their less agreeable counterparts.

Study 4. Emotional Creativity Related to Mysticism, Self-Esteem, and Coping Styles

Broad personality dimensions such as the Big Five provide only a rough outline of a person's response tendencies and capabilities. To fill in the picture, we want to know something about a person's beliefs, the way he or she makes sense of the world. For many people, religion is a major source of meaning. More relevant to our present concerns, religion can be, and often is, a source of profound and creative emotional experiences, from the depths of despair to the heights of ecstasy (James, 1902/1961).

Among the creative emotional reactions often associated with religion is mystical experience.

"When love has carried us above and beyond all things, above the light, into the Divine Dark, there we are wrought and transformed by the Eternal Word Who is the image of the Father; and as the air is penetrated by the sun, thus we receive in idleness of spirit the Incomprehensible Light, enfolding us and penetrating us." That is the way Jan van Ruysbroeck, the 14th century Flemish mystic, described his experiences (quoted in Laski, 1961, p. 428). Needless to say, full-blown mystical experiences are rare—but no more rare than full-blown anxiety attacks. And in more mild degree, mysticlike experiences are not unusual. In a national survey, Greeley (1974) found that 35% of Americans reported having had at least one mysticlike experience, and 5% reported having had such experiences repeatedly. Nor are mystical experiences confined to the religiously inclined, but can be found among people in all walks of life and of secular as well as religious orientation.

The primary purpose of Study 4 was to explore the relation between emotional creativity and the tendency toward unusual, mysticlike experiences. A secondary purpose was to examine the relation between emotional creativity, on the one hand, and self-esteem and coping styles, on the other.[4]

METHOD

Ninety-one volunteers (26 men and 65 women) were recruited from a variety of psychology classes (median age = 19, range: 18–38). Students were encouraged to participate if they considered themselves to be spiritual or religious. In addition to the ECI, the following tests were administered.

Mysticism. The scale developed by Hood (1975) was used to assess mysticlike experiences. Analyses reported by Hood suggest that the scale comprises two dimensions, termed General Mysticism (Factor 1) and Religious Interpretation (Factor 2). Some of the items in Hood's scale (particularly those having to do with an inability to describe experience) overlap in content with items from the Novelty subscale of the ECI. A reanalysis was therefore performed in order to determine whether these items could be eliminated without destroying the integrity or meaning of the subscales.

As a first step (and what proved to be the only necessary step), all items from the original Mysticism scale were reanalyzed using the same procedure as that

4. The data for this study were collected as part of a senior honors thesis by Elena Mirsky.

used by Hood (1975), namely, a principal components analysis and varimax rotation. Results revealed two dimensions similar to those described by Hood. Two subscales were thus constructed, one for General Mysticism and the other for Religious Interpretation. To be included on a subscale, an item had to have a loading greater than .50 on one factor and less than .40 on the other factor; in addition, an item's highest loading had to be on the same factor as originally reported by Hood (1975). Thirteen items did not meet these criteria. Among the excluded items were those pertaining to the ineffability of experience, which, as noted above, overlapped with items from the Novelty subscale of the ECI.

Of the remaining items, eleven met the criteria for inclusion on the General Mysticism subscale (F1); these items emphasize the unity of experience, the transcendence of space and time, the loss of ego boundaries, and a sense that all things are alive. Eight items met the criteria for inclusion on the Religious Interpretation subscale (F2); these items emphasize the holiness or sacredness of an experience, as well as feelings of peace and joy. The correlation between scores on the two subscales (calculated as sums of the items) was .44.

Religious orientation. Batson and Schoenrade (1991a, 1991b) have developed scales to measure Extrinsic, Intrinsic, and Quest religious orientations. People with an Extrinsic orientation accept unreflectively and uncritically their religion as a means to self-serving ends, such as security and social status; people with an Intrinsic orientation are "true believers" who regard their religion as an inherent part of who they are; finally, people with a Quest orientation address existential questions, resisting pat answers.

In contrast to an Extrinsic religious orientation, which focuses on external rewards, both an Intrinsic and Quest orientation might be related to emotional creativity, but for different reasons: an Intrinsic orientation, because of the close identification of the self with a transcendental reality, as implied by most religious beliefs; and a Quest orientation, because it encourages a questioning and open attitude toward issues of fundamental concern.

Authoritarianism. In the secular sphere, the opposite of a Quest religious orientation would be authoritarianism, at least to the extent that the latter involves unquestioning adherence to received authority. A short, 4-item scale of authoritarianism, originally developed for survey research (Lane, 1955), was included in the present study. It was predicted that emotional creativity would be negatively correlated with authoritarianism.

