Personality Correlates of Self-Appraised Problem Solving Ability: Problem Orientation and Trait Affectivity

Timothy R. Elliott
Department of Rehabilitation Medicine
University of Alabama at Birmingham

Stephen M. Herrick
Virginia Commonwealth University

Rebecca R. MacNair
University of North Carolina—Charlotte

Stephen W. Harkins
Virginia Commonwealth University
Medical College of Virginia

We examined the relations between the components of problem solving appraisal and trait affectivity in three separate studies. According to the social problem solving model, a positive problem orientation wards off negative affect and promotes positive affect to facilitate effective problem solving (D'Zurilla & Nezu, 1989). It was then reasoned that two factors on the Problem Solving Inventory (PSI: Heppner, 1988)—Problem Solving Confidence and Personal Control over emotions when problem solving—constitute facets of the problem orientation component. Therefore, these factors should be consistently associated with trait affectivity. Multiple regression was used to determine the association between the two problem orientation factors and measures of trait positive and negative affectivity from the Eysenck Personality Inventory (Eysenck & Eysenck, 1968; Study 1, N = 99), the NEO—Personality Inventory (Costa & McCrae, 1985; Study 2, N = 194), and the Positive and Negative Affective
Schedule (Watson, Clark, & Tellegen, 1988; Study 3, N = 341). The Personal Control and Problem Solving Confidence factors were consistently predictive of negative affectivity; the Confidence factor was the single best predictor of positive affectivity in each study. These findings support the basic tenets regarding the problem orientation component in the social problem solving model. Results are discussed as they relate to the unresolved theoretical and measurement issues in the assessment of social–cognitive constructs and trait levels of affectivity.

Theoretical models of self-appraised problem solving ability stipulate that individuals differ in the ways in which they process information about the self and the environment and how they cope with problems encountered in everyday life. One model leans heavily on the role of information-processing in the appraisal of skills, problems, and the implementation of goal-directed behaviors (Heppner & Krauskopf, 1987). The social problem solving model, in contrast, emphasizes the utility of specific cognitive–behavioral skills in resolving problematic situations (D'Zurilla & Nezu, 1989).

Both conceptualizations share a common heritage in the original problem solving model of D'Zurilla and Goldfried (1971), which delineated the problem solving process into five general stages: (a) problem orientation stage, (b) problem definition and formulation, (c) generation of alternatives, (d) decision making, and (e) verification. However, an early attempt to develop a measure of personal problem solving ability revealed a three-factor solution rather than the five anticipated (Heppner & Peterson, 1982). Subsequent research with this instrument—the Problem Solving Inventory (PSI; Heppner, 1988)—has found self-appraised effective problem solving ability is associated with greater psychological adjustment and less distress among college students (Heppner & Anderson, 1985; Nezu, 1985), medical patients (Elliott, Godshall, Herrick, Witty, & Spruell, 1991), and community-residing adults receiving treatment for depression (Nezu & Perri, 1989).

Despite the impressive research with the PSI, theoretical gaps limit our understanding of the problem solving process as measured by this instrument. The bulk of descriptive research with the PSI has relied almost exclusively on the total score (the sum of the three factors). However, the three factors—as defined in the PSI manual (Heppner, 1988)—measure different aspects of the self-appraised problem solving ability. The Personal Control (PC) factor measures one's sense of control over emotions and behaviors in problem solving situations (e.g., “I make snap judgments and regret them later,” “Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems”). The Problem Solving Confidence (PSC) factor assesses the degree of self-assurance and trust in one's problem solving abilities (e.g., “I have the ability to solve most problems even though initially no solution is immediately apparent,” “I trust my ability to solve new and difficult problems”). The Approach–Avoidance
(AA) factor measures the general tendency to approach or avoid different problem solving activities (e.g., “After I have solved a problem, I do not analyze what went right or what went wrong,” “I have a systematic method for comparing alternatives and making decisions”). Unfortunately, the Heppner and Krauskopf (1987) information-processing model does not offer any cogent, testable hypotheses regarding these separate factors in the problem solving process. It is therefore difficult to anticipate different properties of these factors; differences in correlational patterns observed in recent studies have been interpreted in a post hoc fashion.

