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The distinctiveness and utility of a measure of trait emotional awareness

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Abstract

There has been a proliferation of new measures of individual differences in emotional processing, but too little research that evaluates the distinctiveness and utility of such measures. We critically evaluated the Level of Emotional Awareness Scale (LEAS), which is a measure of people's awareness of emotions in both the self and others. Across two studies, university students ($N = 124$ and 107 for study 1 and 2, respectively) completed the LEAS, as well as a battery of personality measures and ability tests, and a mood-induction task. The LEAS was statistically distinct from a wide variety of personality measures, emotional intelligence tests, and self-report ability measures. In addition, both studies demonstrated that people high in emotional awareness were less likely than others to show mood congruent biases in their judgments (e.g. when bad moods lead to negative judgments and good moods to good judgments). The LEAS appears to be both distinctive and useful in understanding mood-relevant processes.
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1. Introduction

People have long been interested in how individuals differ in their emotions and emotional processing (Galen, 193/1997[1]; Jung, 1921/1983). Recently, there has been an explosion of interest in measuring such individual differences. For example, measures have been created to assess differences in emotional labelling (Swinkels & Giuliano, 1995), emotional creativity (Avervill &

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[1] The exact date that Galen published his work, "The souls dependence on the body," is estimated to be between 193 and 210 AD; Galen, 1997).

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Thomas-Knowles, 1991), emotional awareness (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990), meta-experience of moods (Mayer & Gaschke, 1988), emotional expressiveness (Gross & John, 1995), and emotional intelligence (Mayer, Caruso, & Salovey, 2000; Salovey & Mayer, 1990). This list represents only a small subset of the available measures related to emotional processing differences (for a review see Ciarrochi, Chan, Caputi, & Roberts, 2001).

Almost all of these measures fall into one of three categories: Self-report personality measures (e.g. ''How frequently do you experience anger?''), performance based ability tests (e.g. ''identify the emotions in a particular face;'' Mayer, Salovey, & Caruso, 2000), and self-reported measures of ability to understand one's own emotions (e.g. ''I am often confused about what emotion I am feeling''; Bagby, Taylor, & Parker, 1994). One interesting test, however, does not fit easily into any of these categories: the Levels of Emotional Awareness Scale (LEAS; Lane et al., 1990). This scale is intended to assess the extent to which people are aware of emotions in both themselves and others. It is based on participants' productions, which seems to exclude it from the two self-report categories. It also does not seem to fit well in the ability test category, since it does not require people to either solve problems or otherwise to perform at their optimal levels.

What construct does the LEAS measure, and what is the test useful for? The measure is still fairly new and further work is needed to fully evaluate it. One major goal of the present studies is to examine the extent that the LEAS correlates with measures from each of the three major categories described above: self-report personality measures, ability tests, and self-reported ability measures. This correlational analysis with potentially related scales will help us to understand what the LEAS measures, and what it does not. Our second area of validation concerns an experimental test. Awareness is an important concept in the experimental study of mood-congruent judgment (e.g. when a bad mood leads to negative judgments). Generally, mood congruent judgment does not occur when awareness is high. Thus, we expected that people who score high in level of emotional awareness (high on the LEAS) will be less likely than others to show mood congruency effects.

1.1. The LEAS

Recently, there has been an increase of interest in various measures of emotional intelligence, awareness, and related concepts (Ciarrochi, Chan, Caputi et al., 2001). It is still unknown, however, how all these scales interrelate. What is known is that self-report measures appear correlated with measures of well-being, whereas ability measures of emotional intelligence (EI) are distinct from other measures (Ciarrochi, Chan, Caputi et al., 2001). Where, however, would a scale such as the LEAS fit in? The LEAS claims to measure ''Level of Emotional Awareness.'' To do so, it presents scenes that involve two people (one's self and another), which are followed by two questions, which ask, ''How would you feel?,'' and ''How would the other person feel?'' (Lane et al., 1990). Corresponding to these questions, each person's answer receives two separate scores for the emotion described: one for the self and one for others. People also receive a total score, which is derived from the two separate scores.

