

# The Experience and Meta-Experience of Mood

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Mood experience is comprised of at least two elements: the direct experience of the mood and a meta-level of experience that consists of thoughts and feelings about the mood. In Study 1, a two-dimensional structure for the direct experience of mood (Watson & Tellegen, 1985) was tested for its fit to the responses of 1,572 subjects who each completed one of three different mood scales, including a brief scale developed to assist future research. The Watson and Tellegen structure was supported across all three scales. In Study 2, meta-mood experience was conceptualized as the product of a mood regulatory process that monitors, evaluates, and at times changes mood. A scale to measure meta-mood experience was administered to 160 participants along with the brief mood scale. People's levels on the meta-mood dimensions were found to differ across moods. Meta-mood experiences may also constitute an important part of the phenomenology of the personal experience of mood.

Mood can be experienced on both a direct and a reflective level. At the direct level, mood appears to be perceived along pleasant-unpleasant and arousal-calm dimensions (Russell, 1978; Russell & Bullock, 1986; Wundt, 1897) or their rotated variants (Diener & Emmons, 1984; Watson & Tellegen, 1985). The basic moods, such as happiness, anger, fear, sadness, and surprise (Ekman, Levenson, & Friesen, 1983; Izard, 1977; Plutchik, 1980; Tomkins, 1984), can be arranged within this dimensional structure. For example, happiness is high in pleasantness and moderate in arousal. These pleasant-unpleasant and arousal-calm dimensions organize not only basic moods, but also the emotional content of cognitions (Abelson & Sermat, 1962; Mayer, 1986; Mayer & Bremer, 1985; Osgood & Suci, 1955), including, perhaps, the cognitions that in part make up the reflective experience of mood.

The reflective experience of mood arises in response to the direct perception of mood. At times, researchers have examined portions of such reflective experience, including cognitions that monitor a given mood (Scheier & Carver, 1982), evaluate the relation between mood and judgment (Mayer, Mamborg, & Volanth, in press; Mayer & Volanth, 1985), maintain good moods (Isen, 1984), or cope with and repair bad moods (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Isen, 1984). A possible next step in such research is to develop an approach that integrates these various kinds of reflective experiences with each other and with the direct experience of mood.

One way to integrate such reflective experiences is to think of them functionally, as the products of a regulatory process

that monitors, evaluates, and sometimes acts to change mood (Clark & Isen, 1982; Isen, 1984). Such a view permits an approximate specification of the domain of reflective or *meta-mood* experience and provides a structure for organizing what might be included within it. This regulatory process is potentially important because, unlike mood, it may be directly under the individual's control and may directly modulate mood itself.

## Introduction to the Present Studies

The two studies reported in this article replicate and extend past findings about the dimensional representations of mood and then examine these mood dimensions in combination with the (to-be-determined) dimensions of meta-mood experience. There are still a number of unknowns concerning both direct mood experience and meta-mood experience. These knowns and unknowns are described next.

Psychologists often seek to simplify broad sets of related phenomena, such as the different types of moods, by grouping together those varieties most similar to one another. Members of such groups can then be treated as functional equivalents. One way of classifying and arranging such groups is along dimensions, where the items at one end of the dimension are equivalent and those at the other end are their opposite. An empirical method of arriving at such dimensions is through the use of factor analysis or related techniques. It was due to factor analytic findings in mood research (Russell, 1979) that psychologists first revived portions of a dimensional framework that had been outlined by Wundt (1897). In this framework, moods are arranged within a space defined by pleasant-unpleasant (I) and arousal-calm (II) dimensions, crossing at right angles to each other. Similar empirical findings were also found with the related mathematical technique of multidimensional scaling (e.g., Russell, 1979; Russell & Bullock, 1986). Until recently, however, the use of this venerable two-dimensional structure was complicated by the fact that an alternative two-dimensional method for organizing moods existed, which was also commonly obtained using factor analysis and other methods. These alternate dimensions were described by the positive-tired (I')

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and negative-relaxed (II') dimensions (often abbreviated positive and negative affect, respectively). Despite similarities between the names of some dimension poles, each pole was considered different, and each identified with its own mood adjective group that differed—sometimes subtly—in hedonic tone from other such adjective groups. For example, pleasant adjectives included *happy*, *kindly*, and *warmhearted*, whereas positive adjectives included *active*, *elated*, and *peppy*. It was unclear how these different but equally valid dimensional models of the mood domain were related to one another.

Watson and Tellegen (1985) have recently introduced evidence that the alternative frameworks occurred because some researchers were using unrotated factors (yielding pleasant and arousal dimensions), whereas others were using varimax-rotated dimensions (yielding positive and negative dimensions). Thus, the second pair of dimensions is simply a 45° rotation of the first. If this were true, it would mean that researchers had been describing the same two-dimensional mood region all along, but that the region appeared superficially different from study to study as if, by analogy, some researchers had charted a territory north-south and east-west, whereas others had charted it northwest-southeast and northeast-southwest. If it were true that researchers had been describing the same two-dimensional mood space, then verification would free them to examine other important issues in the area. One aim of this article is to confirm Watson and Tellegen's structural model by examining data from three mood scales we administered to large samples. In this way we determined whether the different rotations do in fact yield the factors as predicted.

A secondary issue is that the initial measurements of mood were carried out in part to test hypotheses about its dimensional structure, and thereby required relatively exhaustive item samples of 50 to 100 or more mood adjectives (Lorr, McNair, & Fisher, 1982; McNair, Lorr, & Droppleman, 1971; Nowlis, 1965; Russell, 1979; Zevon & Tellegen, 1982). Yet, both naturally occurring and experimentally induced moods change rapidly, in from 4 to 15 min (Isen & Gorgoglione, 1983; Mayer et al., in press). For that reason, one of the three scales presented in Study 1 is new and intentionally brief so as to permit later simultaneous measures of mood and meta-mood experience in Study 2.

