FREQUENCY OF POSITIVE AFFECT AS A POSSIBLE MEDIATOR BETWEEN PERCEIVED EMOTIONAL INTELLIGENCE AND LIFE SATISFACTION

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Abstract: This study examined the incremental validity of Perceived Emotional Intelligence (PEI) as measured by the Trait Meta-Mood Scale (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) on the prediction of life satisfaction after controlling for personality and affect, which are known to be related to well-being. A sample of 173 undergraduate Spanish students completed three subscales of PEI (Attention, Clarity, and Repair), a Big Five personality inventory, and reported on the frequency of positive (PA) and negative affect (NA) during the two weeks before participating in the study. There were significant associations between life satisfaction and both Clarity and Repair. Hierarchical regression analysis showed that Clarity accounted for more variance in life satisfaction than personality or NA, but not when frequency of PA was taken into account. These results show the necessity of controlling for PA and NA independently and differentiating between intensity and frequency of affect when evaluating the incremental validity of PEI in the prediction of life satisfaction.

Key words: Emotional intelligence, affect, personality, life satisfaction.

Title: Frequency of positive affect as a possible mediator between Perceived emotional intelligence and life satisfaction

Introduction

Research on Emotional Intelligence (EI) has been growing rapidly over the last decade. During this time, researchers have been developing theoretical models and valid measures to assess the construct. Today, we distinguish between two models: ability and mixed models (Mayer, Salovey, & Caruso, 2000). The ability model is based on actual knowledge of emotion-based information processing (Salovey & Mayer, 1990) while mixed models of EI include personality traits and social skills in addition to emotional functioning (Bar-On, 1997; Goleman, 1995). At the same time,
several self-report measures have been created (e.g. the Trait Meta-Mood Scale; Salovey et al., 1995; the Bar-On Emotional Quotient Inventory, EQ-i; Bar-On, 1997), as well as several performance measures of EI (latest version, MSCEIT V.2.; Mayer, Salovey, & Caruso, 2002). Over the last decade, researchers have been able to work on the construct validity of both EI models by studying how they relate to important outcomes in everyday life (Ciarrochi, Deane, & Anderson, 2002; Ciarrochi, Forgas & Mayer, 2005; Mayer, Salovey, & Caruso, 2004; Schutte, Malou, Simunek, Hollander, & McKenley, 2002).

In the present study we focus on the predictive validity of the Trait Meta-Mood Scale (TMMS), a well-studied and valid self-report instrument to measure perceived EI as described by Salovey and Mayer (1990). This measure was developed to assess individuals’ perceived knowledge about their own emotional abilities or Perceived Emotional Intelligence (PEI; Mayer et al, 2000; Salovey, Stroud, Woolery, & Epel, 2002). Specifically, the TMMS is a measure of beliefs concerning to (1) the Attention one pays to one’s own feelings, (2) Clarity to be able to identify and understand those feelings, and (3) Repair of negative moods (Salovey et al, 1995).

PEI may be a protective factor against adversity, as it is related to lower levels of stress (Goldman, Kraemer, & Salovey, 1996; Salovey et al, 2002), fast recovery from negative events (Salovey et al., 2002), and lower levels of alexithymia, ruminative thoughts, anxiety, and depression (Fernandez-Berrocal, Ramos, & Extremera, 2001; Fernandez-Berrocal, Salovey, Vera, Extremera, & Ramos, 2005; Rude & McCarthy, 2003). On the positive side, PEI is related to empathy, optimism, and better quality of relationships (Salovey et al, 2002), better health (Fernandez-Berrocal & Extremera, 2002), positive thoughts, and active coping (Gohm & Clore, 2002).

These findings show that PEI is relevant to important life outcomes. However, few studies have examined the relationship between PEI and the multidimensional model of subjective well-being, composed of positive affect (PA), negative affect (NA), and life satisfaction (Lyubomirsky, Diener, & King, 2005). Several studies have found PEI to have incremental predictive validity over life satisfaction. Palmer, Donaldson, & Stough (2002) found that PEI, specifically the Clarity subscale, significantly accounted for variance in life satisfaction by beyond PA and NA intensity, as measured by the PANAS (Watson, Clark, & Tellegen, 1988). These results were confirmed using structural equation modeling, which showed general PEI to be a significant predictor of life satisfaction (Gignac, 2006). However, this study did not control for personality factors, Extraversion and Neuroticism, in particular, which are both important predictors of life satisfaction (Diener, Oishi, & Lucas, 2003) and consistently related to EI when measured with self-report instruments (Davis, Stankov, & Roberts, 1998; Saklofske, Austin, & Minski, 2003). As such, they must be taken into account in EI research.