To date, only one published study has examined a priori predictions concerning the relation of the separate PSI factors to criterion variables (Chartrand, Rose, Elliott, Marmorosh, & Caldwell, 1993). Clarifying the distinct properties of each PSI factor would have considerable theoretical and clinical implications. Whereas most problem solving intervention studies lean primarily on the social problem solving model articulated by D’Zurilla and colleagues (e.g., Lerner & Clum, 1990; Nezu & Perri, 1989; Richards & Perri, 1978), descriptive study of self-appraised problem solving ability has relied on the PSI as the preferred measure of problem solving. As these lines of inquiry remain distinct, implications for counseling from descriptive research are generally tenuous and lack specificity.

Interestingly, descriptive research with the PSI may be interpreted in light of the social problem solving model. Nezu and Perri (1989) believe the PSC and PC factors parallel the problem orientation component of the social problem solving model, noting that these factors assess perceived efficacy and abilities in regulating cognitive, behavioral, and emotional reactions when problem solving, and motivational aspects of problem solving. Furthermore, the AA scale measures more specific cognitive–behavioral strategies encompassed in the problem solving skills component of the D’Zurilla model (Nezu & Perri, 1989, p. 409).

If the PSI factors indeed operate in a manner consistent with the social problem solving model, certain relationships with other variables should be anticipated. For example, D’Zurilla and colleagues assert that a positive problem orientation functions to (a) ward off negative emotions (e.g., depression, anxiety) that could hinder problem solving, (b) elevate positive emotions and perceived competence facilitative of effective problem solving, (c) inhibit tendencies to respond impulsively to problems, and (d) motivate a person toward solving problems (D’Zurilla & Nezu, 1990; D’Zurilla & Sheedy, 1991; Nezu & D’Zurilla, 1989). Furthermore, persons with a positive problem orientation resolve everyday problems with dispatch, preventing these issues from exacerbating. A sense of competency is fostered as minor problems are resolved, and a person draws on these successful experiences when more threatening situations are encountered. The social problem solving model maintains that persons with chronic depression and anxiety have a negative problem orientation that inhibits and impairs problem solving attempts. The negative orientation contributes to
ineffectual coping behaviors and unfortunate consequences, which in turn reinforce the negative problem orientation (Nezu, 1987; Nezu & D'Zurilla, 1989).

If the PSC and PC factors on the PSI measure aspects of the problem orientation dimension, as Nezu and Perri (1989) attest, these factors should be associated with self-report measures of distress and emotional adjustment. There are several trends in past research to support this logic. Ineptive PSC scores have emerged as significant predictors of helplessness, depression, and suicidal ideation in cross-sectional and prospective designs (Dixon, Heppner, & Anderson, 1991; Priester & Clum, 1993). Ineffective PC scores were significantly predictive of greater health complaints among undergraduates (Elliott & Marmarosh, in press) and menstrual-related pain complaints of college women (Elliott, 1992). Ineffective PC scores have been associated with the use of emotion-focused coping strategies (MacNair & Elliott, 1992). In comparison, effective AA scores have been associated with rational decision-making strategies (Chartrand et al., 1993; Phillips, Pazienza, & Ferrin, 1984), greater assertion skills (Elliott et al., 1991), the use of problem-focused coping techniques (MacNair & Elliott, 1992), and a lower incidence of health complications among persons with severe physical disability (Herrick, 1991). Thus, the PC and PSC factors have been associated with indices of subjective distress, consistent with the theorized functions of the problem orientation component of the social problem solving model. The AA factor has revealed associations with indices of proactive, instrumental coping activities.

