

Personality, Social Activities, Job-Search Behavior and Interview Success: Distinguishing Between PANAS Trait Positive Affect and NEO Extraversion

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Past research has found that trait positive affect as measured by the Positive and Negative Affect Schedule (PANAS) and extraversion as measured by the NEO-Five Factor Inventory (NEO-FFI) are highly correlated. We examined the relation between these two measures within the context of three social behaviors. Approximately 4 months before graduation, college seniors entering the job market completed the PANAS and the NEO-FFI and reported on their social activities during college. Three months later, these students were contacted again and described their job search strategies and success at obtaining follow-up job interviews. Trait positive affect scores and extraversion scores were highly correlated and both predicted behavior in each of the three areas investigated. Regression analyses indicated that trait positive affect predicted behavior in all three areas after the effects of extraversion were removed. However, extraversion did not add significantly to predicting behavior in any of the three areas after the effects of trait positive affect were removed. The findings have implications for the conceptual relation between extraversion and trait positive affect.

In recent years, personality psychologists have uncovered surprisingly consistent evidence for a five-factor model underlying the structure of personality traits (cf. Digman, 1990; John, 1990; McCrae & John, 1992). The five basic personality dimensions emerging from this model typically are identified as neuroticism, extraversion, openness, agreeableness, and conscientiousness. The dimension of interest here, extraversion, arranges people along a continuum, with extreme extraverts at one end and extreme introverts at the other. Extraverts are very sociable

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people who are also energetic, optimistic, friendly, and assertive. Introverts tend to be reserved, independent, and even-paced. Although some controversy remains about the exact number of dimensions and the labels assigned to the dimensions, a factor similar to extraversion surfaces in virtually every investigation of personality structure.

Another line of fruitful research that has developed in a fashion somewhat parallel to the five-factor model focuses on the structure of human emotions. Most of this work is concerned with self-reported emotional experiences, as contrasted with the physiological or expressive components of emotion. Researchers examining relations among self-reports of emotions often find evidence for two dominant dimensions (Diener & Emmons, 1984; Mayer & Gaschke, 1988; Meyer & Shack, 1989; Watson, Clark, & Tellegen, 1988; Watson & Tellegen, 1985). Investigators refer to these dimensions as *positive affect* and *negative affect*, although disagreement remains about the relationship between the two dimensions (Russell & Carroll, 1999). At one end of the positive affect dimension we find people who are active, content, and satisfied with their lives. On the other extreme are those who are often sad or lethargic. The negative affect dimension ranges from nervousness, anger, and distress at one end to calmness and serenity at the other. Like personality traits, the extent to which people experience these emotions can be relatively stable over time and across situations (Watson & Clark, 1992). Thus, affect can operate like a traditional trait dimension.

Currently, most investigators treat trait affect and personality factors as related but different concepts. However, some have argued otherwise. For example, Tellegen (1985) has labeled the first factor *Positive Emotionality* in his personality structure model. This factor is comprised of high scores in what he calls well-being, social potency, and achievement, and resembles the extraversion factor identified in other personality structure research. His second factor, *Negative Emotionality*, reflects high scores on stress reaction, alienation, and aggression and is conceptually similar to the neuroticism factor. In essence, Tellegen uses single concepts to account for both affect and personality traits. Watson, Clark, McInyre, and Hamaker (1992) found similar results when they included scores from a trait affect measure in a factor analysis of personality measures. They found positive affect and measures of extraversion loaded on the same factor, which they call "Extraversion/Positive Emotionality." These researchers also identified a second factor, "Neuroticism/Negative Emotionality," which contained measures of negative affect and neuroticism. Consistent with this line of thinking, Watson and Clark (1992, p. 468) concluded that "individual differences in personality and emotionality ultimately reflect the same common, underlying constructs." Thus, the conceptual distinction between trait affect and personality structure remains open to question.

The present investigation addresses the distinction between personality and affect. Specifically, we investigate the relation between two widely used measures,

the trait positive affect scale from the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) and the extraversion scale from the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1992).