Having explored the direct experience of mood in Study 1, the reflective, meta-mood level of experience is examined in Study 2. The dimensional structure of this overall domain is unknown. To determine it, propositions thought to reflect a mood regulatory process were combined into a scale, scale responses were factor analyzed, and the resulting factors were, in turn, related back to the original mood dimensions.

### Study 1

Study 1 was conducted to test two hypotheses. The first hypothesis, originally proposed by Watson and Tellegen (1985), was that two pairs of mood dimensions would be found: pleasant-unpleasant (I) and arousal-calm (II) and also positive-tired (I') and negative-relaxed (II'), where the second set of dimensions are 45° rotations of the first set of dimensions in the same factor space. A subsidiary purpose of Study 1 was to develop a short, factor-based mood scale that can measure these factors well and, by accommodating to mood's temporal variation

through its brevity, can provide a sharper description of mood at a given time.

### Method

#### Subjects

The subjects were 1,572 undergraduates divided roughly equally among the following colleges and universities: the State University of New York at Purchase, Pace University, and Westchester Community College (in the New York metropolitan area); and Stanford University, the University of Santa Clara, and Cañada, De Anza, and Foothill Community Colleges (on the San Francisco peninsula). Four hundred and fifty-seven of the subjects completed the Brief Mood Introspection Scale, 566 completed the Mood Introspection Scale, and 549 completed the Russell Adjective Scale.

#### Measures

The Brief Mood Introspection Scale (BMIS) is a mood adjective scale with an item sample of 16 adjectives, 2 selected from each of eight mood states: (a) happy (*happy*, *lively*), (b) loving (*loving*, *caring*), (c) calm (*calm*, *content*), (d) energetic (*active*, *peppy*), (e) fearful/anxious (*jittery*, *nervous*), (f) angry (*grouchy*, *fed up*), (g) tired (*tired*, *drowsy*), and (h) sad (*gloomy*, *sad*).

The Mood-State Introspection Scale (MIS) is a 62-item adjective checklist (Mayer et al., in press) with 10 mood subscales. Eight of the mood subscales correspond to the eight mood states sampled by the BMIS, but each is represented by seven adjectives. The MIS thereby provides a far more exhaustive sample of the mood domain; the generality of the sample is further enhanced by 2 additional subscales, each measuring a loose group of moods for which fewer adjectives are available (e.g., *boredom*, *pride*).

The Russell Adjective Scale (RAS) is a 58-item adjective checklist with 11 subscales designed to measure the factors of mood; it is reported in detail elsewhere (Russell, 1979).

*Item overlap.* Most mood adjective scales share in common a prototypical set of items such as *happy*, *sad*, *nervous*, and others. Some differences in items, however, should be present among the scales so as to provide partially independent tests of the factorial models under consideration. Because the BMIS is a short form of the MIS, all of its items overlap with the longer scale; however, 31% of the BMIS adjectives are independent of the RAS. The MIS is 74% independent of the BMIS and 47% independent of the RAS. Finally, the RAS is 82% independent of the BMIS. The scales are therefore sufficiently different in item composition to provide a rigorous test of the Watson and Tellegen (1985) structural model.

*Response format.* The response format for all three scales was the same and was chosen to reduce response bias in mood report as well as to ensure normally distributed responses for each adjective (Meddis, 1972). It is a 4-point scale anchored by (XX) *definitely do not feel*, (X) *do not feel*, (V) *slightly feel*, and (VV) *definitely feel*; these anchors are assigned numerical values of 1 to 4, respectively, for scoring.

*Procedure.* Instructions for all three scales asked subjects to "Circle the response on the scale below that indicates how well each adjective or phrase describes your present mood." The mood scales were collected over the course of a number of other studies that investigated the relation between mood and judgment.

### Results

#### Confirmation of the Watson and Tellegen Findings

*Factor extraction.* Watson and Tellegen (1985) used principal-axis factor analyses in their work. The same technique is

applied here. Each analysis was also conducted with principal-components extractions; but as no major differences were observed between these two methods, only the principal-axis factor analysis is reported. When Watson and Tellegen extracted their factors they found that, when taking the median across scales, the initial 3 factors explained 39, 19, and 9% of the variance common to the first 10 factors. Applying the same principal-axis factor analysis here yielded 3 initial factors that, taking the median across scales, explained 41, 15, and 9% of the variance of the first 10 factors. Thus, the pattern of variance accounted for is equivalent across studies. In both studies it is also supportive of extracting 2 factors because of the rapidly decreasing amounts of variance explained by each succeeding factor.

Recall that the first 2 factors of the principal-axis factor analysis were predicted to be the pleasant-unpleasant and arousal-calm mood dimensions. Also recall that when these two factors were rotated (by themselves) to a varimax criterion, they were predicted to be the positive-tired and negative-relaxed dimensions. As a first step in determining whether this was the case, the similarity of solutions across scales was examined. Recall that the BMIS, MIS, and RAS mood scales had overlapping items ( $N_s = 16, 11, \text{ and } 33$ ). The equivalence of the factors extracted from across adjective scales could therefore be represented by the correlation between the factor loadings for identical items on any given pair of adjective scales (e.g., the MIS and RAS). These coefficients of congruence among loadings for the first factor ranged from 0.97 to 0.99; when rotated, they ranged from 0.95 to 0.98. The coefficients of congruence for the second factor ranged from 0.82 to 0.97; when rotated, they ranged from 0.93 to 0.98. Thus, both the rotated and unrotated factors were highly similar across the BMIS, MIS, and RAS.

