

# An Intentional Model of Emotional Well-Being: The Development and Initial Validation of a Measure of Subjective Well-Being

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**Abstract** The major problem with the current emotional well-being scales is that they lack intentionality (being about something), which makes them incongruent with the definition of subjective well-being. A new emotional well-being scale with new affect adjectives has been developed by addressing intentionality. It focuses on individuals' affective evaluations of their life and has showed good psychometric quality. In the first and second studies, the factor structure of the scale, the Emotional Well-Being Scale, was determined by exploratory and confirmatory factor analyses. Study 3 showed that the scores on the scale were stable in time. The fourth and fifth studies indicated that this new construct did not overlap with personality dimensions of extraversion and neuroticism, with impressive predictive and incremental validity estimates.

**Keywords** Subjective well-being · Intentionality · Emotional well-being · Personality · Affect

## 1 Introduction

Subjective well-being (SWB) is defined as the affective and cognitive evaluation of life (Diener 1984; Diener and Lucas 2000). The concept of SWB consists of three dimensions; negative affect (NA), positive affect (PA), and life satisfaction. The former two are affective evaluations, known as emotional well-being (EWB) or subjective emotional well-being (SEWB) while the latter is cognitive (Diener and Lucas 2000). The research has shown that these dimensions are closely related to both positive indicators of mental health such as self-esteem, psychological well-being, and extraversion (Diener 1984; Diener et al. 2003; Ryff and Keyes 1995), and negative indicators such as depression, anxiety, and neuroticism (Lonigan et al. 2003; Diener 1984).

The main concern in the assessment of SWB is individuals' lives as a whole. Indeed, Diener and Lucas (2000) indicate that "Subjective well-being researchers ... assess

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individuals' thoughts and feelings *about* their lives.” (p. 325, Italics added). “Being about something” refers to one of the most important concepts of philosophy of mind, namely intentionality. The concept of intentionality was first deliberately used by Husserl (1970) to acknowledge the basic characteristic of mental states, that is, that they always have content or are about something. Husserl considered that intentionality was the marker of mental states, implying that consciousness is always ‘consciousness of something’. Thus, he attempted to eliminate the idea that consciousness resembles a container in which all mental states are located. Such an inclination to consider consciousness as an empty space makes it metaphysical and mysterious. Regarding all mental phenomena as intentional states is to make them belong more to the empirical domain. Consequently, Husserl asserted that in order for philosophy to be a truly scientific scrutiny to the same extent as natural sciences, the intentionality of mental states should be taken into consideration. Otherwise, the knowledge of the nature of mental phenomena would be incomplete.

This paper argues that the same situation is valid for the scientific study of SEWB. It is evident that the importance of intentionality has been ignored in the assessment of SEWB. Even though there is ample literature supporting the idea that emotions or affect are basically intentional (Barrett et al. 2007; Goldie 2002, 2004; Lewis and Todd 2005; Nussbaum 2001; Whiting 2006), there is no measure of SEWB that takes intentionality into consideration. Even Aristotle, who has been seen as a pioneer of both hedonic (Bradburn 1969; Diener et al. 2006) and eudaimonic (Waterman 1993) conceptualizations of SWB, indicated that the proper description of emotion is not possible without reference to intentionality (Solomon 2006).

Current theories of emotion, according to Lambie and Marcel (2002), deal with the self-focused emotions rather than focusing on the awareness of world that takes the content of emotion experiences into account. In measuring affective evaluations of life, namely EWB, indeed, the content of affective evaluations has not been considered as important since current instruments measure only emotional experiences that have no referent. Such emotional experiences have been defined by Russell (2003) as “core affect”. Although emotions are generally thought of as mental states of mind by which we can appraise or interpret the importance of events or objects and thus be ready to behave accordingly, the intentionality is not considered as an elementary constituent of them (Russell 2003). According to Russell, the object in the experience of an emotion is not related to core affect, but rather to attributed affect, which is the case when a change in core affect is linked to its perceived cause. The Positive and Negative Affect Schedule—PANAS (Watson et al. 1988), as one of the most cited measures for affective evaluations, for example, consists of affect terms and is designed to let participants state the frequency or intensity of their emotions in daily life. Positive and negative affective evaluations measured by this scale, however, are not congruent with the definition of SWB because it consists of affect terms that do not refer to life itself; it refers, in fact, to nothing.

When measured this way, affective evaluations of life cannot be measured thoroughly; there is no referent or content in such evaluations. Perhaps for this reason, the latest writings on SWB define EWB as people’s emotional reactions to events (Diener et al. 2003), not to life as a whole, a statement that appeared in the earlier writings on SWB (Diener et al. 1995, 1997). Such an adjustment in the definition still lacks a referent because SWB is the evaluation of life itself, not the evaluation of events in life. It is clear then that affective evaluations referring to life itself would give EWB a real character that is congruent with its operational definition. As stated by Diener et al. (1997), “...an evaluation of one’s life also may be in the form of affect (people experiencing unpleasant or pleasant moods and emotions in reaction to their life)” (p. 25).

Moreover, some theoretical considerations imply that infusing intentionality into the measurement of SEWB makes it more ‘subjective’ by definition; that is, intentionality makes SEWB more congruent with the idea that well-being should be evaluated with personal/subjective criteria (Diener et al. 1997). According to Nussbaum (2001), for example, Intentionality should not be considered merely as an act of intending or a mechanical type of directedness. Rather, it refers to the personal engagements with the world (Nussbaum 2001; Solomon 2006), which Lewis and Todd (2005) call ‘emotional interpretation’ and Goldie (2004) refers to as ‘extraspective knowledge’ (e.g., feeling towards). The basic idea behind these considerations is that thanks to intentionality, emotions become individual lenses through which we are tuned to life itself. In other words, intentionality is considered to be a requirement for any affect state to be subjective or phenomenal. According to Nussbaum (2001), “Emotions are not about their objects in the sense of being pointed at them... Their aboutness is more internal, and embodies a way of seeing (p. 27)”. Emotions, accordingly, are active interpretations directed to the world. As Solomon (2006) suggests, emotions are much more than affect programs; rather, they are ways of experiencing and engaging with the world in a purely subjective manner when intentionality accompanies evaluation. Similarly, Goldie (2002) states that intentionality and phenomenology cannot be detached from each other since phenomenology is neither an aspect of the affective disposition nor of the content. Rather, it infuses both.