The PANAS consists of a list of 20 emotion adjectives, 10 related to positive affect and 10 related to negative affect. Test takers indicate the extent to which they feel or have felt distressed, alert, nervous, and so on. The instructions for the test can be varied to assess emotional experience within a specified time frame, ranging from the present moment to the past year. Most relevant for the present investigation is the version of the PANAS in which test takers are asked to report the extent to which they *generally* experience the emotion, or "how you feel on average." Investigators sometimes refer to scores obtained through this last procedure as "trait" affect (Watson & Clark, 1992).

The NEO evolved from research on the five-factor model of personality structure (cf. Digman, 1990; John, 1990; McCrae & John, 1992) and provides scores for each of the five personality dimensions. Several versions of the test have been developed. The long version of the inventory allows researchers to generate facet scores that are said to comprise each of the five dimensions. A shorter version of the test, the NEO-Five Factor Inventory (NEO-FFI), assesses each of the five personality dimensions with 12-item scales. Because Costa and McCrae (1992) report a correlation of .90 between the long and short versions of the scale for the extraversion dimension and because we were not interested in the facet scores, we chose to use the NEO-FFI extraversion scale in this study.

Extraversion and Trait Positive Affect: Although the PANAS trait positive affect scale and the NEO extraversion scale come from different research areas, there are reasons to question the distinction between the two. In addition to the theoretical issues raised earlier, researchers consistently find strong positive correlations between measures of positive affect and extraversion (Costa & McCrae, 1980, 1992; Fimmans & Diener, 1985; 1986; Warr, Barter, & Brownbridge, 1983; Watson & Clark, 1992; Watson et al., 1992). These correlations typically fall in the .48 to .64 range (Watson & Clark, 1992). Moreover, trait positive affect and extraversion scale scores tend to predict the same kinds of behaviors. Like extraversion, trait positive affect scores are related to social activities. People scoring on the high end of the scale tend to engage in more social activities and tend to enjoy these activities more than those who score low (Clark & Watson, 1988; Watson, 1988; Watson et al., 1992). However, we are aware of no research to date that has examined the relative predictive validity of the two scales for social behavior.

The Present Investigation: One strategy for examining the relation between scales is to examine correlations between the two measures. As reported earlier, the results from several investigations indicate that the PANAS trait positive affect scale and the NEO Extraversion scale appear to be measuring highly overlapping, if not the same, constructs. Another strategy examines how well the personality

scale scores predict relevant behaviors and, more specifically, whether these scores can account for unique variance in behavior beyond that explained by the other score. We employed this latter strategy in the present investigation.

We examined the independent predictive power of PANAS trait positive affect and NEO Extraversion for three broad areas of social behavior. First, we looked at the extent to which people engage in organized social activities. As described previously, past studies indicate that high trait positive affect and high extraversion predict higher levels of social activity. Second, we looked at how people approach a major life task. Specifically, we examined the job search strategies employed by graduating college seniors entering the job market. Research has found that people use a wide variety of methods to learn about job openings and to prepare themselves for interviews (Caldwell & Burger, 1998). Moreover, these methods include both social (talking with potential employers) and non-social (reading newspaper ads) strategies. Thus, we anticipated that differences in job search strategies—particularly those that involve social contact—might be related to trait positive affect and extraversion. Third, we looked at success in an important social encounter. Specifically, we examined how successful our job applicants were in obtaining follow-up interviews. A substantial amount of research has found that employment interviewers are strongly influenced by the social behaviors of the interviewee. For example, amount of communication and interpersonal abilities are related to applicants' success in interviews, particularly initial screening interviews. Moreover, there is some evidence that both trait positive affect and extraversion are seen as desirable characteristics by employers. Trait affect has been tied to job satisfaction (George, 1992). Similarly, extraversion has been found to predict job success, particularly for jobs requiring social interaction (Barrick & Mount, 1991). Thus, we expected success in job interviews to be related to trait positive affect and extraversion.

In short, we identified three kinds of social behavior that we anticipated would be related to both trait positive affect and extraversion. Although in a sense each of the social behaviors is related (for example, job search strategies and one's activities may affect the success of the job interview), each also represents a distinct kind of social behavior. Finding a consistent pattern across all three kinds of social behavior would allow us to draw stronger conclusions about the relation between the two scales. If trait positive affect and extraversion predict social behavior in a similar and overlapping manner, the results would suggest that these two may be measuring the same construct or highly similar constructs. Such a finding would be consistent with results from the correlational studies. However, if we find that the trait positive affect and extraversion scales each account for a unique amount of the variance in social behavior, then a case can be made for distinguishing between the two. Finally, it is possible that one of the scales will fail to predict variance in social behavior beyond that accounted for by the other variable. Such a finding would argue for a reconceptualizing of the relation between the two measures.

