Positive Expressivity Scale and Negative Expressivity Scale:

Initial Psychometric Characteristics

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ABSTRACT

Emotional expressivity is the tendency to express one's emotional reactions in observable behaviour. Positive Expressivity (the tendency to express positive emotions) can be empirically distinguished from Negative Expressivity (e.g., King & Emmons, 1990; Gross & John, 1995, 1997; Gross, John & Richards, 2000). For example, these two constructs have different relations with the Big Five dimensions of personality (Gross & John, 1995; Martin, Wan, David, Wegner, Olson, & Watson, 1999).

Two existing scales distinguish between Positive and Negative Expressivity. For the first of these, the Emotional Expressiveness Questionnaire (King & Emmons, 1990), 7 items load highest on the Expression of Positive Emotion factor, and 4 items on the Expression of Negative Emotion factor. However, one item does not indicate if it refers to positive or negative emotions, and many items seem also related to the frequency or intensity of emotional experiences. The Berkeley Expressivity Questionnaire (Gross & John, 1995) has 4 items for Positive Expressivity, and 6 items for Negative Expressivity. Again, some items do not specify a particular emotion or whether the emotion is positive or negative, so that the placement of some items on these two scales is not obvious.

Because of weaknesses in existing measures, two new scales – the Positive Expressivity Scale (PES) and the Negative Expressivity Scale (NES) – were developed to more clearly distinguish these two constructs from each other and from the frequency and intensity of emotional experiences.

In this study, initial reliability and validity evidence for these scales was collected. For both scales, the internal consistency was acceptable, and all items had positive corrected item-total correlations and loaded on common factors. Turning to discriminant validity, the correlation between the PES and the NES was small and not statistically significant. This study replicated previous findings that these constructs have different relationships with the Big Five (e.g., Positive Expressivity correlates most with Extraversion, while Negative Expressivity correlates most with Neuroticism). Finally, the PES was positively correlated with Self-Deceptive-Enhancement, while the NES was negatively correlated with Impression Management. Thus, these two scales have adequate internal consistency and discriminant validity, and further research on these scales is warranted.

POSITIVE EXPRESSIVITY SCALE AND NEGATIVE EXPRESSIVITY SCALE: INITIAL PSYCHOMETRIC CHARACTERISTICS

Emotional expressivity is the tendency to express one's emotional reactions in observable behaviour. The tendency to express positive emotions (labeled Positive Expressivity) can be empirically distinguished from the tendency to express negative emotions (Negative Expressivity) (e.g., King & Emmons, 1990; Gross & John, 1995, 1997; Gross, John & Richards, 2000). For example, these two constructs have different relations with the Big Five dimensions of personality: Positive Expressivity is most highly correlated with Extraversion while Negative Expressivity appears to be most highly correlated with Neuroticism (Gross & John, 1995; Martin, Wan, David, Wegner, Olson, & Watson, 1999).

Two existing scales distinguish between Positive and Negative Expressivity. For the first of these, the Emotional Expressiveness Questionnaire (King & Emmons, 1990), 7 items load highest on the Expression of Positive Emotion factor, and 4 items on the Expression of Negative Emotion factor. However, one item does not indicate if it refers to positive or negative emotions, and many items seem also related to the frequency or intensity of emotional experiences. The Berkeley Expressivity Questionnaire (Gross & John, 1995) has 4 items for Positive Expressivity, and 6 items for Negative Expressivity. Again, some items do not specify a particular emotion or whether the emotion is positive or negative, so that the placement of some items on these two scales is not obvious. Other scales, such as the Emotional Expression Scale (Kring, Smith, & Neale, 1994) do not distinguish between Positive and Negative Expressivity, instead providing just a single total score.

Because of weaknesses in existing measures, two new scales – the Positive Expressivity Scale (PES) and the Negative Expressivity Scale (NES) – were developed to more clearly distinguish these two constructs from each other and from the frequency and intensity of emotional experiences. The purpose of this study was to examine the psychometric properties of these two scales. First, the internal consistencies of the two scales were examined in detail using item-analyses and factor analyses. Second, the discriminant validity of these scales were examined by correlating these scales with each other, with measures of the Big Five dimensions of personality, and with measures of Socially-Desirable Responding.