Self-esteem and Self-efficacy. Two common characteristics of creative people are high self-esteem and a faith in one's own abilities (MacKinnon, 1963; Mansfield & Busse, 1981). In the present study, self-esteem was assessed by the Rosenberg (1965) scale, and general self-efficacy was assessed by a scale

developed by Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, and Rogers (1982).

Religious coping style. For many people, religion is not simply a set of beliefs, but also a way of coping. Pargament, Kennell, Hathaway, Grevengoed, Newman, and Jones (1988) have developed scales to measure three styles of coping within a religious context: a *Self-directing* style, which stresses the power of people to deal with their own problems without God's help; a *Collaborative* style, which views both God and the self as active contributors, working together to solve problems; and a *Deferring* style, which places responsibility for problem-solving on God rather than on the self.

Locus of Control. The above religious coping styles have their analogue in the secular sphere. In particular, the Self-directing style and, to a lesser extent, the Collaborative style reflect an internal locus of control as described by Rotter (1966); by contrast, the Deferring style suggests reliance on external forces (a powerful other, namely, God). To assess these more general beliefs, Levenson's (1981) version of the Locus of Control scale was used. This scale assesses beliefs that life events are largely under Internal or personal control, are under the control of Powerful Others, or are the result of Chance or luck.

Creative persons are often described as inner-directed and intrinsically motivated. External demands or rewards may actually inhibit creative efforts (Amabile, 1983). It was therefore predicted that emotional creativity would be more closely associated with an internal locus of control than with an external orientation (powerful others, luck).

Procedure

Subjects were tested in small groups. In order to complete the testing within a one-hour session, some modifications to the original scales were required. Based on similarities in content and style, items from the Emotional Creativity, Mysticism, Locus of Control, Self-efficacy, Self-esteem, and Authoritarianism scales were intermixed and rated on 5-point scales (from "strongly disagree" to "strongly agree"). Items from the Religious Orientation and Religious Coping Styles were intermixed in a separate booklet and rated on 9-point scales (from "strongly disagree" to "strongly agree").

RESULTS AND DISCUSSION

The religious affiliations of the participants were as follows: 56% Catholic, 12% Protestant, 11% Jewish, and 21% other or unspecified. The majority (69%) considered themselves to be "liberal" in their beliefs, as

opposed to "fundamentalist, conservative, or orthodox." Neither denomination nor orthodoxy was associated with emotional creativity. Correlations between the ECI and the other scales are presented in Table 4.

Mysticism. The General Mysticism (F1) subscale, which emphasizes unusualness of experience without explicitly religious overtones, was correlated with the Preparedness subscale of the ECI ($r = .26$, $p < .01$), even more so with the Novelty subscale ($r = .46$, $p < .001$), but hardly at all with the Effectiveness/Authenticity subscale ($r = .09$). By contrast, the Religious Interpretation (F2) subscale was significantly correlated with all three subscales of the ECI; that is, not only with Preparedness and Novelty, but also with Effectiveness/Authenticity ($r = .25$, $p < .05$). This last correlation is reasonable, since the F2 factor includes items referring to peace and joy, states that could be considered "effective" almost by definition and, within a religious context, "authentic."

Religious orientation. No significant correlations were obtained between the ECI and either an Extrinsic or Intrinsic religious orientation (see Table 4). There was support for the hypothesized positive relation between emotional creativity and a Quest orientation ($r = .21$, $p < .05$, for the ECI total score, and $r = .23$, $p < .05$, for the Novelty items alone).

Authoritarianism. The association between the ECI total score and authoritarianism also followed expectations ($r = -.21$, $p < .05$), with roughly equal-sized correlations for all three subscales of the ECI. A correlation of $-.21$ probably underestimates the (inverse) link between emotional creativity and authoritarianism. It may be recalled that the Authoritarianism scale consisted of only four items; based on the present sample of subjects, its coefficient alpha was a meager .44. When corrected for attenuation, the scale's estimated correlation with the ECI total score increased to $-.37$.

Self-esteem and Self-efficacy. The correlation between the ECI total score and the Self-esteem scale also conformed to expectations ($r = .26$, $p < .01$). However, this relation was due entirely to the Preparedness and Effectiveness/Authenticity facets of the ECI; the Novelty facet showed no relation ($r = -.01$) to self-esteem. A similar but less marked pattern obtained for general self-efficacy.