METHOD

Participants

The data for this study were collected as part of a longitudinal investigation of early career experiences (Caldwell & Burger, 1998).³ Announcements were made in a number of undergraduate social science and business courses and at career planning orientation meetings, inviting students to take part in a study of personality and early job experiences. Students were told that they would be eligible to take part in the study if they were graduating seniors and actively conducting a job search for a full-time job following graduation. They were informed that they would fill out two sets of questionnaires, one set to be completed at an assigned place and time during the upcoming week (Time 1) and a second set that would be mailed to them approximately 3 months later (Time 2). Students were told that they would be paid \$15 after completing the first set of questionnaires. A total of 134 graduating seniors completed the initial set of questionnaires and 99 returned the second set (a follow-up return rate of 74%).

Procedure

The Time 1 set of questionnaires included measures of personality and affect and reports of activities the students had engaged in during college. The Time 2 questionnaire (completed approximately 3 months later) contained measures of job search behavior and reports of success in generating follow-up job interviews and job offers.

Measures

Affect and Personality Measures

Trait positive affect was assessed using the 10-item scale of the Positive and Negative Affect Schedule (Watson et al., 1988). Individuals were asked to rate on a 5-point scale the extent to which they generally experienced each mood state. We obtained an alpha reliability coefficient of .84 for the scale, similar to that reported by Watson et al. (1988). Extraversion was measured using the 12-item scale from the NEO Five-Factor Inventory (Costa & McCrae, 1992). The reliability coefficient of the scale in this sample was .74. This reliability coefficient is generally consistent with that reported elsewhere (Costa & McCrae, 1992).

³The data reported in this paper were taken from the same data set described in Caldwell and Burger (1998). One relationship between variables reported in that earlier paper also is reported here. Specifically, in both papers we report the correlation between trait positive affect and Extraversion. Although reported in two papers, that correlation comes from the same data set.

Social Activities

We assessed social activities, using our revision of an instrument developed by the career development and student counseling staff of the university. The purpose of the original instrument was to help students identify their extracurricular and cocurricular social activities to facilitate career exploration. The inventory contained a comprehensive list of social activities and space to describe the level and type of involvement the student had with each activity. We modified the instrument by asking students to rate their level of involvement on each of the 15 activities on a 7-point scale (1 = Not involved at all, 7 = Extensively involved). We included this instrument in the Time 1 questionnaire. Because the list represented a wide range of activities (e.g., participation in intramural athletics, involvement in campus clubs, service and volunteering in community programs, and so on), we simply summed the responses to provide an overall measure of involvement in college social activities (alpha reliability = .70).

Job Search Strategies

We interviewed the director of the university career services facility and an experienced undergraduate placement counselor in order to identify sources of information undergraduate students sometimes use when searching for a job. Based on these interviews, we identified eight types of search activities. These eight strategies were reviewed by the director and the counselor for comprehensiveness and clarity. Participants rated the extent to which they used each of the search activities on a 7-point scale (1 = Not at all, 7 = A great deal) in the Time 2 questionnaire. To identify patterns among the items, we conducted a principal component analysis with varimax rotation. Three factors emerged from this analysis. The first was defined primarily by three items (Talked to friends or relatives; Asked faculty members; and Talked to previous employers or companies in which you had an internship). Each of these strategies represent a reliance on social networks. We labeled this factor *Social Search Strategies* and created a score by summing the participant's responses to these three items. The second factor also was defined by three items (Read newspaper ads; Used an outside [not on campus] employment agency; and Called companies you were interested in working for to see if they had jobs available). Because these items do not draw on existing social networks, we labeled this factor *Nonsocial Search Strategies* and created a score by summing responses to these three items. The final two items related to the use of specific on-campus resources and formed a third factor, which we did not include in the analyses. Although the two scales were factorially independent, the internal consistency of both was relatively low (*Social Search Strategies*: alpha reliability = .54; *Nonsocial Search Strategies*: alpha reliability = .53).