METHOD

Participants

One-hundred and fourteen psychology undergraduates participated in this study for course credit. They ranged in age from 19 to 48, with a mean of 22 and standard deviation of 4.2. 36.8% of the sample identified themselves as White, 48.2% as Asian, and the remaining 15.0% as belonging to other ethnic groups. Most participants (78.2%) spoke English as their first language; the remaining subjects had spoken English for at least 10 years, and rated themselves as very comfortable reading and writing English.

Procedure

As part of a larger project, subjects completed two take-home questionnaire packages and two group testing sessions. All of the measures used in this study were administered in one of the two questionnaire packages. Items for all scales except the Balanced Inventory of Desirable Responding were randomly intermixed with items from other scales.

Measures

PES. The Positive Expressivity Scale (PES) is a 10-item likert-type scale. Examination of existing measures of emotional expressivity revealed three common themes in terms of

positive emotions: affection, happiness, and laughter. Therefore, items were created to evenly measure these three areas. Half of the items are reverse-scored. See Appendix A.

NES. The Negative Expressivity Scale (NES) is a 10-item likert-type scale, with half of the items reverse-scored. Examination of existing measures of emotional expressivity revealed four common item types: anger, sadness, fear, and negative emotions in general. Two or three items were therefore created to measure each of these four areas. See Appendix A.

IPIP measures of the Big Five dimensions of personality. Goldberg (1999a, 1999b) created 10-item public-domain measures of constructs similar to the 30 facets measured by the NEO-PI-R (Costa & McCrae, 1992). In this research, I used 8-item versions of 23 of these scales. Measures of each Big Five dimension were created by taking the average of the facets for that dimension. Approximately half of the items are reverse-scored.

Socially-Desirable-Responding. Paulhus (1999) distinguishes between two aspects of Socially Desirable Responding (SDR): the tendency to deceive oneself (self-deceptive enhancement) and the tendency to deceive others (impression management). The Balanced Inventory of Desirable Responding version 7, which Paulhus created, measures both aspects of SDR. Each subscale consists of 20 items, half of which are reverse-scored.

RESULTS AND DISCUSSION

Reverse-scoring

Half of the items on the PES, the NES, and the two measures of SDR, and approximately half of the items on the measures of the Big Five dimensions of personality were reverse-scored. This reverse scoring was done before any analyses were undertaken, so that the results shown below are for scores where higher scores always indicate a greater amount of the characteristic in question.

Mean Differences

Descriptive information for men and women on each of the above scales used are given in Table 1. To determine if there were sex differences on any of my variables, for each of the four sets of variables (PES items, NES items, Big Five scales, and SDR scales), I compared the means using Hotelling's T-squared and compared the variance-covariance matrices using the Bartlett-Box test. There were significant mean differences on three of the four sets of variables but no differences in the variance-covariance matrices (see Table 2). A combined analysis was therefore possible, but to prevent within-sex differences from being confused with between-sex differences, these three variables would need to be mean-deviated within sex before further analyses are conducted. For consistency, all four sets of variables were mean-deviated within sex.

Positive Expressivity Scale

Item Analysis

Coefficient Alpha for the 10-item scale was .78. An item-analysis was conducted to determine if each item is consistent with the remaining items (see Table 3).

From Table 3, the reader will note that every item had a positive corrected item-total correlation. As well, for every item except one, the internal consistency of the scale would decrease if that item was deleted. The one exception was item 3 "Have a quiet laugh", where a very small increase in the internal consistency was seen (an increase of .01).