It is notable that the properties of a positive problem orientation are antithetical with characteristics associated with trait negative affectivity (TNA) and are similar to characteristics affiliated with trait positive affectivity (TPA). These are enduring and stable predispositions to experience negative and positive affect, respectively (Watson & Tellegen, 1985). Problematic situations may potentiate trait levels of positive and negative affectivity to influence perceptions of the problem, the self, and the environment (Ben-Porath & Tellegen, 1990; George & Brief, 1992). Persons high in TNA endorse more emotion-focused coping strategies than those lower in TNA (Bolger, 1990; McCrae & Costa, 1986; Smith, Pope, Rhodewalt, & Poulton, 1989) and have more negative appraisals of stressful events than those low in TNA (Elliott, Chartrand, & Harkins, in press). TNA is associated with more negative interpretations of routine problems (Watson & Pennebaker, 1989), physical impairments (Affleck, Tennen, Urrows, & Higgins, 1992), and laboratory stressors (Harkins, Price, & Braith, 1989). Higher levels of TPA, however, are related to more positive appraisals of the self under general conditions, and TPA has been associated with theoretically consistent directions with measures of distress and adjustment (Clark & Watson, 1991; Watson & Kendall, 1989). TPA is associated with positive mood states, sociability, and higher activity levels (Watson, Clark, & Tellegen, 1988). Therefore, it logically follows that persons with a negative
problem orientation—as defined by the social problem solving model—should evince higher levels of TNA and lower levels of TPA. More specifically, ineffective scores on the PSC and the PC factors on the PSI should be consistently associated with higher TNA scores and lower TPA scores. Furthermore, the AA factor should demonstrate little or no relation with TNA and TPA, if this factor parallels the problem solving skills component of the social model of problem solving.

Although the social problem solving model delineates a causal relationship, correlational studies and cross-sectional designs limit the determination of causal relationships. In fact, TNA has been construed as a confounding variable that is often embedded in measures of social–cognitive constructs (Watson & Pennebaker, 1989). However, it is important to note the theoretical differences between the perspective of the social problem solving model and trait notions of affect. Trait personality theorists differ in the degree to which biological and environmental factors influence the development of traits. The Eysenck model, for example, has tried to integrate both genetic and learning components (Eysenck & Eysenck, 1968). Other theorists, such as Costa and McCrae (1985) and Watson and Tellegen (1985), seem less concerned with personality development than with the empirical recognition of actual trait differences. Models of problem solving ability are couched in a cognitive–behavioral tradition that recognizes the role of environmental factors on learning and information-processing (Heppner & Krauskopf, 1987; Nezu & D’Zurilla, 1989). The social problem solving model in particular provides an excellent foundation for conceptualizing and implementing therapeutic interventions, because individuals can acquire new problem solving skills with subsequent changes in appraised abilities, psychological concomitants, and subsequent performance (Nezu & D’Zurilla, 1989). Intervention research in problem solving has documented that these presumed effects occur (Heppner, Baumgardner, Larson, & Petty, 1988; Lerner & Clum, 1990; Nezu, 1986; Nezu & Perri, 1989; Richards & Perri, 1978). Trait perspectives of personality offer little direction for therapeutic intervention, although they can be useful in client conceptualizations and feedback (McCrae & Costa, 1991b). Thus, a priori tests of theorized relations of the social problem solving model to trait measures of affectivity may have implications of therapeutic value.

We tested the theorized relation of the problem orientation variables (PSC and PC) to trait affectivity in three separate studies. Different measures of TNA and TPA were utilized in each study to minimize measure-specific correlations. For each study, Pearson correlations were first computed between the constructs measured by each instrument. Multiple regression equations were then computed to test the prediction that the problem orientation constructs—PC and the PSC—would be significantly predictive of TNA and TPA in each study, regardless of the instrument employed to measure trait affectivity. It was assumed that the AA factor would not be selected as a significant predictor of either TNA or TPA in any study. A
forward-entry stepwise procedure was used to select the best predictors of each criterion variable.

STUDY 1

We first established the relation of the problem orientation variables to trait affectivity as measured by a questionnaire with a sound theoretical base, a rich history of research, and established psychometric properties. The Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1968) was selected as the criterion measure in the first study. The EPI has been used in many experimental studies of personality (Geen, 1983), and it is highly regarded as a research tool (Drummond, 1985). According to Eysenck, the EPI Neuroticism scale measures an individual’s propensity to experience negative emotions (Eysenck & Eysenck, 1968). It is considered a traditional measure of TNA (Watson & Tellegen, 1985). Eysenck’s concept of neuroticism has emerged as a primary factor in determining the contaminating effects of TNA on self reports of ability, distress, perceptions, and adjustment (Clark & Watson, 1991; Elliott, Marmarosh, & Pickelman, in press; Watson & Clark, 1984). Extraversion is thought to encompass sociability, dominance, and excitement-seeking with accompanying differences in arousal between extroverts and introverts (Eysenck & Eysenck, 1968; Geen, 1983). It has been construed as a measure of TPA (Watson & Tellegen, 1984).