Success in Interviewing

We defined success in interviewing as the number of invitations for "second" or follow-up interviews that the participant received divided by the number of initial interviews the individual had. Thus, this measure of success represents the proportion of screening interviews that were successful enough to generate a second interview. Because success in interviewing is likely to be influenced by the individual's qualifications for the job and the job market, we adjusted the Success in Interviewing variable by two control variables: (1) grade point average (obtained from the student's records), and (2) a dummy variable indexing whether the student was graduating with a degree in Arts and Sciences or with a degree from a professional school (Business or Engineering). This second variable is a rough indicator of the job market in which the participant is competing. The number of initial and follow-up interviews was obtained from the Time 2 questionnaire.

RESULTS

Table I shows the correlations between the variables in the study. A number of these correlations are worth noting. First, consistent with previous research, positive affect and extraversion are highly correlated. Second, there are predictable correlations between the dependent variables. The three dependent variables assessing various social activities are positively related to one another. *Social Search Strategies* was correlated with *Success in Interviewing* and *Social Activities*. *Success in Interviewing* also was correlated with *Social Activities*. The final dependent variable, *Nonsocial Search Strategies*, was unrelated to the other three.

Of more interest are the relations between affect/personality and social activities. As expected, both positive affect and extraversion displayed somewhat similar relations with the dependent variables. Positive affect was positively related to *Social Search Strategies*, *Success in Interviewing*, and *Social Activities*. Extraversion displayed similar, albeit slightly lower, relations with these three

Table I. Correlations Between the Variables

	<i>x</i>	<i>SD</i>	1	2	3	4	5
1. Positive Affect	37.66	5.69	—				
2. Extraversion	37.99	5.96	.54**	—			
3. Social Search Strategies	11.17	4.05	.40**	.35**	—		
4. Nonsocial Search Strategies	7.44	3.70	.05	-.22**	.03	—	
5. Success in Interviewing	0.45	0.40	.35**	.30**	.22*	-.14	—
6. College Activities	41.34	13.16	.40**	.31**	.34**	-.04	.39**

* $p < .05$.

** $p < .01$.

Table II. Regression Results

	Social Search Strategies		Nonsocial Search Strategies		Success in Interviewing ^a		Social Activities	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Equation 1								
Extraversion	.34***	.15	-.18*	-.32***	.16	.01	.34***	.07*
Positive affect	.32***	.07***	.23*	.23*	.28**	.28**	.47***	.47***
R ² change	.07***	.04*	.06**	.06**			.16***	.16***
Equation 2								
Positive affect	.42***	.32***	.05	.23*	.29***	.28**	.51***	.47***
Extraversion	.15	.01	-.32***	-.32***	.01	.01	.07	.07
R ² change	.01	.19	.07**	.07	.00	.17	.25	.25
Total R ²	.19	10.54***	.07	.07	.17	4.22***	.25	.25
F								14.23***

^aTwo control variables, GPA and a dummy variable representing Arts & Sciences versus professional school major, were entered before the personality variables. Neither was significant in the final equations.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

measures. In addition, extraversion was negatively related to the level of use of Nonsocial Search Strategies for obtaining job leads.

We next used regression analyses to determine the relative impact of the affect and personality variables on the dependent variables. Two regression equations were developed for each of the four dependent variables. In one equation, extraversion was entered in the first step, followed by positive affect in the second step. In the other equation, the order of entry was reversed, with positive affect entered in the first step and extraversion in the second. By comparing changes in the amount of variance explained at the stages of the two equations, we can determine the relative impact of the personality variables on the dependent variables.

The results of these analyses are reported in Table II. The two variables explained significant amounts of variance in all the dependent variables. The regression results are the same for three of the dependent variables—Social Search Strategies, Success in Interviewing, and Social Activities. However, as shown in the table, despite positive zero-order correlations between extraversion and the dependent variables, extraversion does not explain incrementally more variance in the dependent variable than does positive affect alone. A somewhat different pattern emerged for Nonsocial Search Strategies. In this case, extraversion was negatively related to the frequency of use of these strategies, whereas positive affect showed a small positive relation to their use.