The LEAS is based on a developmental theory proposed by Lane and colleagues (1990). Emotional experience is said to become more differentiated and integrated with development, such that the representations of emotional states move from implicit to explicit forms. Lane et al. (1990) posited five levels of emotional awareness, each level representing a hierarchical increase in

differentiation and integration from the previous level. The first level of awareness refers to a lack of emotional response (a typical answer might be "I'd feel confused"). Level 1 refers to an awareness of bodily sensations ("I'd feel tired"), level 2 to awareness of relatively undifferentiated emotional states ("I'd feel bad"), level 3, individual feelings ("I would feel angry"), level 4, emotional blends ("I would feel both happy and sad"), and level 5, blends in both self and others, and an ability to clearly differentiate feelings in the self from those in another ("I would feel happy and sad, and the other person would feel fearful and angry").

The LEAS has been shown to relate to self-reported ability to identify and describe emotions (Lane, Sechrest, Riedel, Shapiro, & Kaszniak, 2000; Lane et al., 1996) and to individual differences in cerebral blood flow in the anterior cingulate cortex during the processing of emotional stimuli (Lane, Reiman et al., 1998). It has also been shown to predict actual emotion recognition, regardless of whether the recognition task is verbal or nonverbal (Lane et al., 1996). The LEAS has been found to correlate positively with two cognitive developmental measures, the Sentence Completion Test of Ego Development (Loevinger, 1970) and the cognitive complexity of the descriptions of parents (Blatt, Wein, Chevron, & Quinlan, 1979; Lane et al., 1990).

1.2. Is the LEAS distinctive?

One major goal of the present studies was to examine the extent that the LEAS correlated with pre-existing measures. Ideally, a good test should not relate to theoretically irrelevant variables, and should relate only moderately to theoretically relevant variables (Anastasi & Urbina, 1997). A very high correlation may indicate that the variable is redundant with the pre-existing measure.

1.2.1. Personality measures

We measured extraversion, neuroticism, agreeableness, openness to feelings, empathy, self-esteem, and emotional depth. Such tests are commonly used and represent a reasonably broad sample of personality (Costa & McCrae, 1992; Mayer, 1998). In addition, they have generally been linked to emotional processes (Watson & Clark, 1992). We made only two directional predictions with regards to personality. First, we expected a moderate relationship with the LEAS and openness to feelings. If people report that they are not receptive to their inner feelings and believe that such feelings are unimportant in their lives (i.e. low in openness to feelings), they should also be less aware of those feelings. We also expected that people who are unaware of the emotions of others (low on the LEAS) would be less empathic.

1.2.2. Ability tests

We sought to evaluate whether the LEAS overlapped substantially with measures of emotional intelligence (Ciarrochi, Chan, & Caputi, 2000; Mayer, Caruso, & Salovey, 2000; Mayer, Salovey, & Caruso, 2000). Lane (2000) has argued that emotional awareness may be a particularly crucial component of emotional intelligence in that it may "be the foundation for the successful implementation of the other components of emotional intelligence " (p. 2). In addition to measuring EI, we measured verbal intelligence, in order to replicate past research that links verbal IQ with the LEAS (Lane et al., 1998a). Verbal IQ was also used as a covariate in the mood

analyses in order to evaluate whether the LEAS predicted variance over and above this variable.

1.2.3. Self-reported ability

The LEAS requires people to identify and describe emotions. We sought in our second study to assess whether people's self-reported ability to identify and describe emotions (The Toronto Alexithymia Scale; Bagby et al., 1994) was associated with their LEAS scores. Previous research has found weak correlations between self-reported ability and actual ability (Lane, Sechrest, & Riedel, 1998), so we expected to replicate a similarly weak relationship.

1.3. Experimental validation test

Past research suggests that when people are aware of their affective states, they are less likely to let those states bias their judgments in a congruent direction (e.g. when positive mood leads to positive judgments; Schwarz & Clore, 1983; Berkowitz, Jaffee, Jo, & Troccoli, 2000). For example, Schwarz and Clore (1983) found that if someone was sad because it was a rainy day, that person would tend to say that they were less satisfied with their life (mood congruency). However, when Schwarz and Clore (1983) made these people aware of the source of their mood (the bad weather), the people tried to prevent the mood from influencing their life-satisfaction judgments and did not show the mood congruent bias. In a similar study, Berkowitz et al. (2000) found a typical mood congruency affect amongst people whose attention was diverted from their mood: the worse these people felt, the greater was the number of bad qualities they attributed to a job applicant. However, participants who were made highly aware of their feelings showed a mood incongruent bias. The worse these people felt, the fewer were the number of bad qualities they attributed to a job applicant. It appeared that making people aware of their moods before the judgment motivated them to correct for any potentially biasing effects of that mood.