Research Participants

Participants were 61 female and 38 male college students (average age = 25) at a large state university in an urban area. Prospective participants were told the study was part of a “personality research project.” All volunteers received psychology course credit for participating. Interested persons were given a packet containing the research instruments. These were returned the following day.

Instruments

The PSI–Form A (Heppner, 1988) was used to measure self-appraised problem solving ability. The PSI contains 32 items that are rated on a 6-point Likert scale, ranging from strongly agree (1) to strongly disagree (6). The PSI contains three factors: PSC, AA, and PC (Heppner, 1988). Reliability estimates reveal that these constructs are internally consistent (alpha coefficients from .72 to .90) and stable over a 2-week period (test–retest correlations from .83 to .89; Heppner, 1988). Validity estimates indicate that the PSI total score and subscales are significantly related in predicted directions.
with a variety of self-report and observational measures (Heppner, 1988). Higher scores indicate negative perceptions of one's problem solving ability.

The EPI (Eysenck & Eysenck, 1968) has 57 items fashioned in a yes–no format. The Extraversion and Neuroticism scales consist of 24 items each. Nine items comprise the Lie scale, which provides an index of a socially desirable response set. Higher scores on the Neuroticism scale indicate greater TNA: higher scores on the Extraversion scale indicate greater extraversion. Test–retest reliabilities for the EPI range from .80 to .97 for the separate scales, and split-half reliabilities range from .74 to .91 (Eysenck & Eysenck, 1968).

Results

Table 1 displays the Pearson correlations between the PSI factor scores and the Eysenck dimensions, as well as the means and standard deviations for each variable.

The first multiple regression equation tested the relation of the two problem orientation variables to TNA (as measured by the EPI Neuroticism scale). PC was selected at the first step as the best unique predictor of TNA, \( F(1, 97) = 27.39, p < .0001, R^2 = .22 \). Ineffective skills in regulating emotional reactions when problem solving were significantly associated with greater TNA. PSC was selected at the next step, \( F_{inc}(1, 96) = 3.94, p < .05, R^2_{inc} = .03 \). AA did not satisfy minimal criterion to justify entry at the third step.

<table>
<thead>
<tr>
<th></th>
<th>PSC</th>
<th>AA</th>
<th>PC</th>
<th>EXT</th>
<th>NEU</th>
<th>LIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC</td>
<td>–</td>
<td>.43**</td>
<td>.49**</td>
<td>-.36**</td>
<td>.38**</td>
<td>-.24*</td>
</tr>
<tr>
<td>AA</td>
<td>–</td>
<td></td>
<td>.41**</td>
<td>-.12</td>
<td>.11</td>
<td>-.26*</td>
</tr>
<tr>
<td>PC</td>
<td>–</td>
<td></td>
<td></td>
<td>-.23*</td>
<td>.47**</td>
<td>-.39**</td>
</tr>
<tr>
<td>EXT</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td>-.22*</td>
<td>.17</td>
</tr>
<tr>
<td>NEU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.17</td>
</tr>
<tr>
<td>LIE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( M )</td>
<td>24.65</td>
<td>43.95</td>
<td>16.85</td>
<td>14.64</td>
<td>12.19</td>
<td>1.49</td>
</tr>
<tr>
<td>( SD )</td>
<td>7.78</td>
<td>11.92</td>
<td>5.32</td>
<td>4.66</td>
<td>5.03</td>
<td>1.48</td>
</tr>
<tr>
<td>Observed range</td>
<td>12-52</td>
<td>17-75</td>
<td>2-31</td>
<td>0-24</td>
<td>0-23</td>
<td>0-5</td>
</tr>
</tbody>
</table>

**Note.** PSI = Problem Solving Inventory, EPI = Eysenck Personality Inventory, PSC = Problem Solving Confidence, AA = Approach–Avoidance, PC = Personal Control, EXT = Extraversion/Introversion, NEU = Neuroticism, LIE = Lie scale. Higher scores on PSC, AA, and PC scales indicate ineffective problem solving ability; higher EXT scores denote greater extraversion; higher NEU scores denote greater neuroticism; higher LIE scores denote more socially desirable responses.