As shown in Table II, a different pattern was found for the Nonsocial Search Strategies variable than for the other dependent variables. Extraversion was negatively related to use of this strategy, whereas positive affect was positively related to its use. Interestingly, an inspection of the regression coefficients reveals that

the negative relation between extraversion and use of Nonsocial Search Strategies masks the positive relation between positive affect and the use of this strategy.

Supplemental Analysis

Although the focus of our investigation was on the relation between extraversion and positive affect, there is also a question of how neuroticism and negative affect are related. Although we did not attempt to collect dependent measures related to those variables, we were able to provide a very limited test of the relation between neuroticism and negative affect. As part of our larger investigation of early career experiences, we developed a three-item scale measuring how optimistic the student was about finding a meaningful job (alpha reliability = .79). Not surprisingly, both negative affect and neuroticism were related to career optimism (negative affect: $r = -.21$, $p < .05$; neuroticism: $r = -.18$, $p < .10$). And, consistent with previous research, negative affect and neuroticism were positively related ($r = .55$, $p < .01$). Consistent with our regression results, we found that the two measures explained a significant amount of variance in career optimism (adjusted r -square = .05, $F = 3.49$, $p < .05$). Moreover, the significance effects for neuroticism disappeared when negative affect was entered into the equation, but the effects for negative affect remained even when neuroticism was added to the equation.

DISCUSSION

As in previous research, we found a strong correlation between scores on the PANAS trait positive affect scale and the NEO extraversion scale. The .54 correlation between the two measures is similar to the correlations reported by other researchers (Watson & Clark, 1992). Moreover, as also in previous investigations, we found that scores on both measures were related to social behaviors. High trait positive affect and high extraversion predicted more involvement in social activities during college, a greater use of social sources when seeking employment information, and more success at obtaining a follow-up job interview.

However, we also found evidence that the trait positive affect and extraversion scales were not identical in their ability to predict these behaviors. Specifically, in all three cases, trait positive affect was found to account for variance in the behavior beyond that explained by extraversion. Interestingly, the opposite was not the case. Extraversion did not account for a significant amount of variance beyond that explained by trait positive affect for any of the three social variables. We also found differences between the two measures when used to predict the use of nonsocial sources when obtaining employment information. Higher extraversion scores were associated with less use of these sources. Perhaps this is because these individuals elect instead to seek out information through social channels.

One concern in the present set of data is that the findings might be attributed to differences in the internal consistencies of the two scales. That is, we found a slightly higher internal consistency coefficient for the trait positive affect scale than for the extraversion scale (.84 and .74 respectively). However, when we corrected for attenuation (Nunnally, 1978), none of the statistical outcomes were appreciatively different than the ones reported. Thus, the difference in internal reliability cannot account for the findings. A second concern may arise because of the nature of the data. Because all of the variables are self-reported, it may be that some common method bias influenced our results. However, given that the purpose of the study was to determine the relative influence of personality and affect variables, it is unlikely that the pattern of relations we uncovered could be explained by this concern. Finally, a potential limitation of our data is the relatively low internal consistency of two of the dependent variables.

The results of the present investigation demonstrate an empirical distinction between the two measures. That is, although scores from the two scales are highly correlated, we found that trait positive affect could account for variance in each of the three social behaviors that extraversion could not. Of course, many more investigations similar to the one reported here are needed to flesh out the relation between trait positive affect and extraversion. We recommend that these investigations examine different types of behaviors that are theoretically related to either positive affect, extraversion, or both of these constructs.

Although speculative, the results reported here also have implications for the conceptual relation between trait positive affect and extraversion. The findings are not consistent with a model in which extraversion and trait positive affect are seen as overlapping but distinct constructs. That is, we found no evidence that extraversion scores could account for variance in social behavior beyond that explained by trait positive affect scores. Of course, it would be incorrect to conclude from this one investigation that extraversion cannot explain some behaviors beyond those predicted by positive affect. However, at this point we are not aware of any study demonstrating a unique contribution of extraversion to the prediction of relevant behavior. Our findings are most consistent with a model in which trait positive affect is a superordinate construct to extraversion. That is, it is possible that positive affect is related to a generally high level of energy and activity and that social behavior is but one expression of this affective state. Within this model, and consistent with our findings, high extraversion is associated with higher levels of activity only in social settings. Obviously, based on this single investigation, it would be premature to draw conclusions about the nature of the two constructs. In particular, it is necessary to address these questions with different personality scales than the ones used here. In this way, researchers can have confidence that the findings are not a function of the particular assessment instruments.