We hypothesised that a similar effect would occur for people who are chronically aware of their affective states (i.e. those who score high on the LEAS). That is, we expected that people high in emotional awareness would be more aware of their moods after an experimentally induced mood. They thus should show less mood congruency effect in their judgments, or might even overcorrect for their moods (Berkowitz et al., 2000), showing a mood incongruency effect.

2. Introduction to present studies

Two studies sought to evaluate the distinctiveness and utility of the LEAS. In study 1, we administered a wide range of self-reported personality measures relevant to affective processing, and a portion of an emotional intelligence ability test. Study 1 also experimentally manipulated positive and negative mood and evaluated the impact of these moods on life-satisfaction judgments. Study 2 examined the relationship between the LEAS and self-reported emotional processing ability, and replicated and expanded the experimental manipulation in study 1 by adding a neutral mood condition to the positive and negative mood conditions. In both mood studies, life-satisfaction was measured twice, once during the mood induction session

and once outside of the mood induction session (baseline life satisfaction). The baseline was assessed in order to control for variation in life satisfaction that was unrelated to the mood induction.

3. Study 1

3.1. Method

3.1.1. Participants

One hundred and twenty-four university students (104 female, 20 male; mean age = 22.9, SD = 6.1) participated in the study for course credit. Because some participants did not attend all three of the testing sessions, the participant numbers for some analyses are less than the maximum number of 124 (which is the number that completed the LEAS). In addition, only a randomly determined subset of the participants (88; 71 female; 17 male) completed the mood induction phase. (Sample sizes for each analysis are presented below or can be directly inferred from the reported degrees of freedom.)

3.1.2. Measures

3.1.2.1. Levels of Emotional Awareness (LEAS). The LEAS consists of 20 scenes that involve two people, which have been constructed to elicit four types of emotion: anger, fear, happiness, and sadness (Lane et al., 1990). Each scene is followed by two questions: ''How would you feel?'' and ''How would the other person feel?'' Corresponding to these questions, each person's answer receives two separate scores for the emotion described: one for the self and one for others. One scenario is as follows: '' You and your best friend are in the same line of work. There is a prize given annually to the best performance of the year. The two of you work hard to win the prize. One night the winner is announced: your friend. How would you feel? How would your friend feel?''

Each scene receives a score of 0–5, corresponding to Lane et al.'s (1990) theory of the five levels of emotional awareness. A glossary of words at each level is available to guide interpretation and scoring, and helps produce highly reliable scoring (e.g. $r = 0.99$; this is the correlation between ratings made by two highly trained coders). The lowest level (0) reflects non-emotional responses, where the word ''feel'' is used to describe a thought rather than a feeling (e.g. ''I'd feel stupid''). Level 1 reflects an awareness of physiological cues (e.g. ''I'd feel sick''). Level 2 consists of words that are typically used in other contexts but are frequently used to convey relatively undifferentiated emotions (e.g. ''I'd feel bad''). Level 3 responses involve the use of one word conveying typical, differentiated emotion (e.g. ''happy'', ''sad'', ''angry''). A Level 4 score is given when two or more Level 3 words are used to convey greater emotional differentiation than any word alone.

In addition to receiving a score for the self and other, participants also receive a total score. This score equals the higher of these two scores, except in those instances where both self and other receive Level 4 scores. Under these circumstances, a total score of Level 5 is given. The total score for each of the twenty items was summed together to form the overall total score.

3.1.2.2. Empathy ($\alpha = 0.80$; all alphas based on present sample). A 15-item version of the Empathy Scale (Mehrabian & Epstein, 1972) required participants to rate statements such as ''It makes

me sad to see a lonely stranger in a group'' on 5-point scales anchored by ''Strongly Agree'' (1) and ''Strongly Disagree'' (5).

3.1.2.3. Life satisfaction ($\alpha = 0.81$). Participants rated the extent they strongly agreed (1) or disagreed (7) with nine statements concerning life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985; Mayer, Caruso, & Salavey, 2000), including ''In most ways my life is close to my ideal''.

3.1.2.4. NEO-PI-R. Twelve-item measures of Extraversion ($\alpha = 0.78$), Neuroticism ($\alpha = 0.85$), and Agreeableness ($\alpha = 0.72$) were shortened versions of the full scales from the NEO-PI-R (Costa & McCrae, 1992). Participants rated self-referencing statements on 5-point agree–disagree scales. Example statements were, ''I am not a worrier (Neuroticism)'' and ''I like to have a lot of people around me (Extraversion)''. We also used the full 8-item version of the Openness to Feelings Scale ($\alpha = 0.75$), which assesses the extent that people are receptive to their inner feelings and believe such feelings are important in their lives (e.g. ''How I feel about things is important to me'').