Table 4
Correlation of the ECI with Mysticism, Religious Orientation and Coping Styles, and Related Variables

Scale	Emotional Creativity Inventory			
	Prep	Novelty	E/A	Total
Mysticism				
F1: General	.26**	.46***	.09	.39***
F2: Religious	.40***	.40***	.25*	.46***
Religious Orientation				
Extrinsic	−.06	−.09	.10	−.02
Intrinsic	.14	.16	.01	.14
Quest	.14	.23*	.08	.21*
Authoritarianism	−.14	−.18	−.15	−.21*
Self-esteem	.26*	−.01	.45***	.26*
General self-efficacy	.30**	−.02	.24*	.18
Religious Coping Style				
Self-directing	.06	−.06	.12	.03
Deferring	−.07	.05	−.03	.00
Collaborative	.01	.13	−.05	.06
Locus of Control				
Internal	.13	−.03	.12	.07
Powerful others	−.25*	.06	−.08	−.07
Chance	−.13	.06	−.07	−.03

Note. $n = 91$. *$p < .05$, **$p < .01$, ***$p < .001$.

Religious coping style and Locus of Control. Contrary to prediction, scores on the ECI were not significantly correlated with any of the religious coping styles nor with the Locus of Control scales.

To summarize, Study 4 presents a picture of the emotionally creative person as one who has had experiences that transcend the usual boundaries between self and other, space and time (Mysticism); who is willing to address existential questions in an open and honest fashion (Quest); who is not unduly bound by custom and authority (nonauthoritarian); and who is confident in his or her abilities (Self-esteem and perceived Self-efficacy).

Study 5. Emotional Creativity, Coping, Alexithymia, and Academic Performance

It is somewhat surprising that ECI scores were not related to any of the locus of control or coping scales used in Study 4. Another study was therefore undertaken, using different measures of these variables.

Study 5 also explored the relation of emotional creativity to alexithymia, a clinical condition that involves an inability to identify and describe one's own emotional experiences. Emotional creativity, too, involves experiences that are difficult to describe in ordinary language, and hence there is some overlap between the two conditions. However, there also are important differences. For example, people suffering from alexithymia are reported to have an impoverished fantasy life, a reduced ability to experience positive emotions, and susceptibility to poorly differentiated negative affect (Taylor, 1994). Such characteristics are antithetical to emotional creativity as here conceived.

Finally, in this study we return to an issue introduced in Study 3, namely, the relation of emotional creativity to academic performance (as measured by SAT scores and grade point averages).

METHOD

Eighty-nine volunteers (28 men and 61 women) were recruited from a variety of psychology classes. The median age was 20 years (range: 17–35). In addition to the ECI, the following tests were administered in small group sessions lasting less than one hour.

Locus of Control. The original scale developed by Rotter (1966) was used to assess expectancies toward internal or external control. A high score represents external expectancies.

Ways of Coping questionnaire. This questionnaire, developed by Folkman and Lazarus (1988), assesses eight coping strategies:

1. *Confrontive coping*—attempts to alter the situation through hostile or risk-taking activity (6 items, e.g., "Stood my ground and fought for what I wanted");
2. *Distancing*—minimizing the significance of the situation, or detaching oneself emotionally (6 items, e.g., "Made light of the situation; refused to get too serious about it");

3. *Self-controlling*—efforts to regulate one's feeling and actions (7 items, e.g., "I tried to keep my feelings to myself");
4. *Seeking social support*—attempts to gain information or support from others (6 items, e.g., "Talked to someone to find out more about the situation");
5. *Accepting responsibility*—acknowledging one's own role in the situation and attempting to put things right (4 items, e.g., "Realized I brought the problem on myself");
6. *Escape-avoidance*—wishful thinking and/or behavioral efforts to avoid, but without minimizing the significance of, events (8 items, e.g., "Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.");
7. *Planful problem-solving*—deliberate and analytic approaches to solving the problem (7 items, e.g., "I made a plan and followed it"); and
8. *Positive reappraisal*—finding positive meaning by focusing on personal growth (7 items, e.g., "I came out of the experience better than when I went in").

Participants were asked to think about the most stressful situations they had experienced during the *past month* and to choose the one that best represents how they *typically* cope with stress. Each item was then rated on a 4-point scale, from "does not apply or not used" (1) to "used a great deal" (4). No predictions were made regarding possible relations between the ECI and coping strategies. However, in contrast to the gross distinction between internal and external control expectancies, it was expected that analyses of specific coping strategies might provide a more fine-grained picture of how emotionally creative people typically deal with stressful situations.