*Factor validity.* The three adjective scales used here each had substantial item overlap (BMIS, 10; MIS, 22; RAS, 19) with a summary of the mood adjectives that were proposed by Watson and Tellegen (1985, Figure 1) to mark the ends of the factors (e.g., adjectives showing their most extreme positive or negative factor loading on a given factor). According to the Watson and Tellegen model, the pleasant-unpleasant dimension is defined by adjectives such as *happy* and *content* on one end and *grouchy* and *sad* on the other. Arousal-calm spans from *aroused* and *surprised* to *quiet* and *still*. Positive-tired spans from *excited* and *peppy* to *sleepy* and *tired*, and negative-relaxed from *fearful* and *jittery* to *relaxed* and *calm*. In fact, when the 51 adjectives that overlapped from the present scales to their model were examined, each of the 51 marker variables loaded in the correct direction on its designated factor without exception; 90% of the marker variables were above the  $r = \pm 0.50$  for the BMIS, 73% for the MIS, and 58% for the RAS. The model therefore shows excellent predictive power.

An extremely strict criterion is to require each marker to have its highest loading or be tied for its highest loading on the designated pole of its factor. Because there are eight possible poles on which an adjective could load (two poles on each of the four factors), the likelihood of an adjective loading most highly on its intended dimension pole is 12.5% by chance alone. For adjectives marking negative ends of the dimensions, the odds are in reality even lower because the varimax rotations minimize negative loadings, thereby making it more likely that those adjectives will load highest on the positive ends of other dimen-

sions. The actual percentages of adjectives loading highest where predicted were surprisingly high: BMIS—100%,  $t(9) = 26.52$ ,  $p < 0.0001$ , with variance adjusted from 0 to 0.1%; MIS—59%,  $t(21) = 4.24$ ,  $p < 0.0005$ ; RAS—47%,  $t(18) = 2.91$ ,  $p < 0.01$ . Thus, even by this strict criterion, each of these factorial solutions is strongly supportive of the Watson and Tellegen (1985) model. The BMIS reflects the model particularly well.

### *Psychometrics of the Scales*

Factor scales were calculated for all adjective checklists. The BMIS factor loadings are reproduced in Table 1 as an example of the factor solutions on which such scales were based. The scales were created by adding (or subtracting) a subject's responses on the 4-point response scale to (or from) each of the mood adjectives, using the following criteria for an adjective's inclusion. The unrotated Pleasant-Unpleasant (I) and Aroused-Calm (II) factor-based scales included all those adjectives loading above an absolute value of 0.20. (The number of adjectives loading on Factor I was, for the BMIS, 16; the MIS, 62; and the RAS, 44. The number loading on Factor II was, for the BMIS, 12; for the MIS, 42; and for the RAS, 43.) The rotated Positive-Tired (I') and Negative-Relaxed (II') scales were calculated by including those adjectives loading above an absolute value of 0.35 on the given factor and with a secondary loading (e.g., on the factor pair) below 0.35 (on the BMIS) or 0.20 (on the full length scales). (The number of adjectives loading on Factor I' was, for the BMIS, 7; for the MIS, 14; and for the RAS, 14. The number loading on Factor II' was, for the BMIS, 6; for the MIS, 10; and for the RAS, 10.) The more complex criterion for the rotated scales was used to reduce a tendency for them to intercorrelate. The resulting BMIS scales were constructed as follows:

*Pleasant-Unpleasant scale.* The adjectives added were *active, calm, caring, content, happy, lively, loving, and peppy*; those subtracted were *drowsy, fed up, gloomy, grouchy, jittery, nervous, sad, and tired*.

*Arousal-Calm scale.* The adjectives added were *active, caring, fed up, gloomy, jittery, lively, loving, nervous, peppy, and sad*; those subtracted were *calm and tired*.

*Positive-Tired scale.* The adjectives added were *active, caring, lively, loving, and peppy*; those subtracted were *drowsy and tired*.

*Negative-Relaxed scale.* The adjectives added were *fed up, gloomy, jittery, nervous, and sad*; the one subtracted was *calm*.

*Scale reliabilities and intercorrelations.* Scale means, standard deviations, reliabilities, and intercorrelations can be seen in Table 2. Each of these factor-based scales correlates from  $r = 0.93$  to 1.00 with its pure factor scale. Cronbach's alpha reliabilities are generally quite satisfactory, ranging from  $r = 0.83$  to 0.96 for the MIS and RAS and from 0.76 to 0.83 for the BMIS, except for its Scale II, which is  $r(457) = 0.58$ . If the scale pairs were perfect 45° rotations of each other they should intercorrelate exactly,  $r = 0.71$ , with each other (the cosine of the angle between the axes); in fact, the correlations vary from  $r = 0.50$  to 0.80, indicating that rotations approximate the idealized structure. For the actual factor scores (e.g., calculated directly from factor loadings rather than through intermediary factor-based scales), the intercorrelations were even closer to the model at  $r = 0.60$  to 0.80. Returning to the factor-based scales,

Table 1  
Results of Principle Factor Analysis of the BMIS

Mood adjective	Unrotated		Rotated	
	Pleasant (I)	Arousal (II)	Positive (I')	Negative (II')
Lively	.71	.31	.75	-.20
Peppy	.62	.42	.75	-.06
Active	.59	.45	.74	-.01
Happy	.69	.06	.58	-.39
Loving	.43	.24	.48	-.08
Caring	.36	.25	.44	-.04
Drowsy	-.36	-.18	-.39	.09
Tired	-.29	-.21	-.36	.02
Nervous	-.36	.63	.12	.72
Calm	.41	-.43	.06	-.59
Gloomy	-.62	.26	-.32	.59
Fed up	-.49	.35	-.16	.58
Sad	-.58	.22	-.31	.53
Jittery	-.23	.46	.11	.50
Grouchy	-.60	.15	-.38	.50
Content	.57	-.09	.39	-.43
Variance explained	30.1%	14.5%	26.5%	10.9%

Note.  $N = 457$ . BMIS = Brief Mood Introspection Scale.

the Pleasant-Unpleasant and Arousal-Calm scales are largely uncorrelated; the Positive-Tired and Negative-Relaxed scales intercorrelate at about the  $r = -0.23$  level across scales. These findings are in close agreement with previous studies using longer scales (Diener & Emmons, 1984; Zevon & Tellegen, 1982).