Beyond these conceptual/definitional considerations, it is possible to argue that if EWB had an identity of its own, this would also help solve some discriminant validity problems. One of the most important concerns about EWB is its conceptual status in the face of personality dimensions of extraversion (E) and neuroticism (N). There are considerable instances of findings indicating that the personality factors of E and N conceptually and operationally overlap with PA and NA, respectively (McCrae and Costa 1991; Meyer and Shack 1989; Schumutte and Ryff 1997; Watson et al. 1992). As Schumutte and Ryff (1997) stated, when personality measures and affect are investigated within a single factor structure, neither a pure affect nor a pure personality factor emerges. The results of these factor analytic studies, according to the authors, indicated that NA items loaded on a factor were identified as N, and PA items loaded on a factor were identified as E. Such an overlap resulted in extreme correlations between the constructs, sometimes exceeding .90 (Finch 1998). As a result of such confusion, some (Clark et al. 1994) use the concepts of PA and E or NA and N interchangeably. It is possible, then, to argue that affective evaluations referring directly to the life itself would be more distinguishable from those of the personality dimensions of E and N. Using a set of affect adjectives more congruent with the notion of “evaluation of life” could make SEWB differentiable from these personality dimensions.

All of the literature mentioned above indicates that there is a need for a measurement tool consisting of items relevant to the evaluation of life in terms of affect, since the current measures of SEWB do not contain such items at all. It will be shown in this research that such a measure of EWB (called Emotional Well-Being Scale—EWBS) with new items congruent with the definition of “subjective evaluation of one’s own life” gives information about both positive and negative mental health indicators above and beyond the current measures of affect, while, at the same time, is more distinguishable from E and N. More specifically, in the first and second studies, it will be shown whether this new measure has good psychometric qualities with regard to factor structure. In the third study, test–retest reliability of the scale will be assessed. The fourth is focused on the discriminant validity of the EWBS against personality dimensions of E and N, in addition to some preliminary evidence for convergent and incremental validity. The aim of the fifth study is

to further assess the convergent and incremental validity of the EWBS over the current well-known measure of affect.

## 2 Study I: Scale Development, EFA, CFA, and Initial Reliability

Study 1 sought to define item content of the EWBS, identify the factorial structure behind this content and give reliability proof for the structure obtained.

### 2.1 Method

#### 2.1.1 Development of the Item Pool

The aim of this study was to develop items which would enable individuals to evaluate their own lives in affect terms. The affect terms were primarily adopted from the list of emotions used in the assessment for the answers given to the vignettes of the Levels of Emotional Awareness Scale (Lane et al. 1990). However, in order to make affective evaluations intentional, the items were written as sentences rather than the usual affect terms. Such an item format was thought to be the most suitable way to ensure intentionality in the affective evaluation of one's own life. Thirty items for the initial form of the Emotional Well-Being (EWB) scale were generated by the author. Since the content of the scale is life, some of the affect terms used in well-known measures such as *strong*, *attentive*, or *active* were not chosen for the initial item pool. Four graduate students from psychology and two from linguistics evaluated the items in accordance with the clarity, coherence with intentionality, and face validity. After these collaborative examinations, a number of items were eliminated, a number were changed, and others were added to the initial item pool. It is clear, for example, that an item such as "I feel strong about my life" is not appropriate in terms of syntax and semantics, at least in the target language (Turkish). Items appropriate in this sense, such as "I am anxious about my life" or "My life makes me sad" were selected and included in the item pool. Other items such as "I hate my life" or "I am disgusted with my life" were eliminated because of their strong emotional content relative to other items. Twenty-three items were included in the final item pool as a result of this procedure. Participants were asked to rate the intensity of the emotions in a general time frame on a 5-point Likert scale.

#### 2.1.2 Participants

The participants were 334 undergraduate students from two different universities in Turkey. All respondents recruited by convenience were assessed in small-group sessions. The sample consisted of 200 women and 134 men with a mean age of 20.6.

### 2.2 Results

#### 2.2.1 The Exploratory Factor Analysis

An initial principal component analysis was conducted on the data, using SPSS 12. A varimax rotation was used to clearly understand the nature of the underlying structure. The data and sample size were adequate for the analyses when the following two criteria were

taken into consideration: Barlett's test of sphericity,  $\chi^2$  (190,  $N = 334$ ) = 3,116.12,  $p < .001$ , and the Kaiser-Meyer-Olkin measure of sampling adequacy (.94).

The number of components to be extracted was then determined by (a) eigenvalues above 1.0 and (b) Cattell's scree test (Cattell 1966). However, Kaiser's criterion can yield too many factors so the retention of factors was determined by the scree plot (Zwick and Velicer 1986), which suggested two components. A two-factor solution was chosen for two additional reasons: (a) It was the most conceptually interpretable, and (b) it resulted in the soundest factor structure with stronger item loadings and factor internal consistency. Variables with single-factor loadings less than .45 and variables with cross-loadings greater than .25 were eliminated. From the original 23 items, on the basis of the above criteria, nine items were eliminated.

Table 1 presents the item factor loadings for the two factors determined by the factor analysis. These factors, as expected, were groupings of negative and positive affect adjectives. The first factor, positive emotional well-being—PEWB, consisted of seven positive affective evaluations, accounting for 31.37% of the variance. The second factor, negative emotional well-being—NEWB, consisted of seven items reflecting negative affective evaluations regarding life, accounting for 29.30% of the variance. These two factors accounted for 60.67% of the total variance. Cronbach's alpha internal consistency estimates for the two factors were .89 and .88, respectively. The correlation between the factors was defined as  $-.59$ .