3.1.2.5. The Multifactor Emotional Intelligence Scale (MEIS). This test measures EI as an ability. We used four subscales of the MEIS, which were designed to cover three important dimensions of emotional intelligence (Mayer, Caruso, & Salavey, 2000), namely, the ability to perceive emotions in Faces (eight stimuli; 48 items; $\alpha = 0.87$) and Stories (six stimuli; 42 items; $\alpha = 0.79$), the ability to assimilate emotions into perceptual and cognitive processes (Synesthesia test; six stimuli; 60 items; $\alpha = 0.76$), and the ability to reason about and understand emotions (Relativity test; four stimuli; 40 items; $\alpha = 0.66$).

3.1.2.6. Verbal intelligence. A 100-item vocabulary test was used to assess verbal ability ($\alpha = 0.91$; Australian Council for Educational Research, 1978). A computer administered the test, and students were given 8 minutes to complete it.

3.1.2.7. Affect intensity measure. A reduced, 23-item scale was used to assess affect intensity ($\alpha = 0.82$; Larsen & Diener, 1985). The scale is independent of the tendency to experience positive affect more or less than negative affect, and includes items such as, ''When I feel happy it is a strong type of exuberance''.

3.1.2.8. Experimental validation test. Participants completed what they thought to be two unrelated studies: a film comparison study (the mood induction) and an assessment of life satisfaction. Positive and negative mood inductions were randomly assigned to groups of people. The 10-min films included scenes from (1) a popular comedy series (Fawlty Towers, the rat episode) and (2) a 10-min documentary dealing with the holocaust (negative mood). The use of films to manipulate moods has been extensively tried and tested both in laboratory and field research, and has been found to produce salient and enduring moods (Ciarrochi, Chan, & Bajgar, 2001; Forgas, 1999a,b; Forgas & Bower, 1987; Forgas & Moylan, 1987). Participants were asked at the end of the study to describe how they felt after watching the film. They described the extent they felt tense, sad, cheerful, negative, unhappy, and positive on 5-point scales, labelled by the terms, ''1 = Not at all'', ''A little,'' ''Moderately'', ''Quite a bit'', and ''5 = Extremely.'' The average of their responses to this scale was used to create an internally consistent measure of negative mood ($\alpha = 0.91$).

3.1.3. Procedure

Students participated in groups of 10–20, across three different testing sessions during the semester. In session 1, students were given a positive and negative mood induction and then a measure of life satisfaction. In session 2, they completed the measures of personality, vocabulary, and baseline life satisfaction. In session 3, participants completed the Level of Emotional Awareness Scale. All scales were administered anonymously and by computer.

3.2. Results

3.2.1. Preliminary analyses

The subscales of the LEAS were reliable (LEAS-total, $\alpha = 0.89$; LEAS-self, $\alpha = 0.85$, and LEAS-other, $\alpha = 0.80$). A one-sample t-test revealed that the average LEAS score of our university sample ($M = 69.9$, SD = 9.88) was higher than that obtained in a community sample ($M = 61.9$, SD = 10.7; Lane et al., 1996), t (123) = 9, $P < 0.001$. A General Linear Model (GLM) repeated Analysis of Variance (ANOVA) revealed that people's level of awareness was higher for their own emotions than it was for others, F (1,123) = 72, MSE = 0.06, $p < .01$. A GLM ANOVA also revealed a significant effect of sex, F (1, 122) = 5.8, MSE = 0.24, $p < .05$, with women ($M = 3.54$, SE = 0.05) having higher scores then men ($M = 3.26$, SE = 0.11).

3.2.2. Main analyses

3.2.2.1. Psychometric study. We explored the extent that the LEAS was related to the personality and ability variables. We focus on the LEAS-total score initially, and discuss LEAS-self and LEAS-other scores later. As expected, there was a significant relationship between high LEAS scores and high openness to feelings, r (87) = 0.29, $P < 0.01$ and empathy, r (87) = 0.23, $P < 0.05$. The LEAS was not related to any of the other personality variables, all Ps > 0.05. We next examined the relationship between the LEAS and the measures of emotional intelligence. There was no relationship between the LEAS and a composite EI score (i.e. the sum of all the subscales), r (105) = 0.15, $P > 0.05$. However, there were significant relationships between high scores on the LEAS and high scores on two of the four EI subscales, namely, perceiving emotions in stories subscale, r (107) = 0.20, $P < 0.05$ and estimating the feelings of two characters in conflict (relativity) subscale, r (107) = 0.21, $P < 0.05$. Finally, there was a significant relationship between high LEAS scores and verbal ability, r (107) = 0.27, $P < 0.01$.