### Discussion

Study 1's results strongly approximate the two-factor mood structure proposed by Watson and Tellegen (1985). Their four factors were clearly generated in the BMIS and MIS scales, and

generated somewhat less clearly in the RAS. The RAS results suggest that the exact varimax rotations partly depend on the item sample in the scale. In addition to its theoretical value, one of the immediate advantages of such an improved grasp of introspected mood is that mood adjective scales to measure these dimensions no longer need be as long as before. Shortened scale length enhances the measurement of quickly changing, reactive states, often increasing validity coefficients despite moderate drops in reliability (Burisch, 1984).

### The Brief Mood Introspection Scale

The BMIS, the very brief mood scale examined here, had good factorial validity for all its scales and good reliability for three of its four subscales (except Arousal-Calm). Researchers requiring substantially higher reliability than the BMIS affords on the arousal-calm dimension may find intermediate-length scales of between 24 to 32 items to be optimal. Researchers requiring only moderately higher reliability can use the BMIS, but modify the response scale to 7 steps instead of 4, and space the anchors (*definitely do not feel, do not feel, slightly feel, definitely feel*) 2 steps apart. This is because reliability increases somewhat when response steps increase, especially in the range from 4 to 7 (Nunnally, 1967, p. 595). Whether used as is or in its enhanced-reliability form (e.g., with a 7-step response scale), the BMIS and other brief and intermediate-length scales can be more widely used now that mood's structure is better understood.

### Choice of Dimension Pairs

Arguments have sometimes been made for the primacy of positive-tired and negative-relaxed dimensions because of their usefulness to the study of personality traits and psychopathology (Watson & Tellegen, 1985; Zevon & Tellegen, 1982). Others have argued for the usefulness of the pleasant-unpleasant and arousal-calm dimensions because of the central rela-

Table 2  
Means, Standard Deviations, Reliabilities, and Intercorrelations Among the BMIS, MIS, and RAS Factor-Based Mood Scales

Mood scales	Mood scales					Scale statistics	
	Pleasant-Unpleasant (I)	Calm-Aroused (II)	Positive-Tired (I')	Negative-Relaxed (II')	Correlation with full factor scale	$M$	$SD$
<b>BMIS</b>							
Pleasant-Unpleasant	0.83				0.98	5.05	7.40
Aroused-Calm	-0.02	0.58			0.96	17.50	4.39
Positive-Tired	0.79	0.56	0.77		0.93	7.92	3.98
Negative-Relaxed	-0.76	0.65	-0.21	0.76	0.97	6.92	3.59
<b>MIS</b>							
Pleasant-Unpleasant	0.96				1.00	22.63	27.96
Aroused-Calm	-0.09	0.85			0.99	90.30	12.19
Positive-Tired	0.79	0.50	0.90		0.97	38.31	7.56
Negative-Relaxed	-0.69	0.68	-0.22	0.83	0.93	17.56	5.40
<b>RAS</b>							
Pleasant-Unpleasant	0.94				0.99	0.46	18.63
Aroused-Calm	0.02	0.83			0.99	33.91	10.99
Positive-Tired	0.80	0.54	0.87		0.95	21.91	6.82
Negative-Relaxed	-0.71	0.62	-0.25	0.88	0.96	14.72	5.55

Note. BMIS = Brief Mood Introspection Scale. MIS = Mood-State Introspection Scale. RAS = Russell Adjective Scale.

tion of pleasant-unpleasantness to cognition and its efficiency in studying multisystem personality domains (Mayer, 1986; Mayer et al., in press; Mayer & Salovey, in press). Most researchers agree that these arguments are not yet conclusive, and the issue remains one of choice. There is nothing in the present data that would indicate the preferred use of one dimension set over the other. It may be best to develop the measurement of both sets of dimensions so that future choices can be governed by specific research needs. Study 2 therefore examines both dimension sets in relation to meta-mood experience.

### Study 2

Understanding the dimensions that underlie people's mood reports is only an initial step in understanding the experience of those moods. Study 2 examined meta-mood experience and its relation to mood. According to the regulatory view introduced earlier, meta-mood experience should divide into those cognitions that monitor mood (e.g., "I know exactly how I'm feeling"), evaluate it (e.g., "I'm ashamed of how I'm feeling"), and try to change it (e.g., "I'm thinking good thoughts to cheer myself up").

To measure such experience, a broad set of items and item categories were accumulated for study. Item generation was guided by the regulatory conception of meta-mood and drew from varied sources, including studies of coping styles (Folkman et al., 1986), studies of situational appraisals leading to moods (Smith & Ellsworth, 1985), research on mood maintenance and mood repair (Isen, 1985), general and specialized personality scales (e.g., Beck, 1967; Dahlstrom, Welsh, & Dahlstrom, 1975; Eysenck & Eysenck, 1968), descriptions of typical and atypical mood states (American Psychiatric Association, 1980), and also extensively from discussions with and the experiences of lab members, their acquaintances, and colleagues.