**Table 1** Factor loadings of the items of the EWBS

Item/factor	Study 1				Study 2			
	PEWB	NEWB	<i>M</i>	<i>SD</i>	PEWB	NEWB	<i>M</i>	<i>SD</i>
Positive emotional well-being (PEWB)								
07 Life gives me pleasure	<b>.832</b>	-.250	3.38	1.08	<b>.802</b>	-.229	3.64	1.04
01 Life excites me	<b>.809</b>		3.26	1.19	<b>.730</b>		3.42	1.04
02 I feel at peace with life	<b>.795</b>	-.253	3.50	1.08	<b>.756</b>	-.271	3.70	1.03
14 I get satisfaction from life	<b>.790</b>	-.295	2.43	1.23	<b>.698</b>	-.289	3.45	1.02
05 I am content with life	<b>.753</b>	-.350	3.45	1.05	<b>.730</b>	-.358	3.72	1.06
11 I appreciate the life I lead	<b>.661</b>		3.79	1.07	<b>.616</b>	-.205	3.99	1.02
06 I completely accept life as it is	<b>.562</b>	-.234	3.41	1.12	<b>.528</b>		3.54	1.10
Negative emotional well-being (NEWB)								
09 I feel pain about my life	-.254	<b>.781</b>	1.68	1.03	-.314	<b>.704</b>	1.48	.86
08 I feel upset about my life	-.295	<b>.762</b>	2.00	1.06	-.277	<b>.720</b>	1.84	.97
12 The life I lead gets me down	-.325	<b>.755</b>	1.98	1.12	-.269	<b>.755</b>	1.80	1.00
10 The life I lead frightens me		<b>.746</b>	2.18	1.23		<b>.703</b>	1.86	1.03
04 I worry about the life I lead	-.222	<b>.733</b>	2.43	1.23		<b>.749</b>	2.25	1.15
03 The life I lead saddens me	-.280	<b>.720</b>	2.24	1.16	-.239	<b>.692</b>	2.00	.98
13 I feel I'm wasting my life	-.239	<b>.539</b>	2.18	1.31		<b>.552</b>	1.96	1.09

Analysis is based on 334 observations in Study 1 and 393 observations in Study 2. The EWBS item ratings range from 1 to 5. Likert scale anchors for Study 1 ranged from 1 = *very slightly or not at all* to 5 = *extremely*. Internal consistency estimates for Factors 1 and 2  $\alpha = .89$ ,  $\alpha = .88$  in Study 1, and .85 for both factors in Study 2. Factor loadings less than .20 are not represented. Factor loadings obtained in Study 2 are not ordered

### 2.2.2 Confirmatory Factor Analysis

In a competing model strategy (MacCallum et al. 1993), two alternative models were tested against the proposed first-order two-factor model: a one-factor model and a higher-order model. Using Lisrel 8.3 (Jöreskog and Sörbom 1993), confirmatory factor analyses were conducted on a covariance matrix of the scores on the EWBS. Several indexes were computed for each of the competing models to assess the degree to which the models fitted the data. As noted extensively in the literature, chi-square statistics tend to be affected by large sample sizes and tend to be significant, despite reasonable fit to the data (Bentler and Bonett 1980; Byrne 1998). Therefore, as suggested by Byrne (1998), several alternative indexes of fit as adjuncts to the chi-square statistic were used, including the chi-square to degrees of freedom ( $\chi^2/df$ ) ratio, the comparative fit index (CFI), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), root-mean-square error of approximation (RMSEA), and standardized root-mean-square residual (SRMR).

The goodness-of-fit statistics are presented in Table 2, from which it can be seen that the proposed two-factor model and higher-order model achieved an acceptable fit to the data. However, since there is no chi-square difference between these two models, the two-factor model which is more parsimonious was considered as valid. Item pattern coefficients (loadings) from the completely standardized solution to this model gave evidence for strong validity, ranging from .55 to .85, with most over .70. Accordingly, the t-values ranged from 10.28 to 17.57. The model produced only four modification indices produced by the LISREL, which offer no valuable contribution to the model tested.

## 3 Study II: Cross-Validation of Factor Structure

Study 2 aimed at validating the factor structure which emerged in the first study with a different sample. The data were used to conduct exploratory and confirmatory factor analyses and internal consistencies were calculated.

### 3.1 Participants

The participants were 393 undergraduate students from three different universities in Turkey. All respondents recruited by convenience were assessed in small group sessions. The sample consisted of 178 women and 215 men, with the mean age of 21.

**Table 2** The results of confirmatory factor analyses on the EWBS items

Indices	One-factor model	Two-factor model	Higher-order model
$\chi^2/df$	(992.9/77) 12.89	(153.6/76) 2.02	(153.6/75) 2.02
GFI	.70	.94	.94
AGFI	.59	.91	.91
SRMR	.096	.043	.043
RMSEA	.19	.055	.056
CFI	.79	.97	.97

$N = 334$ . Confidence intervals for the RMSEA were as follows: 1-factor model: .18–.20; 2-factor model: .043–.068; higher-order model: 0.43–0.69

GFI goodness-of-fit index, AGFI adjusted goodness-of-fit index, RMR root-mean-square residual, RMSEA root-mean-square error of approximation, CFI comparative fit index

### 3.1.1 Exploratory and Confirmatory Factor Analysis

A principal components analysis was performed on the final 14-item EWBS. Factorability of the correlation matrices was assessed again, with significant results on Bartlett's test of sphericity as well as on the Kaiser-Meyer-Olkin measure of sampling adequacy. In this analysis, only two-factors, composed of positive and negative affect adjectives, emerged with eigenvalues greater than 1.0. Factor loadings of the factors are represented in Table 1. These two factors accounted for 27.48 and 26.99% of the variance respectively, both of which had internal consistency coefficients of .85. The correlation between the factors was  $-.61$ .

Confirmatory factor analyses were repeated taking the alternative models in Study 2 into account. As can be seen from Table 3, again the two-factor first-order model produced the best results. Loadings from the completely standardized solution produced results similar to those obtained in Study 1, ranging from .44 to .85. T-values ranged from 8.75 to 20.08. The model yielded only 10 modification indices produced by the LISREL, which indicated small decreases in chi-square.

## 4 Study III: Retest Reliabilities

The PEWB and NEWB had a 2-month retest correlation of .75 and .79, respectively ( $N = 41$ ). The participants for this study were students recruited from the Introductory Guidance subject pool. It is worth noting that these values exceed the minimum benchmark of .70 for short term test-retest reliabilities recommended by Joiner et al. (2005). Additionally, independent sample  $t$ -test results indicated that there is no statistically significant mean differences between test and re-test scores, both on PA ( $t = .636$ ; 40;  $p > .05$ ) and NA ( $t = .065$ ; 40;  $p > .05$ ). Moreover, general affectivity was measured by PANAS to test whether state affect has any impact on the test-retest reliabilities. Semipartial correlations were calculated when PA and NA scores of the test and re-test conditions were controlled. The semi-partial correlations for PEWB and NEWB were .59 and .60, respectively. These results indicate that the scores on EWBS are relatively stable over a 2-month period even general affectivity is statistically controlled.