One study examining associations between TMMS and life satisfaction, controlling for the Big Five factors (but not affect), found that Repair of feelings accounted for variance in life satisfaction beyond personality (Bastian, Burns, & Nettelbeck, 2005). Another study observed the predictive validity of the TMMS in life satisfaction beyond both the Big Five factors and affect intensity. Again, Clarity of feelings appeared to be a significant predictor of life satisfaction over and above these well-known factors (Extremera & Fernandez-Berrocal, 2005). However, the Profile
of Mood States (POMS; Shacham, 1983) scale, used in this last study, focuses mainly on negative moods. This leaves positive affect, which has shown to be an important predictor of life satisfaction, under-represented (Hueber & Dew, 1996). Different studies on the factor structure of affect have shown PA and NA to be independent (Diener, Smith, & Fujita, 1995; Egloff, 1998; Goldstein & Strube, 1994; Hueber & Dew, 1996). Several authors have proposed a broaden-and-build model to explain the cognitive influence of positive emotions, which, unlike the extended studied negative emotions, explain also important outcomes as broad individuals' mental capacities and experiences (Frederickson, 2001). The dissimilarity of PA and NA is more pronounced when considering emotions (affect-state) as opposed to moods (affect-trait) (Kardum, 1999) and when examining the frequency as opposed to the intensity of PA and NA (Diener, Larsen, Levine, & Emmons, 1985; Schimmack & Diener, 1997). Affect intensity is seen as a disposition to react strongly to emotion-elicitng events, is relatively stable over time, and is considered trait-like by some researchers (Diener, Larsen, Levine, & Emmons, 1985; Schimmack & Diener, 1997), while affect frequency refers to the amount of time in which we experience positive and negative mood. Frequency and intensity are separate processes which independently contribute to the affective experience. For these reasons, this study will examine, first, the relationship between PEI and frequency of PA and NA, controlling for personality, and second, the incremental validity of PEI in the prediction of life satisfaction when personality and frequency of both, PA and NA are taken into account independently.

**Method**

**Sample**

A total of 173 undergraduate students of Economics and Education from the University of Cantabria, Spain, participated in the study. The students included 45 males and 124 females, with a mean age of 20.48 (SD=1.28). Most of the students, 84.5%, lived in their parents’ home.

**Measures**

*Trait Meta-Mood Scale (TMMS; Salovey et al., 1995; Spanish version TMMS-24; Fernández-Berrocal, Extremera, & Ramos, 2004)*. The TMMS is a self-report instrument that assesses, through the extent to which people attend to their feelings (Attention; “I usually pay attention to my feelings”), clearly perceive their own emotional states (Clarity; “Frequently I can define how I am feeling”), and use cognitive strategies to repair negative mood (Repair; “When I become upset, I remind myself of all the pleasures in life”) using a five point Likert scale (1 = strongly disagree to 5 = strongly agree). Both the English and Spanish versions of the scale are valid and have both high internal consistency and satisfactory test–retest reliability.

*Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985)*. This measure consists of ten statements relating to the perception of global life satisfaction. Subjects rate the degree to which they agree with each statement on a seven point scale. The measure has demonstrated discriminant and convergent validity, as well as good internal consistency.

*Ten Item Personality Inventory (TIPI; Gosling, Rentfrow & Swann, 2003)*. This is a brief, ten item measure of the Big Five personality traits. Individuals respond on a
seven point scale, rating the extent to which they agree with each statement. This scale has good test-retest reliability and convergent and discriminant validity.

**Life Space Scale (LSS; Brackett & Mayer, in press).** The Life Space Scale is designed to study college students’ external environment and typical behavior in different domains, including daily interactions and activities. We used the subscales related to transient PA and NA, which measure frequency of PA (3 items: happiness, proud, and confidence) and NA (8 items: guilt, shame, restlessness, irritability, sadness, panic, and helplessness) during the previous two weeks; participants responded on a five point scale (0; 1-2; 3-5; 6-10; ≥11 times). Both scales have acceptable reliability (Positive affect: \( \alpha = 0.75 \); Negative affect: \( \alpha = 0.64 \)).

**Procedure**

Students were asked to participate in a voluntarily study about students’ lifestyle. All students completed the questionnaires in an hour of regular class time in their respective group and classroom. The answers were completely anonymous to reduce the influence of social desirability. They first filled the LSS (PA and NA), then the TIPI, followed by the SWLS, and finally, the TMMS.