Toronto Alexithymia Scale (TAS-20). As reported by Bagby, Parker, and Taylor (1994), the TAS-20 consists of three subscales identified on the basis of factor analysis. Factor 1 (7 items) assesses a person's *difficulty identifying feelings* as distinct, say, from bodily sensations (e.g., "I am often confused about what emotion I am feeling"); Factor 2 (5 items) reflects *difficulty describing feelings* or communicating feelings to others (e.g., "It is difficult for me to find the right words for feelings"); Factor 3 (8 items) indicates a preference for *externally oriented thinking*, that is, a focus on external details as opposed to internal experiences (e.g., "I prefer talking to people about their daily activities rather than their feelings").

Procedure

The above items were administered in small group sessions in two semicounterbalanced orders. For one order, the sequence was ECI, Locus of Control, Ways of Coping, and Alexithymia (TAS-20). For the other order, this sequence was reversed. A "Prior Experiences Questionnaire" (which will be described below as part of Study 6) was administered following the personality and coping measures. The last portion of the questionnaire asked for demographic data, including scores on the verbal and mathematical portions of the Scholastic Assessment Test (SAT) and (for students who had attended the university for at least one year) their grade point average.

Preliminary analyses indicated no statistically significant effects due to order on any of the scales. The data were therefore collapsed across orders.

RESULTS AND DISCUSSION

The correlations of the ECI with each of the other scales are presented in Table 5.

Locus of Control. Consistent with the results of Study 4, no statistically significant correlation was observed between the total ECI scores and internal-external control expectancies. However, a negative relation was observed between the Effectiveness/Authenticity subscale and an external orientation ($r = -.27$, $p < .05$).

Coping strategies. Four participants did not complete the Ways of Coping questionnaire in usable fashion (e.g., they left some items blank or got out of sequence, thus making scoring problematic). Table 5 shows that for the remaining 85 participants, total ECI scores were significantly correlated with four of the eight ways of coping (Self-controlling, $r = .26$, $p < .05$; Seeking Social Support, $r = .33$, $p < .01$; Planful Problem-solving, $r = .27$, $p < .05$; and Positive Reappraisal, $r = .26$, $p < .05$).

Although not associated with the ECI total score, the coping strategy of Escape-Avoidance deserves brief comment. This strategy was positively correlated with the ECI Novelty subscale ($r = .31$, $p < .01$) and negatively correlated with the Effectiveness/Authenticity subscale ($r = -.18$, $p < .10$), a statistically significant difference between correlations ($T_2 = 3.88$, $df = 82$, $p < .01$). These contrasting associations make sense, given the nature of the scales. The Escape-Avoidance scale emphasizes the use of fantasy (wishful thinking) and unusual coping responses to

Table 5
Correlation of the ECI with Locus of Control, Ways of Coping, and Alexithymia (n = 89, unless otherwise stated)

Scale	Emotional Creativity Inventory			
	Prep	Novelty	E/A	Total
Locus of Control				
Internal-external	−.07	.11	−.27*	−.08
Ways of Coping (n = 85)				
Confrontive coping	−.08	.04	.03	.01
Distancing	−.10	−.08	−.06	−.10
Self-controlling	.23*	.25*	.13	.26*
Seeking social support	.27*	.21	.33**	.33**
Accepting responsibility	.24*	.13	−.03	.13
Escape-avoidance	−.07	.31**	−.18	.07
Planful problem-solving	.33**	.15	.21	.27*
Positive reappraisal	.22*	.10	.32**	.26*
Alexithymia				
F1: Difficulty identifying	−.01	.39***	−.45***	.02
F2: Difficulty describing	−.24*	.18	−.64***	−.25*
F3: Externally oriented	−.65***	−.46***	−.37***	−.61***
Total	−.37***	.09	−.66***	−.34**

Note. *$p < .05$, **$p < .01$, ***$p < .001$.

stress (e.g., eating, drinking, sleeping). Such strategies are not only unusual, they are also likely to be ineffective. Indeed, they might be considered more a sign of neuroticism than creativity. In support of this interpretation, both the Escape-Avoidance coping scale and the Neuroticism scale from the NEO-PI show the same pattern of correlations with the ECI, namely, a positive association with Novelty, and a negative association with Effectiveness/Authenticity (cf. Tables 4 and 6).