**Table 3** The results of confirmatory factor analyses on the EWBS items

Indices	One-factor model	Two-factor model	Higher-order model
$\chi^2/df$	(946.1/77) 12.28	(229.1/76) 3.01	(229.1/75) 3.01
GFI	.74	.92	.92
AGFI	.65	.89	.89
SRMR	.091	.048	.048
RMSEA	.17	.072	.072
CFI	.77	.93	.93

$N = 393$ . Confidence intervals for the RMSEA were as follows: 1-factor model: .16–.18; 2-factor model: .061–.082; higher-order model: 0.062–0.083

*GFI* goodness-of-fit index, *AGFI* adjusted goodness-of-fit index, *RMR* root-mean-square residual, *RMSEA* root-mean-square error of approximation, *CFI* comparative fit index

## 5 Study IV: Concurrent, Discriminant, and Preliminary Incremental Validity

The purpose of Study 4 was to provide preliminary validity estimates for the scale. It was predicted that the EWBS would be related to concurrent measures of SWB, namely the Positive and Negative Affect Scale-PANAS (Watson et al. 1988) and the Satisfaction with Life Scale (Diener et al. 1985). Moreover, personality dimensions, especially N and E, were expected to be correlated with the EWBS scores. For discriminant validity, two exploratory factor analyses were conducted to see whether the items of PANAS and those of the EWBS overlapped with the Big Five Inventory (Benet-Martinez and John 1998) factors of E and N. Additionally, it was expected that the EWBS scores would predict negative and positive affect, and life satisfaction beyond and above the scores on the Big Five Inventory and PANAS.

### 5.1 Method

#### 5.1.1 Participants

One hundred six of the subjects in Study 2 participated in this study, 1 week apart. The average age of the participants was 21.7 years. The measures were completed by the subjects in two sessions, again 1 week apart. Such a procedure was used in order to solve common method variance problems (Podsakoff et al. 2003). In the first session, PANAS and a Satisfaction with Life Schedule, in the second session a one-item happiness questionnaire and Big-Five personality measure were applied in order to eliminate context effects of happiness (Schwarz and Strack 1991).

#### 5.1.2 Measures

The Positive and Negative Affect Schedule-PANAS: PANAS was developed by Watson et al. (1988) as a brief measure of affective evaluation of life. Positive affect (PA) reflects the extent to which a person feels enthusiastic, active, and alert. High PA indicates a state of high energy, full concentration, and pleasurable engagement, whereas low PA is characterized by sadness and lethargy. Different scores can be obtained from the scale according to different time frames (moment, today, past few days, year, or general). The general time frame was used in the present research. The results of the factor analysis employed in the original scale yielded two dominant factors, accounting for the 68.7% variance in the general time frame. Internal consistency was .88 and .87 for PA and NA, respectively. The adaptation of the scale to Turkish was made by Gençöz (2000). Consistent with the original study, the result of the factor analysis revealed two factors, accounting for 44% of the total variance. Internal consistency for PANAS was .83 in the original study, whereas it was .74 in the present study.

The Satisfaction with Life Scale—SWLS: Life satisfaction was measured by Diener et al.'s (1985) SWLS to identify individual differences concerning the cognitive evaluation of one's life. The scale is designed to enable individuals to evaluate their lives according to their own subjective criteria. SWLS was thus developed in order to define the extent to which individuals are satisfied with life in general. Research on SWLS indicates that the scale has good convergent and divergent validity. Factor analysis revealed a single factor accounting for 66% of the total variance. The internal consistency of the scale was .87. Durak et al. (2008) translated the scale into Turkish and reported satisfactory internal consistencies ( $\alpha = .86, .82$ ). Cronbach's Alpha was .81 in this study.



The Big-Five Inventory (BFI): The 44-item BFI (Benet-Martinez and John 1998) was administered to assess five personality dimensions—Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. Ratings are indicated on a scale from 1 (disagree strongly) to 5 (agree strongly) for each item. The scale was adapted by Sumer et al. (2005) who reported only Cronbach's Alpha reliabilities ranging from .64 to .77. The coefficients of Alpha were .75, .81, .78, .60, and .75 respectively in the data set used in this study.

The One-Item Happiness Measure: Individual reports of happiness were assessed by the following single item with a five-point scale: "Taken all together, how happy or unhappy do you usually feel?"

## 5.2 Results

### 5.2.1 Descriptive Statistics and Concurrent Validity

Table 4 provides intercorrelations among the variables used in this study. The two factors of the EWBS were significantly correlated with concurrent estimations of SWB, namely PA, NA, and life satisfaction. The associations between the factors of the EWBS and those of PANAS were moderate. PEWB was highly correlated with the one-item happiness measure. The two dimensions of the EWBS, as expected, were moderately correlated with E and N, whereas the correlations with other dimensions of personality were weak. An expected result is the strong correlation between life satisfaction and PEWB because the SWLS contained an item with emotional content, "I am satisfied with my life", which is also similar to items in the positive factor of the EWBS such as "I get satisfaction from my life" and "I am content with life".