3.2.2.2. Experimental validation study. Next we tested the hypothesis that people high in emotional awareness would be less likely than others to allow an irrelevant mood to bias their judgments in a mood-congruent direction. To confirm that the mood induction was effective, a GLM Analysis of Covariance (ANCOVA) was used to examine the impact of mood induction, the LEAS (the covariate), and the interaction between mood and LEAS in predicting self-reported mood after the mood induction. The LEAS scores were converted to standardised scores in all GLM analyses in order to reduce the problem of collinearity (Aiken & West, 1991). The analyses revealed that people in the negative mood induction reported feeling significantly more negative after the induction ($M = 3.39$, SE = 0.09) than did those in the positive induction ($M = 1.64$, SE = 0.10), F (1,80) = 181.5, MSE = 0.35, $P < 0.001$. There were no significant effects of the LEAS, or the interaction between the LEAS and mood induction on self-reported mood, Fs < 0.2,

Ps > 0.5. Thus, the mood induction appeared to be equally effective in inducing mood in people that were high and low in emotional awareness.

A GLM ANCOVA was used to analyse the effects of mood, the LEAS (as a continuous covariate), and the interaction between mood and the LEAS on life satisfaction judgments. Baseline life satisfaction was used as a covariate. As expected, there was a significant interaction between the LEAS and mood, $F(1,62) = 4.51$, MSE = 0.49, $P < 0.05$. We followed a method suggested by Aiken and West (1991) to explore this effect. Simple effects were assessed by substituting a value of plus or minus 1 standard deviation into the continuous, standardised LEAS variable in the equation to generate a series of simple equations or regression lines at specific values of the LEAS. That is, we generated two simple regression lines that represented the impact of the mood induction (sad versus happy) on the judgments of people who scored low on the LEAS (1 SD below average) and high on the LEAS (1 SD above average). It is important to note that this procedure does not divide people up into high and low groups, whilst excluding a middle group. Rather, it tests for differences between regression lines at particular points. Such regression lines are based on the full data set.

Consistent with our predictions, people low in emotional awareness were more likely to show mood congruent biases than those high in emotional awareness (Fig. 1). That is, people low in awareness report higher life satisfaction when in a positive mood compared to a negative mood, whereas people high in awareness displayed the opposite trend. One contrast within each level of awareness (Fig. 1) was used to explore this significant effect further, but neither contrast reached significance, Ps > 0.05. Thus, people low in emotional awareness were more mood congruent in their judgments than those high in awareness, but we could not be certain whether this effect was due to mood congruency among those low in awareness or mood incongruency among those high in awareness. It appears to be a combination of both (Fig. 1).

We addressed two additional issues. First, we ruled out the possibility that sex or verbal IQ could be used to explain the mood results: GLM analyses revealed that the interaction between

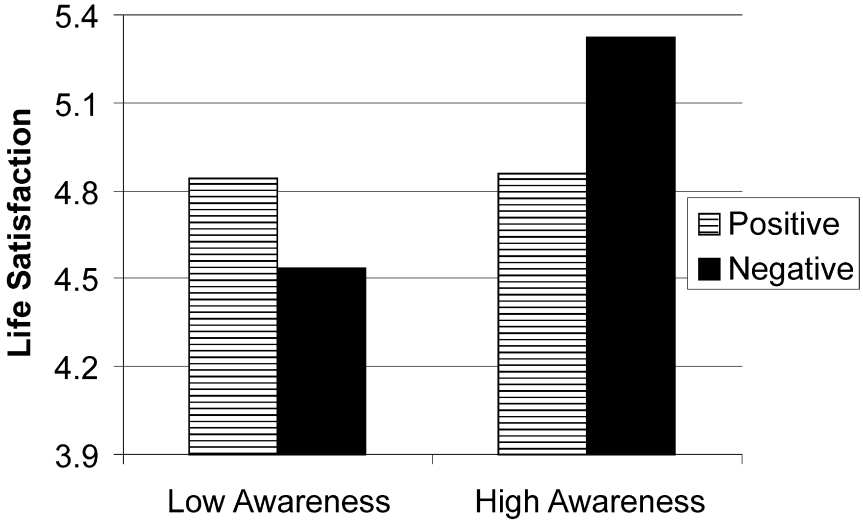

Fig. 1. The interaction between mood and Level of Emotional Awareness in predicting life satisfaction judgments.