As the items were accumulated, they were classified into conceptual categories; all categories that could be considered as part of a regulatory process, broadly conceived, were retained. The categorization process was conducted so as to identify repetitive groups of items in large categories and potential items that were missing from smaller categories. Items within a category were balanced as to direction of response. The item categories used were (a) clarity of introspection into mood, (b) perceived influences of mood on thought, (c) generalization of mood's hedonic tone to other people and to the world at large, (d) embarrassment over mood, (e) typicality of mood, (f) causes of mood, (g) strength of mood, (h) temporal stability of mood, and (i) attempts to change mood. Each category contained four to eight items. Although the categories collectively described the item domain, they were not necessarily expected to correspond to the obtained factorial structure.

In Study 2, responses to the meta-mood items were subjected to a factor analysis so as to determine their structure. We hypothesized earlier in this article that people's meta-mood experiences are an intrinsic part of their mood experiences. This implies that different patterns of meta-mood experience should be present in different moods. For instance, unpleasant moods should elicit more active change processes (Isen, 1985). To test this hypothesis, mean levels of the different meta-mood experiences are compared across different moods.

### Method

#### Subjects

One hundred sixty Stanford University undergraduates who had completed the BMIS were also administered the Meta-Mood Experience scale as part of an introductory psychology course requirement.

#### Materials

The BMIS was repeated from Study 1. The Meta-Mood Experience scale contained 60 items from three conceptual domains: mood-monitoring, evaluation, and change. Many of these items are paraphrased in the Results section. Each item was followed by a 4-point response scale: *disagree* (1), *somewhat disagree* (2), *somewhat agree* (3), and *agree* (4).

#### Procedure

Subjects were tested in groups and asked to complete an experimental booklet that included the BMIS followed by the Meta-Mood Experience scale. The instructions directed subjects to fill out both scales according to their present feelings.

### Results

#### Factor Analysis of the Meta-Mood Experience Scale

A principal-axis factor analysis of the Meta-Mood Experience scale was conducted to determine its factor structure. The first 16 factors had eigenvalues greater than 1.0; a scree test yielded a small shelf at the 5th factor and a broad elbow centered the 12th factor. The common variance explained by each of the factors individually is small, ranging from 15 to 2%, leaving unclear the decision as to how many factors were present. The 16-factor solution, rotated to a varimax criterion, was examined as a next step. Factors 4 to 16 of this solution loaded only four items or fewer (using a cutpoint of  $\pm 0.35$ ), with the exception of Factor 7, which loaded five items. With the exception of Factor 7, these later factors appeared to be semantic factors, often loading highly two similarly phrased items and, at lower loadings, one or two related items. For purposes of comparison, 4-, 5-, and 6-factor solutions were next rotated to a varimax criterion and compared. In both 5- and 6-factor solutions, the former Factor 7, which had appeared genuine, now merged with Factor 5; Factor 6 was small (four items) and appeared uninterpretable. Most of the remaining items now loaded on Factors 1 through 4. Because Factors 1 through 5 could be interpreted, the 5-factor solution seemed optimal. Subsequent checks of the intercorrelations and reliabilities of the factor-based scales bore out the utility of the solution, which can be seen in Table 3.

As in Study 1, factor-based scales were calculated by including all those items loading  $\pm 0.35$  and above on their primary scale. When two scales correlated above  $r = \pm 0.30$ , items with secondary loadings above  $r = \pm 0.35$  were dropped. These standards were relaxed slightly for Factor 5, the weakest factor, so as to optimize its representation as much as possible. Factor-based Scales 1 through 4 correlated,  $r(160) = 0.92$  to  $0.97$ , with their corresponding complete factor scales; their intercorrelations and reliabilities (Table 4, top) show them to be reliable and independent of one another. Factor 5 was less reliable and correlated somewhat lower,  $r(160) = 0.83$ , with its complete factor scale.

Table 3  
Factor Loadings for Varimax Rotation of Five Factors of the Meta-Mood Experience Scale