In short, scores on the ECI are not related to any single coping strategy. Rather, emotionally creative people may use a variety of strategies to fit the circumstances. Flexibility, however, does not preclude preferences. The strategies most associated with emotional creativity tend to emphasize control over one's own behavior and the situation, whether through individual or collective action.

Alexithymia. As previously described, the alexithymia scale (TAS-20) consists of three factors: F1 refers to the inability to identify emotional

feelings and to distinguish them from bodily sensations; F2 reflects an inability to describe or communicate feelings to others; and F3 assesses externally oriented thinking, which is not to be confused with an external locus of control. Externally oriented thinking (F3) implies a focus on situational details at the expense of imagination and feeling.

As expected, there was a negative correlation between the ECI total score and the TAS-20 total score ($r = -.34$, $p < .01$). Of greater interest is the way the various subscales of both tests are related to one another. The ECI Effectiveness/Authenticity subscale, and to a lesser extent the Preparedness subscale, were negatively correlated with all three facets of alexithymia, but that was not the case with respect to the Novelty subscale. For example, the correlation between the ECI Effectiveness/Authenticity subscale and the F1 dimension of the TAS-20 (i.e., difficulty identifying emotions) was –.45 ($p < .001$); in contrast, the ECI Novelty subscale showed an almost equally large correlation with F1, but in the opposite direction ($r = .39$, $p < .001$). The difference between these two correlations is highly significant ($T_2 = 8.16$, $df = 86$, $p < .001$). A similar pattern was obtained for the F2 (difficulty describing) dimension of the TAS-20, which was negatively associated ($r = -.64$, $p < .001$) with Effectiveness/Authenticity, but positively associated ($r = .18$, $p < .10$) with Novelty ($T_2 = 8.38$, $df = 86$, $p < .001$, for the difference between these two correlations).

These data indicate that people can have difficulty identifying and describing their emotions for two very different reasons, as evidenced by two very different outcomes. For alexithymics, the difficulty is due to the vagueness and shallowness of experience; for emotionally creative persons, it is due to the complexity and originality of experience.

It is also worth noting that the F3 (externally oriented) dimension of the TAS-20 was negatively correlated with all three subscales of the ECI, that is, with Novelty ($r = -.46$) as well as with Preparedness ($r = -.65$) and Effectiveness/Authenticity ($r = -.37$, all $ps < .001$). Emotionally creative people are sensitive to environmental details, and especially to the behavior of other people (Averill & Thomas-Knowles, 1991); unlike alexithymics, however, they are also attuned to their own thoughts and feelings.

Intellectual Ability and Academic Performance

The participants in Study 5 were asked to give their SAT scores (as measures of intellectual ability) and their grade point averages (as measures of academic performance).

Intellectual ability. Out of the total sample of 89 participants, 68 reported their SAT verbal scores, and 69 their SAT mathematical scores. There was a small positive relation between ECI total scores and SAT verbal scores ($r = .17$), and a small negative correlation with the SAT mathematical scores ($r = -.14$). Neither correlation was statistically significant. This is consistent with the results of Study 3 reported earlier. There, too, no statistically significant correlations were found between ECI total scores and either the SAT verbal or mathematical scores ($r = .11$ and $-.04$, respectively).

In prescreening for yet another study (Gutbezahl & Averill, 1996), a short version of the ECI consisting of 14 items was administered to 891 students. The correlation between the abbreviated ECI and SAT verbal scores was .10 ($p < .01$); and between the ECI and SAT mathematical scores, a nonsignificant .01. Thus, a relation may in fact exist between emotional creativity, as measured by the ECI, and verbal ability, but if so, it is so small that a large sample of subjects is required for a test powerful enough to reach statistical significance. On the other hand, there appears to be no discernable relation between emotional creativity and mathematical ability, at least among undergraduate students attending a large state university.

Academic performance. Academic performance can be influenced by numerous personality and motivational factors other than intellectual ability. Considering the stresses of academic life, as well as the vicissitudes of friendship and romantic relationships experienced by many students, emotional creativity might well be one of those factors. Indeed, Averill and Thomas-Knowles (1991) found a preliminary version of the ECI to be positively related to self-reported grade point averages among a sample of 98 undergraduate students ($r = .26$, $p < .01$).

Participants in Study 5 also were asked their grade point averages, provided they had been students at the university for at least one year ($n = 74$). The results were in the same direction as the results found by Averill and Thomas-Knowles (1991), but not statistically significant

($r = .18$, $p > .10$). It thus remains an open question whether emotional creativity contributes to academic performance, independent of scholastic aptitude.