### 5.2.2 Discriminant and Incremental Validity

In order to show whether E and N dimensions of personality overlap with PA and NA, a set of exploratory factor analyses was conducted. In the first analysis, all items of these four

**Table 4** Intercorrelations among the variables used in Study 4

	PEWB	NEWB	HAPPY	PA	NA	LS	EXTR	AGREE	CONSC	NEURO	OPEN
PEWB	1.00										
NEWB	-.60	1.00									
HAPPY	.62	-.38	1.00								
PA	.53	-.31	.40	1.00							
NA	-.51	.54	-.38	-.46	1.00						
LS	.73	-.62	.56	.58	-.45	1.00					
EXTR	.40	-.43	.39	.68	-.51	.44	1.00				
AGREE	.23	-.34	<b>.14</b>	.29	-.50	.22	.34	1.00			
CONSC	.26	-.24	<b>.12</b>	.45	-.49	.21	.31	.50	1.00		
NEURO	-.43	.47	-.34	-.41	.67	-.36	-.43	-.39	-.34	1.00	
OPEN	.32	-.13	.27	.63	-.24	.27	.41	.29	.48	<b>-.14</b>	1.00

PEWB positive emotional well-being, NEWB negative emotional well-being, HAPPY happiness, PA positive affect, NA negative affect, LS life satisfaction, EXTR extraversion, AGREE agreeableness, CONSC conscientiousness, NEURO neuroticism, OPEN openness to experience. Correlations non-significant at  $p = .05$  are in boldface

**Table 5** Factors and their corresponding eigenvalues from the unrotated principle factor analyses of PANAS and SEWB items with personality

Factor	Solution	
	PANAS&EXT &NEUR	SEWB&EXT &NEUR
1	9.493	8.793
2	3.518	2.596
3	2.222	2.288
4	1.817	1.880
5	1.570	1.421
6	1.353	1.324
7	1.241	1.123
8	1.186	1.037
9	1.134	

dimensions were extracted by a principal components analysis. Firstly, the plotted eigenvalues was assessed (Table 5). When plotted, an elbow formed at the third factor, which shows that a two-factor solution was the most appropriate. These two factors, however, accounted for only 36.14% of the variance in the data. The scree-plot indicated that other options, three and four-factor solutions, were also possible, accounting for an additional 6.17 and, 5.04% of the variance respectively. Consequently, three and four-factor solutions were also extracted. The common result in all solutions was that none of the factors consisted of only affect or personality items.

The items of the EWBS were then extracted along with those of E and N in a principal components analysis. The scree-plot clearly indicates that a four-factor solution is the most plausible, accounting for 51.85% of the variance. These factors consist of the items of PEWB, NEWB, N, and E. The examination of these factors clearly indicated that only one item of N loaded on the PEWB, and one item of NEWB loaded on E with negative factor loadings.

To assess whether the EWBS accounted for unique variance in criteria, one-item happiness and life satisfaction, beyond that already captured by personality and affect, PEWB and NEWB scores, were entered into the third block of a hierarchical regression model in which personality factors composed the first block, and PA and NA scores the second.

This regression model was tested, with results depicted in Table 6. The unique variance contributed by the EWBS was significant in these analyses for both happiness and life satisfaction. It is clear from Table 6 that, after controlling for personality factors, PA and NA did not contribute to the variance in happiness ratings of the participants whereas the positive factor of the EWBS contributed 17% to the variance, explained after both personality and general affect were controlled.<sup>1</sup> When life satisfaction was the criterion variable, the EWBS scores accounted for an additional 26% of the variance, a strong support for incremental validity.

<sup>1</sup> When only E and N were factors entered into the equation. PEWB and NEWB explained an additional 19% of the variance in happiness, and 25% of the variance in life satisfaction.

**Table 6** Hierarchical multiple regressions: personality, trait affect, and EWB as predictors of happiness and life satisfaction

Criterion/predictors entered by step	$\beta_1$	$\beta_2$	$\beta_3$	$R$	$R^2$	Adj. $R^2$	$\Delta R^2$
Happiness							
Step 1				.467	.218	.179	–
Extraversion	.224*	.112	.148				
Neuroticism	–.263*	–.117	–.057				
Openness	.202	.150	.109				
Agreeableness	–.038	–.063	–.045				
Conscientiousness	–.125	–.199					
Step 2				.509	.259	.206	.042
PA		.169	–.028				
NA		–.263	–.080				
Step 3				.652	.425	.377	.166***
POSEWB			.520***				
NEGEWB			–.058				
Life Satisfaction							
Step1				.441	.194	.154	–
Extraversion	.299**	–.017	–.060				
Neuroticism	–.214*	.008	.107				
Openness	.119	–.097	–.113				
Agreeableness	.022	.017	.001				
Conscientiousness	–.019	–.145	–.080				
Step 2				.601	.361	.315	.165***
PA		.580***	.459***				
NA		–.284*	–.035				
Step 3				.774	.599	.561	.257***
POSEWB			.412***				
NEGEWB			.326***				

$N = 106$ .  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  = standardized beta coefficients for Steps 1, 2, 3

*POSEWB* positive emotional well-being, *NEGEWB* negative emotional well-being, *PA* positive affect, *NA* negative affect

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

## 6 Study V: Further Validation of the EWBS

Study 4 was limited because it only uses the scores on the One-Item Happiness Measure and the SWLS as criteria. In this final study, further support for validity was obtained using self-esteem (Rosenberg 1965) and psychological well-being (Ryff 1989) as indicators of positive mental health and using depression, anxiety, and negative self scores obtained from the Brief Symptom Inventory (Derogatis 1992) as indicators of negative mental health or psychopathology. To assess incremental validity, taking these variables as criteria, a set of hierarchical regression analyses were conducted, in which PA and NA constituted the first block and two factors of the EWBS the second.

## 6.1 Method

### 6.1.1 Participants

Some of the subjects participating in Study 2 completed the measures 1 week apart (106 male, 110 female; Mean age was 20.2). Again, the measures were completed in separate sessions. The one-item happiness measure and general affect measure were completed in the first session, life satisfaction and psychological well-being in the second, and the measures of self-esteem and psychopathology in the third, with an interval of 1 day between each session.

### 6.1.2 Measures

*The One-Item Happiness Measure:* The same measure constructed and used in Study 4 was used.

*The Positive and Negative Affect Schedule-PANAS:* The relevant information was represented in Study 4. The Cronbach's Alpha coefficient was defined as .78 in this data set.

*Satisfaction with Life:* Again, the SWLS was used to assess life satisfaction judgments and Cronbach's Alpha was .79 in this data set.

*The Psychological Well-Being Scale:* The Psychological Well-Being Scale was developed by Ryff (1989). The scale consists of six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. The scale was adapted to Turkish by Cenkseven (2004) with good internal consistencies ranging from .74 to .83. The coefficients in this study were all over .70 (ranging from .72 to .80) except for .61 in the personal growth dimension.