Paraphrased items	Factors					Paraphrased items	Factors				
	1	2	3	4	5		1	2	3	4	5
1. Mood has changed my outlook on life.	.66	—	—	—	—						
2. I am scared by how I feel.	.63	—	-.36	—	—	31. Careless answers to some questions.	—	.27	—	—	—
3. Mood so strong, thinking isn't sensible.	.62	—	—	—	—	32. Mood little to do with any situation.	—	.26	—	—	—
4. My feelings are out of control.	.58	—	—	—	—	33. Nothing wrong with feeling the way I do.	—	—	.69	—	—
5. My present mood is strange or bizarre.	.58	—	—	—	—	34. I know I shouldn't feel this way.	—	—	-.68	—	—
6. This is an unusual way for me to feel.	.57	—	—	-.53	—	35. The way I feel now is fine with me.	-.26	—	.67	—	-.30
7. Different mood than people around me.	.54	—	—	—	—	36. Experience mood without changing it.	—	—	.63	—	—
8. Mood is influencing beliefs, opinions.	.53	—	—	—	—	37. In such good mood think good thoughts.	—	—	.60	.27	—
9. Feeling optimism/pessimism due to mood.	.52	—	—	—	—	38. I am embarrassed or ashamed of how I feel.	.37	—	-.58	—	—
10. Reminding myself of reality; bring down.	.51	—	—	—	—	39. I am not at all ashamed of how I feel.	-.27	—	.58	—	—
11. Such bad mood, think bad thoughts.	.44	—	-.43	—	—	40. Feel burnt out—as if no feelings left.	—	—	-.45	—	.38
12. I am feeling one clear feeling.	.42	-.36	.25	—	—	41. Mood in agreement with world around me.	—	—	.38	.33	—
13. Most around me are in about same mood.	-.41	—	.25	—	—	42. Mood fits in with world around me.	—	—	.38	.25	—
14. Couldn't change mood if I tried.	.34	—	—	—	—	43. Numb to emotions; can't feel anything.	—	.25	-.30	—	—
15. Optimism not affected by how I'm feeling.	-.33	—	.27	—	—	44. I am trying to maintain a positive mood.	—	—	—	—	—
16. My mood isn't very strong.	-.30	—	—	—	.26	45. Pessimism not affected by mood.	—	—	—	—	—
17. Mood in contrast to world around me.	.28	—	—	—	—	46. I feel this way a lot.	—	—	—	.75	—
18. My present mood influenced by drugs.	.27	—	—	—	—	47. This is a very typical mood for me.	—	—	—	.69	—
19. Mood has no influence on thinking.	—	—	—	—	—	48. I almost never feel this way.	.55	—	—	-.60	—
20. Hard to tell what my mood is right now.	—	.79	—	—	—	49. Mood feels as if it will never change.	.40	—	—	.56	-.26
21. Unable to describe how I'm feeling.	—	.73	—	—	—	50. It seems as if mood will go on forever.	.40	—	—	.52	-.32
22. I am able to describe my present mood.	—	-.72	—	—	—	51. Mood has no influence on world view.	—	—	—	-.34	—
23. I know exactly how I'm feeling.	—	-.70	.26	—	—	52. I know this mood will change soon.	—	—	—	-.40	.60
24. I can't tell what my emotions are.	—	.70	—	—	—	53. This mood, too, shall pass.	—	—	—	-.25	.58
25. Understand why I feel the way I do.	—	-.63	—	—	.26	54. Mood in response to very real situation.	.25	-.25	—	—	.48
26. I don't know why I feel this way.	—	.60	—	—	—	55. Thinking good thoughts to cheer up.	.26	—	—	—	.44
27. Very clear about my present emotion.	—	-.57	.37	—	—	56. I am doing something to change my mood.	—	—	-.27	—	.42
28. I'm not in a strong mood at all now.	-.34	.49	—	—	.26	57. Realistic and factual in outlook.	—	—	—	—	.34
29. Feelings are complex, contradictory.	.33	.39	-.29	—	—	58. I'm not trying to change present mood.	—	—	.31	—	-.33
30. Most would feel different than me.	—	.35	—	—	—	59. I feel like the world is passing me by.	.29	.28	-.29	—	.29
						60. Trying to answer as well as I can.	—	—	—	—	.28
						Percentage of variance explained	14.5	8.6	7.4	4.1	2.9

Note. Correlations below .25 are not reported.

Table 4  
Selected Intercorrelations Among Mood and Meta-Mood Experience Scales

Scales	Meta-mood experience scales				
	1	2	3	4	5
<b>Meta-experience</b>					
1. Out of Control–Under Control	0.84***				
2. Confusion–Clarity	-0.03	0.86***			
3. Acceptance–Rejection	-0.23**	-0.21**	0.82***		
4. Typical–Atypical	-0.12	0.00	0.28***	0.79***	
5. Change–Stability	0.21**	-0.02	-0.29***	-0.33***	0.64***
<b>Mood</b>					
I. Pleasant–Unpleasant	-0.19	-0.12	0.58***	0.29***	-0.30***
II. Aroused–Calm	0.29***	0.07	0.01	0.09	-0.02
I'. Positive–Tired	0.01	-0.04	0.40***	0.25**	-0.24**
II'. Negative–Relaxed	0.35***	0.13	-0.48***	-0.19*	0.23**

\*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ . (All  $ps$  two-tailed.)

The five Meta-Mood Experience scales were highly interpretable. Individuals who scored high on the first factor, Out of Control Versus Under Control feel overwhelmed, confused, and sometimes frightened by their moods; those low on the factor feel in control of their moods. Individuals scoring high on Factor 2, Clarity Versus Confused Mood, feel as if they experience one strong, easily comprehended mood. Those low on the factor feel multiple, contradictory moods, weak moods, or confusing moods. Individuals high on Factor 3, Acceptance Versus Rejection, accept and openly experience their moods; those lower on the factor are ashamed or unwilling to experience their moods and in extreme cases feel burnt out. Individuals high on Factor 4, Typical Versus Atypical, feel as if they commonly experience their mood and as if it will last forever; those lower on the factor feel as if their mood is atypical and will soon change. Finally, those high on Factor 5, Mood Change Versus Stability, have an optimistic sense that their mood will soon change for the better, and may be helping such a change along by intentionally thinking positive thoughts; those low on the factor expect no such change in their mood. The correlations among these scales and the mood dimensions may also be found in Table 4 (bottom).

Note that each of these meta-mood factors appears to have a pleasant and unpleasant aspect to it. To test this hypothesis, the factor-based scales were subjected to a hierarchical principal-axis factor analysis. Because the five derived scales are factor-based rather than true factor scales, they reflect some of the intercorrelations of the original test items and can themselves be factor analyzed without the necessity of resorting to a separate oblique factor rotation. As can be seen in Table 5, an overall first Pleasant–Unpleasant factor indeed emerges from the five factors. This raises the question of whether the Pleasant–Unpleasant meta-experience factor is the same as the Pleasant–Unpleasant mood factor (e.g., simply reflects moods' influence on the domain of meta-mood experience) or whether Pleasant–Unpleasant meta-mood experience is partially independent of the mood dimension.

#### *Pleasant–Unpleasant Factors of Mood and Meta-Mood Experience Compared*

To answer the question of whether the Pleasant–Unpleasant meta-experience factor is equivalent to the Pleasant–Unpleasant

mood factor, scales for both dimensions can be intercorrelated, corrected for attenuation due to unreliability, and then evaluated according to their divergence from  $r = 1.0$ . The corrected correlations between pleasant–unpleasant meta-mood and mood dimensions should equal 1.0 if they measure the same construct, and the correlation should range below 1.0 to the degree the dimensions measure different constructs. Although some drop below 1.0 is to be expected because of the somewhat different item domains (e.g., mood adjectives vs. meta-mood items), substantial deviations from a perfect correlation indicate the likely presence of partially independent psychological processes.