Table 1
Means and Standard Deviations for Each Variable

	Means		Standard Deviations	
Variable	Men	Women	Men	Women
PES	3.54	3.57	.65	.48
NES	3.18	3.27	.63	.67
Neuroticism	2.54	2.92	.66	.53
Extraversion	3.63	3.93	.57	.46
Openness	3.61	3.80	.49	.67
Agreeableness	3.56	3.73	.52	.43
Conscientiousness	3.48	3.42	.46	.68
Self-Deceptive Enhancement	.14	.12	.14	.12
Impression Management	.25	.34	.16	.18

Table 2
Sex Differences

	Hotelling's Test on Means			Bartlett-Box Test of Variance-Covariance Matrices		
Set of variables	F-value	df	p-value	F-value	df	p-value
PES items	1.21	10, 102	.296	.88	55, 23074	.722
NES items	2.31	10, 101	.017	1.26	55, 21761	.096
Big Five scales	7.48	5, 108	.000	1.20	15, 29782	.261
SDR scales	4.58	2, 111	.012	1.39	3, 245784	.245

Table 3
PES Item-Total Statistics

Item	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
1	.54	.52	.75
2	.65	.57	.74
3	.25	.26	.79
4	.60	.64	.74
5	.34	.36	.78
6	.35	.43	.78
7	.58	.49	.75
8	.54	.36	.76
9	.44	.28	.77
10	.32	.16	.78

Table 4
PES Factor Loadings for One-Factor Solution

	Item	Factor 1
4.	Find it difficult showing people that I care about them. (reverse)	**.75**
2.	Express my affection physically.	**.74**
7.	Hug my close friends.	**.71**
1.	Have difficulty showing affection. (reverse)	**.67**
8.	Show my feelings when I'm happy.	**.61**
9.	Keep my happy feelings to myself. (reverse)	**.51**
10.	Express my happiness in a childlike manner.	**.37**
6.	Have a subdued laugh. (reverse)	**.31**
5.	Laugh out loud if something is funny.	**.30**
3.	Have a quiet laugh. (reverse)	**.26**

Table 5
PES Factor Loadings for Three-Factor Solution

	Item	Factor 1	Factor 2	Factor 3
4.	Find it difficult showing people that I care about them. (reverse)	**.96**	-.07	-.09
2.	Express my affection physically.	**.80**	.07	-.05
1.	Have difficulty showing affection. (reverse)	**.69**	-.08	.08
7.	Hug my close friends.	**.59**	.08	.12
6.	Have a subdued laugh. (reverse)	-.04	**.88**	.01
5.	Laugh out loud if something is funny.	.03	**.59**	.03
3.	Have a quiet laugh. (reverse)	.02	**.53**	.01
9.	Keep my happy feelings to myself. (reverse)	-.12	-.09	**.86**
8.	Show my feelings when I'm happy.	.15	.05	**.54**
10.	Express my happiness in a childlike manner.	.03	.05	**.39**

Table 6
PES Factor Intercorrelations for Three-Factor Solution

	Factor 1	Factor 2	Factor 3
Factor 1	1.00	.19	.60
Factor 2	.19	1.00	.42
Factor 3	.60	.42	1.00

Factor Analysis

Two factor analyses were conducted. First, a one-factor unweighted least squares common factor analysis was used to determine if each item loads on the first common factor. As the reader will see from Table 4, all items had salient loadings on the first common factor.

Second, a multiple-factor unweighted least squares common factor analysis was conducted, followed by Harris-Kaiser rotation. To determine the number of factors, three criteria were used. First, the maximum likelihood significance test was used, and suggested 3 factors. Second, the Kaiser-Guttman rule (eigenvalues > 1) suggested 3 factors. Finally, the scree plot suggested either a 2-factor or a 4-factor solution. Given the convergence of the Kaiser-Guttman criterion and the maximum-likelihood significance test, I decided to extract three factors. Three different Harris-Kaiser solutions with C values of .0, .25, and .50 were examined. The solution with C = 0 appeared closest to the ideal of simple structure. The factor loadings are given in Table 5 and the factor intercorrelations are given in Table 6.

The first factor had salient loadings from items 1, 2, 4, and 7, and is interpreted as Expression of Affection. The second factor had salient loadings from items 3, 5, and 6, all of which are related to Laughter. The third factor had salient loadings from items 8, 9 and 10, and is labeled Expression of Happiness. These three factors correspond to the three content areas that I used in creating the PES, and therefore this would be the predicted factor structure. The three factors are positively correlated, as would be expected.