*The Ten-item Rosenberg Self-esteem Inventory—RSEI:* RSEI (Rosenberg 1965), as a commonly used measure of global self-esteem, was used. The respondents' levels of agreement with 10 self-evaluative statements are averaged to produce an index of self-esteem. Responses are specified on a 5-point Likert-type scale, in which higher scores reflect more positive self-evaluations. RSEI was first translated into Turkish by Tuğrul (1994). Tuğrul also reported a Cronbach alpha coefficient of .86. In this study, Cronbach's Alpha was defined as .85.

*The Brief Symptom Inventory—BSI:* BSI was used in order to measure the mental health of participants in negative terms. The scale was developed by Derogatis (1992) as a shortened version of the SCL-90-R and was adapted to Turkish by Sahin and Durak (1994). It consists of 53 items rated on a five-point Likert-type scale anchored by 1 = Not at all Distressed to 5 = Extremely Distressed. The scale was developed in order to measure nine different mental health indicators such as depression, interpersonal sensitivity, somatization, obsessive-compulsive disorder, anxiety, and paranoid thoughts. The adapted version of BSI revealed 5 sub-scales as a result of an exploratory factor analysis: Anxiety, Depression, Negative Self, Somatization, and Hostility. Only anxiety, depression, and negative self dimensions were used in the present study. The Cronbach's Alpha reliability coefficients were found to be acceptable for the Turkish form (.95 to .96). The internal consistency coefficient for the present data was .93.

## 6.2 Results

The correlations among the constructs were presented in Table 7. Correlations of PEWB and NEWB to happiness, life satisfaction, positive affect and negative affect were similar

**Table 7** Correlations among the variables in Study 5

	PEWB	NEWB	PA	NA	LS	HAPP	SE	GROW	AUTO	ENVM	PRWO	PURP	SELFEF	DEPR	ANXI	NEGSE
PEWB	1.00															
NEWB	-.53	1.00														
PA	.52	-.22	1.00													
NA	-.48	.45	-.26	1.00												
LS	.72	-.47	.40	-.36	1.00											
HAPP	.69	-.43	.40	-.37	.62	1.00										
SE	.59	-.63	.45	-.37	.43	.452	1.00									
PWB																
Growth	.26	-.16	.34	-.17	<b>.09</b>	<b>.04</b>	.360	1.00								
Autonomy	.38	-.17	.47	-.18	.27	.25	.46	.41	1.00							
En. Mas.	.64	-.55	.51	-.41	.53	.50	.61	.31	.44	1.00						
Pos. Rel.	.40	-.40	.35	-.31	.28	.38	.47	.26	.30	.53	1.00					
Purpose	.49	-.47	.48	-.30	.38	.34	.55	.42	.37	.69	.42	1.00				
Self Eff.	.68	-.53	.53	-.41	.66	.62	.67	.29	.53	.66	.49	.529	1.00			
BSI																
Depression	-.50	.68	-.27	.49	-.41	-.49	-.53	-.23	-.23	-.60	-.47	-.49	-.47	1.00		
Anxiety	-.46	.59	-.22	.46	-.32	-.44	-.55	-.23	-.23	-.54	-.39	-.47	-.46	.79	1.00	
Neg. Self	-.43	.64	-.23	.40	-.33	-.39	-.57	-.34	-.30	-.54	-.53	-.46	-.48	.77	.77	1.00

N = 216

PEWB positive emotional well-being, NEWB negative emotional well-being, PA positive affect, NA negative affect, LS life satisfaction, HAPP happiness, SE self-esteem, PWB psychological well-being, En.Mas environmental mastery, Pos. Rel positive relations with others, Purpose purpose in life, Self Eff. self-efficacy, BSI brief symptom inventory, Neg. Self negative self. correlations non-significant at  $p = .05$  are in boldface

**Table 8** Hierarchical multiple regressions: trait affect and EWB as predictors of positive and negative mental health indicators

Criterion/predictors entered by step	$\beta_1$	$\beta_2$	$R$	$R^2$	Adj. $R^2$	$\Delta R^2$
Happiness						
Step 1			.489	.239	.231	–
PA	.280***	.001				
NA	–.336***	–.114				
Step 2			.697	.486	.478	.247***
PEWB		.637***				
NEWB		–.078				
Life satisfaction						
Step 1			.478	.229	.222	–
PA	.270***	–.028				
NA	–.330***	–.076				
Step 2			.725	.526	.519	.297***
PEWB		.700***				
NEWB		.108				
Self-esteem						
Step 1			.524	.275	.268	–
PA	.380***	.238***				
NA	–.275***	.000				
Step 2			.723	.523	.514	.248***
PEWB		.220**				
NEWB		–.457***				
Growth						
Step 1			.352	.124	.116	–
PA	.317***	.286***				
NA	–.091	–.052				
Step 2			.359	.129	.112	.005
PEWB		.065				
NEWB		–.034				
Autonomy						
Step 1			.467	.218	.211	–
PA	.447***	.361***				
NA	–.062	.007				
Step 2			.493	.243	.228	.024
PEWB		.205*				
NEWB		–.013				
Environmental mastery						
Step 1			.580	.336	.330	–
PA	.428***	.262***				
NA	–.294***	–.052				
Step 2			.720	.519	.510	.183***
POSEWB		.316***				
NEGEWB		–.300***				

**Table 8** continued

Criterion/predictors entered by step	$\beta_1$	$\beta_2$	$R$	$R^2$	Adj. $R^2$	$\Delta R^2$
Positive relations with others						
Step 1			.416	.173	.165	–
PA	.290***	.213**				
NA	–.232***	–.080				
Step 2			.500	.250	.236	.077***
PEWB		.116				
NEWB		–.259**				
Purpose in life						
Step 1			.513	.263	.256	–
PA	.434***	.335***				
NA	–.182**	.010				
Step 2			.619	.384	.372	.121***
PEWB		.155*				
NEWB		–.318***				
Self-efficacy						
Step 1			.600	.360	.354	–
PA	.454***	.259***				
NA	–.291***	–.045				
Step 2			.743	.551	.543	.192***
PEWB		.399***				
NEWB		–.236***				
Depression						
Step 1			.511	.261	.254	–
PA	–.156*	–.055				
NA	.448***	.184**				
Step 2			.719	.518	.508	.257***
PEWB		–.106				
NEWB		.529***				
Anxiety						
Step 1			.474	.225	.218	–
PA	–.103	–.001				
NA	.437***	.207**				
Step 2			.640	.409	.398	.184***
PEWB		–.135				
NEWB		.425***				
Negative self						
Step 1			.418	.175	.167	–
PA	–.129	–.043				
NA	.365***	.108				

**Table 8** continued

Criterion/predictors entered by step	$\beta_1$	$\beta_2$	$R$	$R^2$	Adj. $R^2$	$\Delta R^2$
Step 2			.656	.431	.420	.256***
PEWB		-.065				
NEWB		.547***				

$N = 216$

PEWB positive emotional well-being, NEWB negative emotional well-being, PA positive affect, NA negative affect

to those obtained in Study 4. The correlations between the two factors of the EWBS and other constructs used in this study indicate strong support for convergent validity. Except for the correlations of the two factors of the EWBS to growth and autonomy dimensions of psychological well-being, all other relationships were moderate or large in effect size.