The method for calculating the Pleasant–Unpleasant mood scale was described in Study 1. The Pleasant–Unpleasant meta-mood scale used items loading at the  $r = 0.35$  criterion of the first unrotated principal factor of the scale. Unrotated first factors are often equivalent to hierarchical factors; this was the case for the present data. (This scale correlated  $r = 0.99$ , after correction for attenuation, with a scale based on the hierarchical solution that used factor scales as items. The reliabilities of the two meta-mood scales were, respectively,  $r = .90$  and  $0.54$ , and so the former scale was used.) The correlation between the Pleasant–Unpleasant meta-mood and Pleasant–Unpleasant mood scales was  $0.55$ . When this was corrected for attenuation, it rose to  $0.63$ , indicating a 40% overlap in variance between the mood and meta-mood factors in this sample. This is probably the maximum level of independence possible: mood and meta-mood occur in the same person and therefore by necessity show some comparability along the pleasant–unpleasant continuum. At the same time, the considerable independence that does exist between pleasant–unpleasant experience at the mood and meta-mood levels supports the inference that they are substantially independent constructs.

#### *Does Meta-Mood Experience Differ in Different Moods?*

Table 6 shows the mean values of each meta-mood factor, as calculated for the third of the sample scoring highest on each mood. Multivariate one-way analyses of variance (MANOVAS), using the five rotated meta-mood experience factor scales as dependent variables, indicated that meta-mood experience was significantly different across the different direct mood experi-

Table 5  
Hierarchical Unrotated Principal Factor Analysis of the Five  
Meta-Mood Factor-Based Scales

Scales	I	II
Out of control	-0.32	0.09
Confusion	-0.12	-0.38
Acceptance	0.70	0.31
Typical	0.47	-0.15
Change	-0.57	0.29
Variance explained	35%	22%

ences: Meta-mood experience was different in pleasant moods than in unpleasant moods, [Hotelling's,  $F(10, 304) = 10.00$ ,  $p < 0.0001$ ]; showed a trend toward a difference in aroused than in calm moods,  $F(10, 304) = 1.80$ ,  $p < 0.06$ ; was different in positive than in tired moods,  $F(10, 305) = 5.22$ ,  $p < 0.0001$ ; and was different in negative than in relaxed moods,  $F(10, 304) = 5.84$ ,  $p < 0.0001$ . As anticipated, the feeling that a mood will change soon, including repair processes to bring it about (Factor 5), was more likely to occur in unpleasant than in pleasant moods, one-way  $F(2, 157) = 10.44$ ,  $p < 0.0001$ . One surprise in Table 6 is that relaxed (low negative) moods are evaluated in many ways as equally or more pleasant than are actual positive moods themselves. For instance, they appear less out of control and slightly more acceptable than do positive moods. As a whole, these results clearly indicate that different patterns of meta-mood experience are associated with different moods.

### Discussion

In Study 2, meta-mood experience was measured along with direct mood experience. The central hypothesis of the study—that meta-mood experience differs in different moods—was clearly confirmed. In addition, an initial description of the meta-mood domain based on factor analysis was presented; this description portrayed a domain organized by four or five factors. When subjected to a hierarchical factor analysis, these factors themselves seem to share in common a pleasant-unpleasant experience dimension that was partially independent of the pleasant-unpleasant mood dimension.

### General Discussion and Conclusions

The three main topics of this article were an exploration of the dimensions underlying the experience of mood, the dimen-

sions underlying the reflective or meta-experience of mood, and the interrelation of mood and meta-mood experience.

### The First Two Mood Factors and Their Usefulness

The present data plainly fit the two-dimensional structure of mood experience. Pleasant-Unpleasant (I), Arousal-Calm (II), Positive-Tired (I'), and Negative-Relaxed (II') mood factors all clearly emerged from the three adjective scales under examination in Study 1. In addition, the data demonstrate that a single brief scale, the BMIS, permits mood to be measured quickly and simultaneously on these four factorial scales, thus leaving time to assess meta-mood experience before the mood changes too much.

### The Domain of Meta-Mood Experience

In the beginning of this article, meta-mood experience was described as the possible product of a regulatory process that monitors, evaluates, and changes mood. The five factors obtained, however, dealt largely with monitoring (Factor 2) and evaluation of mood (Factors 1, 3, and 4) and less with its change (Factor 5). The meta-mood factors, like the moods that are their objects, can be organized according to a pleasant-unpleasant dimension. This pleasant-unpleasant organization reflects in part the moods to which meta-mood experiences are in response.

Pleasantness-unpleasantness at the mood level and at the meta-mood level are partially independent of each other. This makes sense, because one can direct pleasant thoughts at unpleasant moods (e.g., "There's nothing wrong with feeling the way I do") and unpleasant thoughts at pleasant moods (e.g., "I am scared by how I feel"). At the direct level of mood experience the most positive mood is by definition most positive, but this need not be the case at the meta-mood experience level. In fact, for the rotated mood factors it turns out that the relaxed end of the Negative-Relaxed mood factor is evaluated as equally or more pleasant (e.g., more acceptable) at the meta-mood level than is the positive end of the Positive-Tired mood factor. This duality of experience on the mood and meta-mood levels may partly account for the fact that some life philosophies and religions stress the attainment of pleasure (James, 1902), whereas others stress tranquility (Rahula, 1959).