mood and the LEAS held even after controlling for both of these variables. Second, we assessed whether LEAS-self scores or LEAS-other scores produced any different results from the LEAS-total score. We did not expect much difference given the total score is derived from the self and other score and highly related to them [r (124) = 0.88 and r (124) = 0.85, respectively]. We examined the correlations between self and other scores and the personality and other variables and found the same pattern of correlations as described above for the LEAS-total score.

It is worth noting that we searched for significant interactions between our experimental manipulation and the other tests in the study. No measures other than the LEAS produced a significant interaction.

4. Study 2

Study 2 was an attempt to replicate and extend the mood-relevant findings of study 1. We repeated the mood induction procedure, but included a neutral condition. This modification allowed us to assess the extent to which positive and negative moods have a differential impact relative to a neutral baseline. We also evaluated whether the LEAS was related to the self-reported ability to identify and describe emotions (Bagby et al., 1994).

4.1. Method

4.1.1. Participants and procedure

One hundred and seven university students (87 female; 20 male; mean age = 22.8, SD = 5.9) participated in groups of 10–20, across three different testing sessions during the semester. The first phase involved administering the mood induction procedure. The positive and negative mood induction materials were the same as in study 1, and the neutral mood induction consisted of a well-validated 10-min video (Forgas, 1995) on architecture. The second phase involved measuring baseline life-satisfaction and self-reported ability at identifying and describing emotions, and the third phase involved measuring the LEAS. Because some participants did not attend all three of the testing sessions, the participant numbers for some analyses are less than the maximum number of 107. Sample sizes for each analyses are presented below or can be directly inferred from the degrees of freedom.

4.1.2. Materials

4.1.2.1. Toronto Alexithymia Scale (TAS-20). Individuals with alexithymia have difficulty identifying and describing feelings, difficulty differentiating feelings from bodily sensations, and diminished affect-related fantasy (Lane et al., 2000; Taylor, 2000). The TAS-20 is a 20-item, self-report measure that asks participants to rate their answers on a 5-point Likert scale (strongly disagree [1] to strongly agree [5]). The 20 items consist of three subscales, namely, difficulty identifying feelings (“I am often confused about what emotion I am feeling”, $\alpha = 0.83$), difficulty describing feelings (“It is difficult for me to find the right words for my feelings”, $\alpha = 0.81$), and externally-oriented thinking [“I find reflecting on my feelings helps me solve my personal problems”, (reversed) $\alpha = 0.67$]. There is considerable evidence for the validity of the TAS-20 (e.g. see

Taylor, 2000, for a review), including research that shows that the TAS-20 relates to an observer rated measure of alexithymia (Bagby et al., 1994).

4.2. Results

4.2.1. Preliminary analyses

The means and reliabilities of the LEAS-total ($M = 3.58$, SD = 0.55; $\alpha = 0.91$), LEAS-self ($M = 3.17$, SD = 0.47; $\alpha = 0.84$), and LEAS-other ($M = 2.86$, SD = 0.47; $\alpha = 0.85$) were similar to those in study 1. Also consistent with study 1, a GLM repeated measures ANOVA revealed that people's level of awareness was higher for their own emotions than it was for others, $F(1,106) = 82.19$, MSE = 0.06, $P < 0.01$.

4.2.2. Main analyses

There was no relationship between the LEAS subscales and the overall TAS-20 score, $P > 0.1$; nor were there any relationships involving the LEAS and the subscales of the TAS-20, Ps > 0.1.

To confirm that the mood induction was effective, a GLM ANCOVA was used to examine the impact of mood induction, the LEAS (the covariate), and the interaction between mood and LEAS in predicting self-reported mood. There was a highly significant effect of mood induction on self-reported mood, $F(2, 74) = 50.30$, MSE = 0.48, $p < .001$. Contrasts revealed that people in the negative group reported more negative mood ($M = 3.43$, SE = 0.13, $n = 30$) than did those in the neutral group, $M = 2.23$, SE = 0.14, $n = 25$, $t(74) = 6.41$ $P < 0.01$, and those in the neutral group reported more negative mood than did those in the positive group, $M = 1.59$, SE = 0.14, $n = 25$, $t(74) = 3.18$, $P < 0.01$. There were no significant effects of the LEAS, or the interaction between the LEAS and mood induction on self-reported mood, Fs < 0.2, Ps > 0.5. Thus, the mood induction appeared to be equally effective in inducing mood in people that were high and low in emotional awareness.