These correlations indicate simple estimates for incremental validity when it is considered as a 'better than' standard. Except for the two dimensions of psychological well-being, growth and autonomy, all correlations were higher in favor of the EWBS. The increments in estimates were impressive, especially for negative mental health indicators.

To obtain more rigorous estimates for incremental validity in 'over and above' standard, a set of hierarchical regression analyses were conducted. These analyses indicated a good incremental validity of the EWBS for both positive and negative mental health indicators. The results are shown in Table 8.

As can be seen from the results, the two factors explained an additional .05% to 30% of the variance, with the increment being statistically significant for ten of the twelve criteria. The largest increase in  $R^2$  was realized by adding the two factors of the EWBS to the equations for life satisfaction. The increment was also impressive for self-esteem, depression, and negative self. After the current affect measure scores were controlled, the EWBS also explained a considerable amount of the variance in environmental mastery, purpose in life, and self-efficacy dimensions of psychological well-being, as well as in anxiety. The increments in the well-being indicators, e.g., PA, NA, life satisfaction, self-esteem, and PWB, was assured mostly by both the positive and negative dimensions of the EWBS, whereas in psychopathology only by the negative dimension. In the regression analyses for the criterion variables of happiness and life satisfaction, only the positive dimension added to the variance explained. Of the criteria, only the growth and autonomy dimensions of psychological well-being were not incrementally predicted by the EWBS scores.

## 7 Discussion

In this study, a new scale was developed to assess individuals' affective evaluations of life was developed. This scale, the EWBS, was designed to evaluate whole life affectively while ensuring intentionality. Taking intentionality into account resulted in a set of items different from those of the current measure of EWB. Exploratory and confirmatory factor analyses indicated that the scale redesigned with new affect adjectives consisted of two dimensions, consistent with earlier research on affect, namely positive and negative evaluations of life. These two dimensions accounted for 54% of the variance and have



good internal consistency (.85 for both). This two-factor structure yielded good fit indices. Re-test reliabilities for the positive and negative dimensions also indicated that the affective evaluations within individuals were sufficiently stable over time, even after general affectivity was controlled statistically.

The high correlation between two factors of the EWBS found in this research implies a relative interdependence. Such a degree of association between the factors is considerably higher than those found in the literature, showing that these factors are orthogonal (Tellegen et al. 1999). This could be the result of the items containing affect adjectives different from those of the current measures. It is known from the research that the degree of association between negative and positive affect dimensions is dependent on the location of their adjectives on the affect circumplex (Russell 2003). Indeed, an inspection of the affect terms used in the scale indicates that most of them in NEWB are activated and in PEWB deactivated, which makes these dimensions more non-orthogonal.

The fourth study sought to show that the content of the EWBS did not overlap with the personality factors of E and N, as well as proof of concurrent and incremental validity estimates. Indeed, it was evident in this study that the positive and negative affect items of the EWBS were loaded onto their respective factors and the items of personality onto E and N. In contrast, none of the factors emerged in the factor analyses with items including PA, NA, N, and E items had those of personality or affect. All factors consisted of items of both PA and E or both NA and N, which is strongly consistent with the findings regarding the overlap between the constructs (Cooper and McConville 1989; Meyer and Shack 1989). This is, in fact, an expected result given that the adjectives in PANAS come closer to personality adjectives since they measure the individuals' typical affective experience without any content (Lent 2004). As Schumutte and Ryff (1997) indicate, identical items are used for the measurement of both mood and personality (p. 550). The results of the present study showed that when intentionality accompanied the assessment of EWB by using a new set of affect adjectives, it could clearly be discriminated from personality. In such a situation, it could be said that the affective dimension of SWB owns its real character using new items referring to the life itself.

The results obtained in this study indicate that there is a high degree of association between the scores of the Satisfaction with Life Scale and the EWBS, although the factor analysis indicates that there is only a minor overlap between the contents of these constructs. It is evident that the new adjectives used in this measure such as satisfaction, content, and pleasure make it better able to predict individuals' satisfaction. One alternative explanation could be that these results support an earlier finding (Crooker and Near 1998), indicating that individual ratings of happiness are better predicted by life satisfaction than by affect measures, prompting the authors to question the widely accepted argument that satisfaction measures are cognitive in orientation. The results obtained in this study suggest a need to further question the affective quality inherent in the life satisfaction measure, in that it refers to an affective dimension of life if the word 'satisfaction' means other than emotion (Lent 2004).

There is a growing interest in measuring individual differences in psychological measurement and the current measures of affect appear to fall short of such an assessment when the case is the assessment of SEWB. It is evident from the results of the fourth and fifth studies, the EWBS, with a new set of affect adjectives, provided additional information that could not be obtained through the current widely-used measure of emotional well-being. Regression analyses indicated that the two factors of the EWBS accounted for the additional variance in happiness and life satisfaction, even after both personality and general affect were statistically controlled in the fourth study. In the fifth study, moreover,

the EWBS accounted for additional variance beyond PANAS in both positive mental health indicators such as psychological well-being, self-esteem, satisfaction with life, and happiness, and in the negative mental health indicators of depression, anxiety, and negative self. The additional variances explained in most of these variables by the EWBS are impressive, indicating that the scale made a valuable contribution to measuring EWB above and beyond the current measurement.