**Results**

Means, standard deviations, and internal consistency reliabilities (coefficient alpha) for all measured variables are presented on Table 1. In general, means, standard deviations and the reliability of measures were similar to those reported in previous research, although in personality and life satisfaction measures the means are not significant but little higher than in previous studies about life satisfaction and PEI. In the case of affect scales, the results translate into a score approximately half way between “1-2 times” and “3-5 times” during the last two weeks. The Pearson correlations between all the measures are shown in table 2.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>S.D.</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWLS-Life Satisfaction</td>
<td>5.03</td>
<td>2.21</td>
<td>( \alpha = 0.86 )</td>
</tr>
<tr>
<td>TMMS-Attention</td>
<td>3.36</td>
<td>0.83</td>
<td>( \alpha = 0.90 )</td>
</tr>
<tr>
<td>TMMS-Clarity</td>
<td>3.28</td>
<td>0.87</td>
<td>( \alpha = 0.79 )</td>
</tr>
<tr>
<td>TMMS-Repair</td>
<td>3.07</td>
<td>0.77</td>
<td>( \alpha = 0.84 )</td>
</tr>
<tr>
<td>TIPI-Extraversion</td>
<td>4.22</td>
<td>1.39</td>
<td>( \alpha = 0.50 )</td>
</tr>
<tr>
<td>TIPI-Neuroticism</td>
<td>4.02</td>
<td>1.30</td>
<td>( \alpha = 0.37 )</td>
</tr>
<tr>
<td>TIPI-Openness</td>
<td>4.98</td>
<td>1.10</td>
<td>( \alpha = 0.36 )</td>
</tr>
<tr>
<td>TIPI-Agreeableness</td>
<td>4.87</td>
<td>1.12</td>
<td>( \alpha = 0.23 )</td>
</tr>
<tr>
<td>TIPI-Consciousness</td>
<td>5.08</td>
<td>1.14</td>
<td>( \alpha = 0.19 )</td>
</tr>
<tr>
<td>LSS-Positive affect</td>
<td>2.62</td>
<td>0.87</td>
<td>( \alpha = 0.75 )</td>
</tr>
<tr>
<td>LSS-Negative affect</td>
<td>1.95</td>
<td>0.69</td>
<td>( \alpha = 0.64 )</td>
</tr>
<tr>
<td></td>
<td>RSS-Negative affect</td>
<td>RSS-Positive affect</td>
<td>TIPP-Communication</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------</td>
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<td>------------------</td>
</tr>
</tbody>
</table>
| 1.50          | 0.14*               | 0.00               | 0.20**           | 0.15**                  | 0.18**        | 0.22**         | 0.16**         | 0.01           | 0.00         | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00-
| 2.00          | 0.00               | 0.00               | 0.00             | 0.00                    | 0.00          | 0.00           | 0.00           | 0.00           | 0.00         | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00-
| 2.50          | 0.00               | 0.00               | 0.00             | 0.00                    | 0.00          | 0.00           | 0.00           | 0.00           | 0.00         | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00-
| 3.00          | 0.00               | 0.00               | 0.00             | 0.00                    | 0.00          | 0.00           | 0.00           | 0.00           | 0.00         | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00-
| 3.50          | 0.00               | 0.00               | 0.00             | 0.00                    | 0.00          | 0.00           | 0.00           | 0.00           | 0.00         | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00-

Table 2: Correlations between the TIPPS subscales and different measures.
As shown in Table 2, life satisfaction is correlated significantly with most subscales of PEI, personality, and affect. PEI also is associated with several personality traits as well as with PA and NA. However, the magnitudes of the correlations are small enough to suggest that these factors, though related, are different constructs and measure different aspects of emotionality. Also, PA and NA are related to several personality factors and are correlated with each other; again, these correlations are very low in magnitude.

In order to test whether PEI accounted for affect frequency beyond the Big Five factors, we conducted two separated hierarchical multiple regression analyses, each with PA and NA as dependent variables. The regression model for NA accounted for 24.1% of its variance ($R^2=0.491$, $R^2=0.17$, $F(5,164)=2.747$, $p<0.05$), in which 18% of the variance was explained by PEI and 6% by personality traits. The significant factors in the prediction of NA were Attention to feelings ($B=0.27$, $p<0.001$), Repair of mood ($B=-0.17$, $p<0.05$) and Neuroticism ($B=-0.23$, $p<0.01$). In the case of PA, the regression model accounted for 9.3% of the variance, explained by PEI ($R=0.30$, $R^2=0.09$, $F(5,164)=5.773$, $p<0.001$). Only two factors had significant coefficients: Clarity with feelings ($B=0.25$, $p<0.01$) and Extraversion trait ($B=0.16$, $p<0.05$). Results showed that PEI was a significant predictor of affect frequency when personality is taken into account.