### Meta-Mood Experience and Mood Change

Many aspects of mood regulation are undoubtedly conducted automatically, outside of conscious control; it is, for instance,

Table 6  
Mean of the Standardized (Z-Score) Meta-Mood Experience Subscales for the Third of the Sample  
Scoring at Each End of the Mood Dimensions

Meta-experience scales	Unrotated mood measures				Rotated mood measures			
	Pleasant	Unpleasant	Aroused	Calm	Positive	Tired	Negative	Relaxed
Out of Control	-.10	.42	.25	-.35	.03	.07	.46	-.40
Confusion	-.33	-.05	.18	-.06	-.27	-.12	.11	-.27
Acceptance	.57	-.74	.05	-.10	.60	-.52	-.63	.68
Typical	.40	-.31	.12	-.01	.39	-.19	-.30	.26
Mood-Change	-.50	.33	.11	.18	-.47	.23	.23	-.37

unnecessary to make a conscious decision to be sad in the presence of tragedy. Still other mood changes have biological bases. These automatic processes notwithstanding, it was predicted in Study 2 that some meta-mood experiences would reflect regulatory activities regarding mood. Their moderate intercorrelation suggests that meta-mood experience affects mood, and of course, that mood also affects meta-mood experience. Meta-mood Factor 5 seemed to reflect an optimistic belief that mood would soon change, and included items reflective of conscious mood-change activities such as "I am doing something to improve my present mood." Disappointingly, rather little of the variance of mood experience was explained by this fifth factor (3%), thus suggesting that mood-change experience is relatively rare in comparison with mood monitoring and evaluation. This makes a kind of sense: If simply deciding to cheer up always worked, sad moods would easily disappear and sad people would be rare. Meta-mood experience may be relevant to mood change in other ways.

For instance, if one experiences a pleasant, acceptable mood with a clear cause, then the cause of the mood could be sought after in the future so as to bring about the mood again. The co-occurrence of mood with meta-mood experiences (e.g., which moods are typical, which are not; which moods are understandable, which are not) over many situations may provide data for individuals to build theories about the situations that bring about moods. In this way, a person could develop competence at mood-change by engaging in behaviors that bring moods about. Mood experience would not be primarily self-regulating in this sense; rather, it would serve as a foundation on which could be constructed rules that, although external to the mood system, would themselves direct behaviors to bring about moods. Perhaps it does make greater evolutionary sense that the individuals of a species, rather than becoming happy by self-mood regulation, do so by, say, engaging in altruistic acts (cf. Mayer & Salovey, in press).

Another quite different way that meta-mood experience may effect mood change is by positively augmenting a person's overall internal experience. A negative mood that is evaluated as out of control, unacceptable, and long-lasting is devastating; but were the evaluations reversed so as to view the mood as under control and soon to change, the overall feeling would be far less destructive of one's equanimity. A countervailing evaluation at the meta-mood level can, in this sense, lead to an overall experience that is more positive, even when experience at the direct mood level remains unchanged. Such countervailing evaluations may assist individuals to keep going in times of negative moods and thereby enter new situations that have the potential to improve their future moods.

#### *Meta-Mood Experience and Personality*

The preceding analysis suggests that mood regulation is partially dependent on a series of evaluations that people hold about their moods, as well as theories of which behaviors may bring about those moods. There is little doubt that some people spontaneously perceive meta-mood experiences of the sort described here. People often describe their feelings as confused, contradictory, or odd; they often confess to being ashamed of their envy or jealousy. In an informal study in which mood-change experience was examined, 19 students in a personality

class were asked to list ways in which they coped with their moods; collectively, they generated 273 lines of text. Twenty-three percent of this output included mood-change strategies similar to those on the scale, such as distracting themselves with good thoughts, reminding themselves of reality to bring down good moods, and allowing themselves to experience their bad moods until these change.

Although meta-mood experience commonly occurs, it also seems likely that there will be individual differences in it because cognitive processes of the type involved are often learned. Individuals high on self-awareness or emotionality may have highly developed meta-mood experiences. Individuals who are unreflective and emotionally stable may have few meta-mood experiences and little need for them. The different evaluations individuals hold about their moods, and any theories created from them, may form an important aspect of those people's self-concepts and, therefore, of their personalities (Epstein, 1973; Mayer & Salovey, in press). Emotionally changeable individuals who can, through meta-mood experience, positively augment negative moods, or identify behaviors that will change their moods, may have far healthier personalities than similar individuals who have not learned such strategies.

#### *Meta-Mood Experience and Social Relations*

Although they are internal, meta-mood experiences may be critical to interpersonal contact. This is illustrated whenever one person tells another, "you don't understand how I feel." When people say this, they often mean something like, "You don't understand how much I dislike feeling this way" or "You don't understand how out of control my feelings are." The "you don't understand" quality of mood may indicate the critical role that reflective, meta-mood experience is playing in the mood.

People who are told by another, "you don't understand my mood," are challenged to understand, and if they cannot understand, may sometimes be banished from access to the internal world of the perceiver. Understanding this internal world may be a precursor for the development of intimacy within some interpersonal relationships. Partly for this reason, the importance of meta-mood experience to personality assessment should not be underestimated. When individuals feel their mood and meta-mood experiences are understood by another, they may be more willing to share new and potentially important parts of their private personalities with others, whether those others are family, friends, or a trustworthy psychologist.

#### *Future Research*

Having provided an initial description of meta-mood experience, another question is whether such descriptions can lead to improved prediction and control of mood and mood-related behaviors. A small step toward this goal was taken in Study 2 by relating meta-mood experiences to mood; different patterns were found for different moods. Mayer et al. (in press), using a precursor to the present scale, showed that meta-experience can be used to augment prediction of some effects in cognition and affect. But most questions are unanswered: Does intellectual functioning deteriorate when mood is experienced as out of control? Is the belief that mood will change soon actually fol-

lowed by an improvement in mood? These and other questions remain for future research.

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