Negative Expressivity Scale

Item Analysis

Coefficient Alpha for the 10-item form was .74. The item-analysis of the NES in Table 7 shows that every item had a positive corrected item-total correlation, and that only one item (item 3, “Sometimes shout or scream when angry”) resulted in an increase in coefficient alpha if that item was deleted. This increase was quite small (.01).

Factor Analysis

A one-factor unweighted least squares common factor analysis showed that all items had salient loadings on the first common factor (see Table 8).

A multiple-factor unweighted-least-squared common factor analysis was undertaken, followed by Harris-Kaiser rotation. The maximum likelihood criteria, Kaiser-Guttman rule, and scree plot all suggested three factors. Three different rotations were examined, corresponding to C values of 0, .25, and .50. The cleanest solution corresponded to C = 0. The factor loadings are given in Table 9 and the factor intercorrelations are given in Table 10.

The first factor had salient loadings for items 2, 9, and 10, and is interpreted as Expression of Anger. The second factor had salient loadings for items 1, 4, and 8, and is labeled Expression of Sadness. The third factor had salient loadings for items 5, 6, 7, and 8, and is interpreted as Expression of Fear and Sadness. Looking at the individual items for factor 3, the reader will note the parallelism between items 6 and 8 and between 5 and 7. Perhaps it is this parallelism that created this third factor. As would be expected, these three factors have positive intercorrelations.

Table 7
NES Item-Total Statistics

Item	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
1	.32	.33	.73
2	.38	.22	.72
3	.26	.17	.75
4	.37	.35	.73
5	.59	.50	.69
6	.31	.21	.73
7	.44	.41	.72
8	.48	.28	.71
9	.49	.50	.71
10	.41	.48	.72

Table 8
NES Factor Loadings for One-Factor Solution

	Item	Factor 1
5.	Keep my feelings to myself, regardless of how depressed I am. (reverse)	**.75**
7.	Keep my feelings to myself, regardless of how scared I am. (reverse)	**.57**
8.	Show my sadness.	**.56**
9.	Find it difficult showing people that I'm angry with them. (reverse)	**.51**
10.	Wish I could more easily show my negative feelings. (reverse)	**.48**
2.	Rarely show my anger. (reverse)	**.42**
4.	Cannot help but look upset when something bad happens.	**.39**
6.	Show my fear.	**.37**
1.	Think my facial expressions give me away when I feel sad.	**.34**
3.	Sometimes shout or scream when angry.	**.28**

Discriminant Validity

Correlation between the PES and the NES. The correlation between the PES and the NES was calculated as .174 (p = .064). There is therefore little overlap in the constructs being measured by these two scales.

Correlations with the Big Five. The correlations of the PES and the NES with the Big Five dimensions of personality were calculated. These are given in Table 11. The largest correlation for the PES is with Extraversion; the largest for the NES is with Neuroticism. This replicates previous findings with the Berkeley Expressivity Questionnaire (Gross & John, 1995).

In addition, I compared the correlations of the PES and NES with each of the Big Five dimensions, using William's (1959) T2 Statistic. For every one of the Big Five dimensions, the correlations with the PES and NES are significantly different.

Correlations with Socially Desirable Responding. The PES and the NES were correlated with the two subscales of the Balanced Inventory of Desirable Responding version 7 (Paulhus, 1999). See Table 11. As you can see from this table, the PES had a significant correlation with Self-Deceptive Enhancement (r = .31, p < .001) but not Impression Management, while the NES had a significant correlation with Impression Management (r = .22, p < .05) but not Self-Deceptive Enhancement. Next I compared the correlations of the PES and NES with these two subscales using Williams' (1959) T2 statistic. There were significant differences, indicating that the correlations of the PES and NES with these two SDR subscales are different. This provides further evidence of the discriminant validity of the PES and NES.