Study 6. Prior Experience

"What doesn't kill me makes me stronger." This anecdotal observation by Nietzsche is supported by considerable empirical research (e.g., Aldwin, Sutton, & Lachman, 1996). Of particular relevance to present concerns, it has been found that early trauma (e.g., the death of a parent) may lead to novel, if not always effective, approaches to later problems (Albert & Runco, 1986). Pilot data using an abridged version of the ECI suggested that prior traumatic experiences may also be associated with emotional creativity. Study 6 explored this possibility further.[5] The study used the same participants as Study 5; however, since the issues are conceptually distinct, the data on prior experience are treated as a separate study.

METHOD

Following completion of the Locus of Control, Ways of Coping, and Alexithymia scales, the 89 participants in Study 5 were asked to complete a questionnaire designed to assess (1) prior traumatic experiences, (2) hassles and minor disappointments during childhood and adolescence, (3) benefits gained from prior experience, and (4) general happiness/unhappiness during childhood and adolescence.

To assess prior *traumatic experiences,* 18 possible events were listed on the questionnaire, such as death of a parent, parents' divorce, serious accident, physical assault, rape, and verbal abuse as a child. For each event, participants checked if it happened to them and, if so, at what age(s); and they rated on a 5-point scale the severity of the event, from "not at all traumatic" (1) to "extremely traumatic" (5). An "other" category was also provided so that subjects could rate any event not included among the list of 18.[6]

After completing the list of traumatic events, participants were asked to indicate how much they had experienced *hassles and minor disappointments.*

5. Thanks are due Matthew Girdharry and Nurit Ben Harav for their assistance in collecting and analyzing these data.

6. Thanks are due Ronnie Janoff-Bulman for providing the list and format for assessing the eighteen traumatic events, based on her own research on early traumatic experiences (cf. Janoff-Bulman, 1992).

Two age periods were stipulated: childhood (before age 12) and adolescence (from 12 to 18). For each age period, participants rated the extent to which their lives involved "few hassles and disappointments" (1) or was "full of hassles and disappointments" (5).

To assess the benefits that might have accrued from overcoming hardships, subjects were asked to rate whether today they are now "much worse off" (1) or "much better off" (5) because of their prior experiences. Again, separate ratings were made for experiences that occurred during childhood (before age 12) and during adolescence (from 12 to 18).

Finally, participants were instructed to take into account the positive as well as negative things that happened to them and to rate both their childhood and their adolescence on scales that ranged from "very happy" (1) to "very unhappy" (5).

RESULTS AND DISCUSSION

Prior Experience

Of the 18 traumatic events listed in the questionnaire, the most commonly cited were the "death of someone close, other than a parent or sibling" (reported by 40 participants—45% of the sample), followed by "parents' divorce" (26%), "verbal abuse" (20%), "nonsexual physical abuse" (9%), "serious accident" (8%), and "parent or sibling diagnosed with a life-threatening illness" (8%). The least frequent event, which happened to only one person, was "home destroyed by fire or natural disaster."

Subjects were asked to indicate the age at which an event occurred. To control for the fact that older participants had more opportunity to experience traumatic events, only experiences that occurred prior to age 18 were counted. A further breakdown by age did not seem warranted for two reasons: First, an event that occurred during childhood (e.g., parents' divorce) might not have exerted its major influence until a later age (e.g., during adolescence); and second, when multiple events occurred at different ages (e.g., parents' divorce at age 6, the death of someone close at age 12, and a serious accident at age 17), it would be impossible to isolate one age as causally more important than another.

Some participants experienced the same kind of event (e.g., the death of someone close) more than once; nevertheless, each category was counted only once. The severity ratings presumably reflect a kind of subjective summary of the trauma experienced due to any one kind of trauma.

The median number of categories—types of traumatic events—cited was 1 (range 0 to 6), and the median severity score (summed over all categories) was 4 (range 0 to 28). Since the data were highly skewed toward the upper end, a square-root transformation was applied before further analysis. As Table 6 indicates, the Preparedness and Novelty subscales of the ECI were significantly correlated with the number of different kinds of trauma experienced ($r = .40$ and .47, respectively), as was the total ECI score ($r = .46$, $ps < .001$). The severity ratings yielded nearly identical results.

These data can be interpreted in either of two ways: Prior traumatic experiences may lead a person to think about and be more innovative in emotional response; or, the person who thinks about and is innovative emotionally may better remember or interpret prior events as traumatic. However, since most of the traumatic events listed on the questionnaire are objective (such as death of someone close or parents' divorce), a retrospective reinterpretation of events is not likely to be the entire story.