Also, in order to test whether PEI significantly accounted for variance in life satisfaction beyond personality traits and frequency of PA and NA, we conducted a hierarchical multiple regression analysis with life satisfaction entered as the dependent variable. Results are shown in Table 3.

| Table 3. Final model of Hierarchical multiple regression predicting life satisfaction |
|-----------------------------------------------|---|---|---|---|---|
| Step 1: TMMS subscales                              | $R^2$ | F | $\beta$ | P | $\Delta R^2$ |
| 1. Attention                                      | 0.12 | 8.195 | 0.01 | 0.79 | 0.11*** |
| 2. Clarity                                        | 0.10 | 0.00 | 0.20 | 0.91 | 0.22*** |
| 3. Repair                                         | -0.00 | 0.12 | 0.09 | 0.23 | 0.28*** |
| Step 2: Personality traits                         | 0.25 | 5.735 | -0.22 | 0.00** |
| 1. extraversion                                   | 0.12 | 0.00 | 0.09 | 0.23 | 0.28*** |
| 2. Neuroticism                                    | -0.26 | 0.00** | 0.44 | 0.23 | 0.28*** |
| 3. Openness                                       | -0.05 | 0.00 | 0.44 | 0.23 | 0.28*** |
| 4. Agreeableness                                  | 0.08 | 0.00 | 0.21 | 0.23 | 0.28*** |
| 5. Consciousness                                  | 0.07 | 0.00 | 0.30 | 0.23 | 0.28*** |
| Step 3: Negative Affect                           | 0.27 | 4.389 | -0.22 | 0.00* |
| Step 4: Positive Affect                           | 0.32 | 12.394 | 0.25 | 0.00** |

*p<0.05; **p<0.01; ***p<0.001*

The regression model accounted for 32.8% of the variance in SWLS scores ($R^2=0.573$, $R^2=0.328$; $F(1, 162) = 12.394$, $p<0.001$). In the first step, Clarity and Repair showed a significant coefficient. Next, personality factors were entered in the analysis, and Extraversion ($B=0.16$; $p<0.05$) and Neuroticism ($B=-0.25$, $p<0.001$) showed significance for life satisfaction, as did Clarity. Repair, however,
became non-significant. Because PA and NA are considered different factors, we entered them independently in the analysis. When NA was entered in the third step with a significant coefficient ($B = -0.15$, $p < 0.05$), Clarity, Extraversion, and Neuroticism remained significant. When we included PA in the final step ($B = 0.24$, $p < 0.001$), Neuroticism still accounted for some variance in life satisfaction, but the influence of Clarity and Extraversion did not remain significant.

Discussion
The present study examined relations among PEI and frequency of PA and NA, as well as the role of PEI in predicting life satisfaction when personality traits and frequency of affect are taken into account.

We found that PEI predicted a higher amount of variance in affect frequency than personality traits, supporting a stronger relation between personality traits and affect intensity as opposed to frequency of affect (Diener, Larsen, Levine, & Emmons, 1985; Schimmack & Diener, 1997).

Also, we observed that individuals with high Neuroticism have the proclivity to attend to their feelings, may not use strategies to repair their negative mood, and, therefore, may experience NA more frequently. Extroverts, however, have higher emotional clarity, are more aware of their feelings, and may experience more PA. These results are consistent with previous findings with respect to the relation of personality traits and affect (Diener, Sandvik, Pavot, & Fujita, 1992; Diener et al, 2003; Magnus & Diener, 1991).

Also consistent with previous research, the presence of PA appears to be the strongest predictor of life satisfaction. The results confirm that people who are more emotionally stable (i.e., low on Neuroticism) and also experience more PA and less NA, tend to report higher satisfaction in their lives (Diener, Oishi, & Lucas, 2003).

With respect to the incremental validity of PEI, none of the PEI subscales accounted for variance after personality and PA were considered.

Results also confirm the difference between intensity and frequency of affect in the prediction of life satisfaction. Diener, Sandwick and Pavot (1991) found that frequency of affect is more important than intensity for an individual’s well-being. This can help explain why the influence of PEI is reduced to non-significance when frequency of affect is taken into account, but not when intensity is measured. Measures of intensity and frequency of PA and NA are recommended to be used in future research about incremental predictive validity of EI over life satisfaction (Schimmack & Diener, 1997).

Results also suggest that affect frequency may be a mediator in the interaction between PEI and life satisfaction. Clarity may facilitate the experience of PA, which would increase life satisfaction. Moreover, current theory regarding the role of positive emotions (for a review, Lyubomirsky et al, 2005) affirms the causal effect positive emotions have on success outcomes. The outcomes related to positive emotions include many that are also related to previous EI research, such as social support, health, risk behaviors. PA may play a facilitating role between PEI and life outcomes. The authors echo Tugade and Fredrickson’s (2002) suggestion that researchers consider making the role of positive emotions more explicit in current theories of EI, as life satisfaction studies indicate that PA is important to the effect EI has on happiness. In
the future, it would be important to confirm these results in samples with a greater proportion of men, using several measures of affect, more reliable personality measures, and perhaps, controlling for social desirability response bias. Studies using performance measures of EI also could contribute to the research about these interactions.

Acknowledgments

We want to thank to James Casey his useful commentaries to this work.

Received: 09-11-2006
Accepted: 18-11-2006

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