CONCLUSIONS

This study has provided some initial evidence for the reliability and validity of the PES and NES.

The internal consistencies of the two measures are acceptable, and no individual items appear to be terribly problematic. The factor analysis of the PES revealed a clean three-factor solution that paralleled the scale-construction process. The factor structure of the NES was less clean, revealing a possible weakness in the use of parallel items for the measurement of expression of fear and sadness. All items, however, loaded on at least one of the three common factors, and the three factors were positively correlated, indicating that the items are all measuring generally the same construct. These results should be replicated in a non-university setting, and the test-retest reliability of these scales should also be examined.

This study provided quite a bit of evidence for the discriminant validity of these two constructs. The correlation between the two scales was small and non-significant, and they had different relations with the Big Five and measures of Socially-Desirable-Responding. This reinforces the value of measuring these two constructs separately.

In conclusion, the tendency to express positive emotions is different from the tendency to express negative emotions. Future research should look for possibly different relations between these constructs and additional personal and relationship variables.

Table 9
NES Factor Loadings for Three-Factor Solution

	Item	Factor 1	Factor 2	Factor 3
9.	Find it difficult showing people that I'm angry with them. (reverse)	**.92**	-.06	-.07
10.	Wish I could more easily show my negative feelings. (reverse)	**.68**	-.10	.07
2.	Rarely show my anger. (reverse)	**.35**	.20	.02
3.	Sometimes shout or scream when angry.	.24	.20	-.03
4.	Cannot help but look upset when something bad happens.	-.03	**.72**	.03
1.	Think my facial expressions give me away when I feel sad.	.04	**.71**	-.08
8.	Show my sadness.	.07	**.34**	**.33**
7.	Keep my feelings to myself, regardless of how scared I am. (reverse)	-.05	-.18	**.87**
5.	Keep my feelings to myself, regardless of how depressed I am. (reverse)	.16	-.01	**.71**
6.	Show my fear.	-.18	.23	**.41**

Table 10
NES Factor Intercorrelations for Three-Factor Solution

	Factor 1	Factor 2	Factor 3
Factor 1	1.00		
Factor 2	.15	1.00	
Factor 3	.48	.40	1.00

Table 11
Correlations with the Big Five and Socially-Desirable Responding

Measure	PES	NES	T2(111)
Neuroticism	-.29**	.37***	6.29***
Extraversion	.69***	.03	7.16***
Openness	.39***	.08	2.75**
Conscientiousness	.16+	-.13	2.44*
Agreeableness	.33***	-.11	3.81***
Self-Deceptive Enhancement	.31***	-.01	2.71**
Impression Management	.10	-.22*	2.76**

+ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

APPENDIX A

The following instructions were used in this study:

On the following pages, there are phrases describing people's behaviors. Please use the rating scale below to describe how accurately each statement describes *you*. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then circle the number that corresponds to the number on the scale.

Response Options
1: Very Inaccurate
2: Moderately Inaccurate
3: Neither Inaccurate nor Accurate
4: Moderately Accurate
5: Very Accurate

Positive Expressivity Scale

1. Have difficulty showing affection. (reverse)
2. Express my affection physically.
3. Have a quiet laugh. (reverse)
4. Find it difficult showing people that I care about them. (reverse)
5. Laugh out loud if something is funny.
6. Have a subdued laugh. (reverse)
7. Hug my close friends.
8. Show my feelings when I'm happy.
9. Keep my happy feelings to myself. (reverse)
10. Express my happiness in a childlike manner.

Negative Expressivity Scale

1. Think my facial expressions give me away when I feel sad.
2. Rarely show my anger. (reverse)
3. Sometimes shout or scream when angry.
4. Cannot help but look upset when something bad happens.
5. Keep my feelings to myself, regardless of how depressed I am. (reverse)
6. Show my fear.
7. Keep my feelings to myself, regardless of how scared I am. (reverse)
8. Show my sadness.
9. Find it difficult showing people that I'm angry with them. (reverse)
10. Wish I could more easily show my negative feelings. (reverse)

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AUTHOR NOTE

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