Correlations between the ECI and ratings of *hassles and minor disappointments* were similar in direction and magnitude to those obtained for prior traumatic experiences (see Table 6).

In analyzing the data for *benefits gained,* subjects were included only if they had mentioned at least one traumatic experience or had rated their hassles and minor disappointments at or above the midpoint (3) on the 5-point scale. Fifty-five subjects met these criteria for childhood experiences, and 76 for adolescent experiences. As can be seen from Table 6, participants who indicated they were "better off" today because of their prior experiences also tended to score higher on the Effectiveness/Authenticity subscale of the ECI ($r = .39$, $p < .01$, for events during childhood, and $r = .29$, $p < .05$, for events during adolescence). However, because of negligible (even slightly negative) associations with novelty, no statistically significant correlations were obtained between long-term benefits and ECI total scores. This is the same pattern of results, it might be noted, as that obtained in Study 5 for the "Positive Reappraisal" strategy of the Ways of Coping questionnaire (see Table 5). Realistically or not, people who score high on the ECI (especially the Effectiveness/Authenticity subscale) tend to believe that they have profited from stressful experiences, whether those experiences occurred within the past month (as in Study 5) or long ago (as in Study 6).

Traumatic experiences do not preclude good things happening to a person, and even when circumstances leave much to be desired, people

Table 6
Correlation of the ECI with Prior Experience (n = 89, unless otherwise stated)

Scale	Emotional Creativity Inventory			
	Prep	Novelty	E/A	Total
Prior Traumatic Events				
Number (types) of events	.40***	.47***	.19	.46***
Severity ratings	.41***	.46***	.20	.46***
Hassles and Disappointments				
Childhood	.26*	.31**	.12	.31**
Adolescence	.29**	.53***	−.04	.37***
Long-Term Benefits				
Childhood (n = 59)	.16	−.07	.39**	.19
Adolescence (n = 76)	.21	−.01	.29*	.18
General Unhappiness				
Childhood	.06	.14	.02	.10
Adolescence	.07	.26*	−.05	.15

Note. *$p < .05$, **$p < .01$, ***$p < .001$.

tend to rate themselves as more happy than not (Diener & Larson, 1993). Participants were therefore asked to rate their happiness-unhappiness during childhood and adolescence on 5-point scales, with a *low* score indicating greater happiness. The mean ratings for both age groups were 2.1 and 2.7, respectively. That is, on average, participants rated their childhood and adolescence as slightly more happy than unhappy (the midpoint on the scale being 3).

ECI total scores were not significantly related to ratings of happiness-unhappiness during either childhood or adolescence. There was, however, some suggestion of a relation ($r = .26, p < .05$) between an unhappy adolescence and the novelty subscale of the ECI.

In summary, the data from Study 6 suggest that prior traumatic experiences and minor disappointments may contribute to the development of emotional creativity. In particular, such experiences lead to (and to some extent may result from) a tendency to think about and try to understand one's emotions (preparedness) and to have more unusual experiences (novelty). On the other hand, the perceived effectiveness/authenticity (in contrast to novelty) is more associated with presumed

benefits derived from prior experience than with the number or severity of such experiences.

SUMMARY AND CONCLUSIONS

A self-report inventory (the ECI) has been constructed to explore the structure and correlates of emotional creativity. The major results of six studies using this inventory can be summarized as follows:

1. Factor analysis of the ECI indicates that three facets of emotional creativity can be distinguished empirically as well as conceptually, namely, Preparedness, Novelty, and Effectiveness/Authenticity. (Study 1)

2. Women score higher than men on the Preparedness and Effectiveness/Authenticity facets of the ECI, but there is little if any gender difference on the Novelty facet. (Study 1)

3. People who score high on the ECI are also judged by their peers to be emotionally creative, presumably on the basis of everyday behavior. For example, the correlation between ECI total scores and peer ratings was $r = .48$, with a 95% confidence interval (CI) from .34 to .61.[7] (Study 2)

4. Of the Big Five personality traits, the ECI total score is correlated substantially with Openness to Experience ($r = .58$, 95%CI = .44 to .66) and modestly with Agreeableness ($r = .23$, 95%CI = .07 to .37). (Study 3)