We tested the hypothesis that people high in emotional awareness would be less likely than others to allow an irrelevant mood to bias their judgments in a mood-congruent direction. A GLM ANCOVA was used to analyse the effects of mood, the LEAS (as a continuous covariate), and the interaction between mood and the LEAS on life satisfaction judgments. Baseline life satisfaction was used as a covariate. As expected, there was a significant interaction between the LEAS and mood, $F(2,60) = 3.18$, MSE = 0.39, $P < 0.05$. We followed the procedure suggested by Aiken and West (1991) to explore this effect (see Section 3.2). Consistent with our predictions, people low in emotional awareness were more likely to show mood congruent biases than those high in emotional awareness (Fig. 2). That is, people low in awareness report higher life satisfaction when in a positive mood compared to a negative mood, whereas people high in awareness display the opposite trend. Contrasts within each level of awareness were used to explore this effect further. We found that among people high in emotional awareness (Fig. 2, left side), positive mood produced more negative judgments than both neutral mood, $t(60) = 2.05$, SE = 0.27, $P < 0.05$, and negative mood, $t(60) = 2.23$, SE = 0.27, $P < 0.05$. No other contrasts were significant, all Ps > 0.05.

We should note that in both studies we explored whether any other measure (e.g. the TAS-20) moderated the relationship between mood and life satisfaction judgments. There were no other significant effects, further highlighting the distinctiveness of the LEAS.

4.3. Discussion

The LEAS appears to be reasonably distinct from tests that measure the Big Five, self esteem, and related constructs, emotional intelligence, and self-reported ability measures. The LEAS was only modestly correlated with openness to feelings and empathy, verbal intelligence and some aspects of emotional intelligence, and was unrelated to a broad variety of other measures.

Importantly, the LEAS appears to be useful in understanding mood-relevant biases. People high and low in emotional awareness responded with similar emotional intensity to the mood inductions. However, the consequence of those moods for their judgments were quite different. Across both studies, people high in level of emotional awareness were less likely than others to show mood congruent biases, and indeed appeared to overcorrect for their moods, showing a mood incongruent bias.

It is unlikely that this effect can be explained by differences in how intensely people responded to the mood inductions. which had the same effects on self-reported moods of people high and low in awareness. It is also unlikely that these effects can be explained in terms of differences in levels of depression or psychosocial stress between the groups, given a recent, large scale study found no relationship between the LEAS and levels of depression, anxiety, stress, hopeless, and suicidal ideation (Ciarrochi et al., submitted for publication).

4.3.1. The distinctiveness of the LEAS

Almost all measures that assess individual differences in emotional processing can be categorised as self-reported personality measures, EI ability tests, or self-reported ability measures. However, the LEAS is unusual, in that it does not fit easily into any of these categories. It is not based on self-report and does require optimal performance. Consistent with the argument that the LEAS is distinctive, the present study demonstrated that the LEAS correlated slightly or not at all with a wide variety of self-report and ability tests.

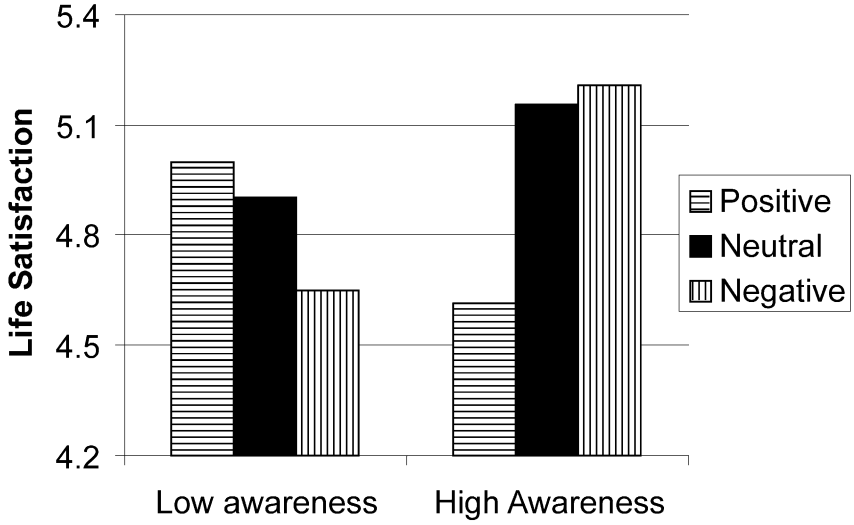

Fig. 2. The interaction between mood and Level of Emotional Awareness in predicting life satisfaction judgments.