It seems plausible to argue that the new set of adjectives used in the EWBS is the main reason for this additional variance accounted for in positive mental health. This new measure consists of only two items used in PANAS (excitement and upset), and the other adjectives appear to improve the measurement of SEWB. The results suggest that emotional experiences used in this new tool such as *acceptance of life as it is*, *appreciation of one's life*, or *feeling at peace with life* resulted in a better prediction of the mental health of the individuals involved in the study. The current conceptualizations make SEWB, or happiness, equivalent to the pleasure-unpleasure axis (Russell 2003). According to this paradigm, experiencing more pleasant and less unpleasant emotions means happiness (Diener et al. 1997, 2003). Given that happiness judgments are based on personal standards, it is problematic for such a definition in that people do not always adopt pleasure as the standard of a happy life (Thomas 1968). Thus, these new adjectives concerning life, and different from those of pleasure-unpleasure axis, locate EWB outside of the hedonic perspective which is supposed to be the basic framework of the current measurement of SWB (Ryan and Deci 2001). For most people, indeed, feeling at peace with life, appreciation of life, or acceptance of life as it is could be much more important than excitement, feeling strong, attentive, or determined. Thus, these emotional experiences, as shown in this research, could be much more sensitive in determining one's happiness or well-being.

The results showed that the scale with new affect adjectives also contributes to the understanding of negative mental health. Earlier research has shown that PANAS has good predictive validity in clinical conditions (Lonigan et al. 2003). In this study, the additional variance explained in depression, anxiety, and negative self was noteworthy, indicating that the EWBS contributed to the predictions about twice as much as the contribution of PANAS. Using these affect adjectives, this measure of EWB also accounted for considerable additional variance in negative mental health indicators.

It should be noted that almost all of the adjectives used in the NEWB dimension appear to be activated and negative and their locations are close to those of NA. Thus, it seems plausible to argue that the contribution of the EWBS in the explanation of unique variance could be, at least partly, the result of the intentional nature of this new measure. Intentionality, in this respect, could have served as follows. It should be noted that depression and anxiety have been regarded as moods and, thus, as having no content (Russell 2003). However, it can be argued that the content of these mental states, although somewhat blurred, is "the world as a whole" (Solomon 2006). This research is the first to show, though indirectly, that this might be the case. Once the content of the affective evaluation became life (the world) experienced by individuals, the measure with more suitable adjectives had considerably higher correlations with anxiety and depression than all other variables in Study 5, and explained the considerable amount of variance even when general affectivity was controlled. To use adjectives directly referring to life as the content of evaluations in the assessment made them considerably stronger in predicting mood disorders.

It was stated in the introduction that Husserl's idea was to make mental states belong to the empirical domain using intentionality. Without assuring the intentionality inherited in mental states, consciousness would be thought of as having a metaphysical nature. It is clear that the same situation is valid for the mysterious nature of a core affect that is

objectless and impossible to observe directly in real life. More specifically, the average frequency of experiencing emotions does not make affective evaluations equal to happiness of individuals. This is an abstraction made by researchers and not a natural reflection of an individual on his/her life. Including intentionality into the assessment of affect appears to make it more concrete and relevant to the circumstances of the individual, and, thus more suitable for reflecting individual or phenomenal differences in assessing subjective evaluations of life. Given that subjective well-being or happiness is dependent upon individual standards in defining what constitutes a good life, intentionality helps ensure that individual stances towards life have been incorporated into the measurement. Such an evaluation comes closest to the concept of happiness since it considers individual stances toward life because, as Solomon (2006) pointed out, the emotion and its object form a unified phenomenon, which indicates a unique and personal commitment to the world.

As a consequence, this study shows that mental health could be more related to affective experiences not chosen according to their location on the affect circumplex but rather, its relation to the concept in question. Researchers take the two dimensions of the affect circumplex (activation or valence) into account when the issue is well-being. When the selection of the adjectives for the assessment of subjective well-being is determined according to its definition, a more convincing situation can be achieved.

Last, but not least; the current measure operationalized the definition of SEWB as the intensity rather than the frequency of affective experiences. Because of the unattractive side effects of intense positive affect, the frequency of these experiences has been thought to be a more suitable definition of SWB (Diener et al. 1991). Having no content, intense positive affect could, in fact, refer to some undesirable consequences. However, affect adjectives that are suitable for an evaluation of one's life would imply no such side effects for individuals. For example, the extent to which one "is excited about one's life" is unlikely to result in any negative consequences for the individual. High intensive excitement, however, could refer to, for example, risk taking behaviors. Thus, this research indicates that the intensity of affect can be more relevant to happiness than frequency when its intentional nature is not ignored. Indeed, in Study 4 and Study 5, the correlations of the PEWB to individual estimations of happiness and life satisfaction were stronger than those of PA. Thus, the decision to define happiness in terms of frequency rather than intensity of positive affect becomes questionable.

Future research should take certain issues into account in the light of the findings emerging here. First, although the present measure was developed by taking intentionality into account, it is not possible to argue that the results obtained in this research were due to intentionality. Thus, future research should test the hypothesis that ensuring intentionality would result in differences concerning the independence of positive and negative affect, discrimination of PA and NA from E and N, and an increment in the variance explained in mental health. Although PANAS is a mood measure, it is possible to ensure intentionality indirectly. One possibility, for example, could be to use PANAS with a change in the instructions to ensure intentionality. Participants might be asked to state the frequency of their affect when they are in school, at a job, or with a partner.

Second, the instrument developed in this research focused on the general affective evaluations of life, assessment of SWEB as a trait. Future research could evaluate which measure is more related to happiness and mental health: a state measure of SEWB or a trait measure. Moreover, even the frequency of affective evaluations should be taken into consideration. A possible investigation, consequently, could be to compare the effects of using different combinations of trait/state and frequency/intensity assessments in predicting mental health, personality, or happiness.

Even though the present research has shown that the EWBS has good psychometric qualities, it has certain limitations. The most obvious is the general characteristics of the individuals since all participants of the studies were university students. Future research could test if the same results could be obtained for individuals of different educational status, or individuals from different age groups. One other limitation was the relatively small samples used in the studies; Study 4 in particular has a relatively limited sample size for factor and regression analyses, limiting the ability to make strong statements regarding the discriminant validity of affect measures and personality. It is imperative to conduct a study with a larger sample size to determine whether results for the discriminant validity of the EWBS obtained in this study can be replicated.

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