Finally, the results seem relevant to two additional theoretical concerns. First, the finding from our supplemental analysis suggests it may be useful to examine the

relation between negative affect and personality traits within the five-factor model. In particular, the factor Tellegen (1985) identifies as Negative Emotionality in his research seems similar to the neuroticism factor in the five-factor model. Consistent with this observation, Watson and Clark (1992) report strong positive correlations between measures of neuroticism and negative affect. Our supplemental analyses suggest that the relation between negative affect and neuroticism may be similar to that we find for positive affect and extraversion. However, this suggestion must be tempered by the fact that we did not attempt to identify behaviors that should be associated with negative affect or neuroticism when we designed the study. Second, the question of how the two constructs relate to one another at a conceptual level highlights one criticism of the five-factor model of personality that also applies to the two-factor model of affect (Briggs, 1989). That is, both models were derived empirically from numerous and large sets of self-report data. Factors were labeled and described after they emerged from the analyses. This approach contrasts with one in which data collection and analyses are used to validate theoretically derived predictions. Although the empirically derived models have proven extremely valuable for researchers in these areas, because extraversion (at least as conceived of within the five-factor model) and trait positive affect emerged from different research models, the question of how these two are related on a conceptual level was not addressed. The research reported here represents a step toward answering that question.

REFERENCES

- Barwick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology, 44*, 1-26.
- Briggs, S. R. (1989). The optimal level of measurement for personality constructs. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 246-260). New York: Springer-Verlag.
- Caldwell, D. F., & Burger, J. M. (1998). Personality characteristics of job applicants and success in screening interviews. *Personnel Psychology, 51*, 119-136.
- Clark, L. A., & Watson, D. (1988). Mood and the mundane: Relations between daily life events and self-reported mood. *Journal of Personality and Social Psychology, 54*, 296-308.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology, 38*, 668-678.
- Costa, P. T., & McCrae, R. R. (1992). *Professional manual for the NEO PI-R*. Odessa, FL: Psychological Assessment Resources.
- Dioner, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology, 47*, 1105-1117.
- Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41*, 417-440.
- Emmons, R. A., & Dioner, E. (1985). Personality correlates of subjective well-being. *Personality and Social Psychology Bulletin, 11*, 89-97.
- Emmons, R. A., & Dioner, E. (1986). Influence of impulsivity and sociability on subjective well-being. *Journal of Personality and Social Psychology, 50*, 1211-1215.

- George, J. M. (1992). The role of personality in organizational life: Issues and evidence. *Journal of Management, 18*, 185-213.
- John, O. P. (1990). The "big five" factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L. A. Pervin (Ed.), *Handbook of personality: Theory and research* (pp. 66-100). New York: Guilford.
- Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of Personality and Social Psychology, 55*, 102-111.
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60*, 175-215.
- Meyer, G. J., & Shack, J. R. (1989). The structural convergence of mood and personality: Evidence for old and new directions. *Journal of Personality and Social Psychology, 57*, 691-706.
- Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Russell, J. A., & Carroll, J. M. (1999). On the bipolarity of positive and negative affect. *Psychological Bulletin, 125*, 3-30.
- Tellegen, A. (1985). Structures of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and the anxiety disorders* (pp. 681-706). Hillsdale, NJ: Erlbaum.
- Warr, P., Barter, J., & Brownbridge, G. (1983). On the independence of positive and negative affect. *Journal of Personality and Social Psychology, 44*, 644-651.
- Watson, D. (1988). Intraindividual and interindividual analyses of positive and negative affect: Their relation to health complaints, perceived stress, and daily activities. *Journal of Personality and Social Psychology, 54*, 1020-1030.
- Watson, D., & Clark, L. A. (1992). On traits and temperament: General and specific factors of emotional experience and their relation to the five-factor model. *Journal of Personality, 60*, 441-476.
- Watson, D., Clark, L. A., McIntyre, C. W., & Hamaker, S. (1992). Affect, personality, and social activity. *Journal of Personality and Social Psychology, 63*, 1011-1025.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98*, 219-235.