Somewhat unexpectedly, the LEAS did not correlate with the TAS-20, which is inconsistent with the work of Lane et al. (2000) who found a small correlation ($r = -0.19$). Our null result in this instance may be related to a restricted range in the TAS-20 scores. Lane et al. (2000) used a broader sample that was stratified for age, sex and socio-economic status. However, both Lane et al. and the present study are consistent with the notion that the correlations between the LEAS and self-report measures like the TAS-20 are at best small, suggesting the LEAS is distinctive from this measure.

Lane (2000) suggests that the LEAS might be closely related to emotional intelligence. Our research suggests that the LEAS was only minimally related to two aspects of people's EI, namely, the ability to identify emotions in stories and the ability to estimate the feelings of two characters in conflict ($rs = 0.20$ and 0.21, respectively). However, the LEAS was not related to people's ability to describe emotional sensations and their parallels to other sensory modalities (Synesthesia); nor was it related to the ability to detect emotions in faces. Other research suggests that there is a small relationship between accuracy of facial affect recognition and the LEAS (Lane et al., 1996). It is clear from the small correlations between emotional intelligence and the LEAS that the two tests assess distinctive domains.

If the LEAS does not fit easily into the self-report personality category, the ability category, or the self-reported ability category, then where does it belong? The LEAS may be best classified as a measure of processing style. Another prominent example of this type of measure is Loevenger's (1970) measure of Ego development. This scale uses a sentence completion task to assess people's level of Ego development, ranging from "impulsive level" to the "integrated" level. What Loevenger's scale and the LEAS have in common is that they are designed to measure developmentally relevant styles of processing. In contrast, emotional intelligence scales measure ability. Higher scores on the developmental measure represent "older", more sophisticated styles of responding, whereas higher scores on the intelligence measure represent better, more accurate responding.

We admit that "sophisticated responding" and "accurate responding" will tend to be correlated. Indeed, our own findings support this view, in that verbal IQ, emotional IQ, and the LEAS were all correlated. However, we believe that the two types of responding can, in principle, be differentiated. To illustrate this point, consider two responses to the question, "How would you feel if your best friend defeated you in a race." A level 3 response on the LEAS would be, " I would feel happy for my friend," whereas a Level 4 response would be, "I would feel happy for my friend and angry because I lost". The latter response is at a higher level because it mentions two specific emotional states. However, both responses might be equally accurate in describing the experienced emotions.

4.3.2. The usefulness of the LEAS

Across two studies, people low in emotional awareness showed stronger mood congruent biases than did those high in emotional awareness. This is consistent with our prediction that people high in awareness would be more aware of their mood following a mood induction and would, as a consequence, attempt to prevent that mood from biasing their judgments. Interestingly, the evidence suggests that people high in awareness actually overcorrected for their moods: they reported feeling more negative in a positive mood. It was as if they bent over backwards to prevent mood from biasing judgments, and in doing so, overcorrected for the biases. In a sense then,

people high in awareness were just as biased, if not more so, than those low in awareness. Thus, being highly aware of one's affective states may not relate to people's ability to effectively prevent those states from biasing judgments. These findings are consistent with those of Berkowitz et al. (2000), who showed that increasing people's awareness of their mood states led to overcorrection biases. Berkowtiz et al.'s study focused on state levels of awareness, whereas the present study examined trait awareness. It appears that both types of awareness produce similar mood effects.

In summary, we are still in the earliest period of assessing the psychometric properties of measures of emotional style, experience, and processing. The present study adds to the increasing number of studies which suggest that the LEAS is a reliable, distinctive, and useful measure. It has now been shown to be related to such divergent phenomena as blood flow in the anterior cingulate cortex (Lane, Reiman, et al., 1998) and to mood correction processes (present study). The LEAS is an exciting new measure, and more work is needed to fully explore its potential.

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