5. The ECI total score is not significantly related to either Neuroticism or Extraversion, two dimensions of personality associated with positive and negative emotionality, respectively. However, the Novelty facet is modestly correlated with Neuroticism ($r = .20$, 95%CI = .04 to .35), and the Effectiveness/Authenticity facet with Extraversion ($r = .28$, 95%CI = .13 to .42). (Study 3)

6. Emotional creativity is also associated with mysticlike experiences, which suggests a fluidity of ego boundaries. For example, the

7. To indicate the probable range within which the true correlations lie, the 95% confidence intervals are presented along with these summary statistics. Following the convention suggested by Cohen (1988), a correlation of .10 has a small effect size, .30 a medium effect size, and .50 a large effect size.

correlation between the General Mysticism scale and the ECI Novelty facet was $r = .46$, 95%CI = .28 to .61, and that between General Mysticism and ECI total scores was $r = .39$, 95%CI = .20 to .55. (Study 4)

7. Emotionally creative people tend to be confident in their own capabilities (e.g., $r = .26$, 95%CI = .06 to .44, between ECI total scores and ratings of self-esteem), and they are not daunted by custom or authority (e.g., $r = .21$, 95%CI = .01 to .40, between ECI total scores and a Quest religious orientation). (Study 4)

8. When faced with a stressful situation, emotionally creative people use a range of coping strategies, as assessed by the Ways of Coping questionnaire, but tend to prefer strategies that emphasize self-control ($r = .26$, 95%CI = .05 to .45), planful problem-solving ($r = .27$, 95%CI = .06 to .46), seeking social support ($r = .33$, 95%CI = .13 to .50), and positive reappraisal ($r = .26$, 95%CI = .05 to .45). (Study 5)

9. Although emotionally creative people sometimes have difficulty describing their feelings, their emotional life differs substantially (particularly in terms of effectiveness and authenticity) from that of alexithymics, who also report difficulties in describing their feelings (e.g., $r = -.34$, 95%CI = −.14 to −.51 between the ECI total score and the TAS-20 total score, and $r = -.66$, 95%CI = −.53 to −.77 between Effectiveness/Authenticity and TAS-20 total score). (Study 5)

10. Early trauma and hassles may predispose a person to emotional creativity (e.g., $r = .46$, 95%CI = .28 to .61 between ECI total scores and the number of prior traumatic events). (Study 6)

These results are consistent with emotional creativity as a theoretical construct (see also Averill & Nunley, 1992; Averill & Thomas-Knowles, 1991; Gutbezahl & Averill, 1996; Nunley & Averill, 1996). Still, an important question remains to be addressed: Is emotional creativity distinct from creativity in other domains, particularly from intellectual creativity?

As discussed in connection with Study 5, emotional creativity shows little relation to intellectual ability, at least as measured by SAT scores. It would be a mistake, however, to draw too sharp a distinction between the emotional and intellectual domains. Emotional appraisals depend on

the capacity to make fine discriminations in situations that are often complex, ambiguous, and stressful; a good deal of information processing also goes on between the appraisal of situational cues and the manifestation of an emotional response; and finally, the expression of emotion is not automatic, but depends on a certain finesse, both verbal and behavioral. It is no wonder that human beings are the most emotional as well as the most intelligent of animals; the two domains have evolved together and, indeed, are separable more in theory than in fact.

Overlap among domains of creativity does not, however, preclude specificities. People who are highly creative in one area seldom achieve eminence in another; for example, creative writers typically are not great scientists, artists, or business entrepreneurs, and vice versa. Even within domains of creative endeavor—writing poetry, say, as opposed to writing prose—specificity can be found (Baer, 1993). Similar arguments could undoubtedly be made for specificity within the domain of emotion. People who are creative in affectionate ways may well be conventional with respect to aggression, say, or avoidance.

Whether we find specificity or generality depends, in part, on the level at which we identify our constructs. Behavior is hierarchically organized. Emotional creativity is a "midlevel" construct. Looking upward in the hierarchy, we can expect to find increasing generality (e.g., between emotional and intellectual creativity); looking downward, increasing specificity (e.g., among types of emotion).

One final point: The present series of studies has emphasized individual differences in emotional creativity; this is not to gainsay the importance of situational factors for creativity of any kind (Amabile, 1983; Gardner, 1993). However, personal and situational variables are not in opposition to each other. During the normal course of events, people seek out or help create the situations to which they respond. But whether or not we seek challenge, challenge will almost inevitably find us. And when faced with potential misfortune, or even unusual good fortune, we can all be more creative than most traditional theories of emotion would suggest.

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