\( *p < .05. **p < .01. \)
The second regression equation was computed with the Extraversion scale—operationalized as the TPA construct—as the criterion variable. PSC was selected as the best predictor of TPA, $F(1, 97) = 14.19, p < .001, R^2 = .13$. Greater confidence in problem solving abilities was predictive of higher TPA, as measured by the EI subscale. No other PSI factors met minimal criteria for entry into the equation.

**STUDY 2**

Increasing recognition of a five-factor model of personality has stimulated recent research in trait aspects of personality (Digman, 1990). As defined by Costa and McCrae (1985), the five-factor model of personality consists of extraversion, neuroticism, openness to experience, conscientiousness, and agreeableness. Neuroticism (N) refers to TNA. Extraversion (E) is defined as the propensity for interpersonal interaction, stimulation, and positive affectivity. Openness to Experience (O) encompasses the appreciation of experience, intellectual curiosity, and aesthetic sensitivity. Agreeableness (A) refers to the individual's interpersonal orientation in terms of thoughts, feelings, and actions (including trust, altruism, and sympathy). Conscientiousness (C) refers to preferences for structure, organization, self-discipline, and motivation in goal-directed behavior (Costa & McCrae, 1985). These dimensions are measured by the NEO-Personality Inventory (NEO-PI; Costa & McCrae, 1985).

The NEO-PI scales have been significantly correlated with coping preferences (McCrae & Costa, 1986), psychological distress and personality dysfunction (Costa & McCrae, 1990), well-being and happiness (Costa & McCrae, 1980; McCrae & Costa, 1991a), vocational interests (Costa, McCrae, & Holland, 1984), and career decision-making styles (Chartrand et al., 1993).

Components of self-appraised problem solving ability should be related to certain personality dimensions of the five-factor model. The N scale on the NEO-PI is considered one of the best measures of TNA. The problem orientation variables—the PC and PSC factors on the PSI—should correlate with the N scale on the NEO-PI. The E scale on the NEO-PI measures characteristics affiliated with TPA. Based on our theoretical integration and the results of the first study, ineffective PC and PSC skills should be predictive of higher TNA (as measured by the N scale) and lower levels of TPA (as measured by the E scale).

**Research Participants**

Participants were 136 female and 58 male undergraduate students (average age = 23) at a state urban university. Prospective participants were told the
study was part of an investigation into “personality and stress.” All volunteers received psychology course credit for participating. Interested persons were given a packet containing the research instruments. These were returned to the researchers within the week.

Instruments

The PSI was used as the measure of problem solving. The NEO–PI Form S (Costa & McCrae, 1985) was used to measure TNA (the N scale) and TPA (the E scale). The NEO–PI consists of 181 items with a 5-point response format ranging from strongly disagree to strongly agree. Internal consistency coefficients range from .85 to .93 for the N, E, and O scales, and .76 and .86 for the A and C scales, respectively (Leong & Dollinger, 1990). Test–retest coefficients acquired from an adult sample at 3- and 6-year intervals indicate temporal stability for the five scales, with coefficients ranging from .64 to .85 (McCrae & Costa, 1991b).

Results

Means, standard deviations, and Pearson correlations are contained in Table 2.

<table>
<thead>
<tr>
<th>TABLE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means, Standard Deviations, and Correlations of PSI and NEO–PI Variables in Study 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PSC</th>
<th>AA</th>
<th>PC</th>
<th>NEU</th>
<th>EXT</th>
<th>OPN</th>
<th>AGR</th>
<th>CON</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC</td>
<td></td>
<td>.43**</td>
<td></td>
<td>.52**</td>
<td></td>
<td>-.22**</td>
<td>-.13</td>
<td>-.17*</td>
</tr>
<tr>
<td>AA</td>
<td></td>
<td></td>
<td>.47**</td>
<td>.24**</td>
<td>.00</td>
<td>-.15*</td>
<td>-.04</td>
<td>-.27**</td>
</tr>
<tr>
<td>PC</td>
<td></td>
<td>-.66**</td>
<td></td>
<td>.00</td>
<td>.01</td>
<td>-.23**</td>
<td>-.23**</td>
<td></td>
</tr>
<tr>
<td>NEU</td>
<td></td>
<td></td>
<td></td>
<td>-.01</td>
<td>.13</td>
<td>-.34**</td>
<td>-.30**</td>
<td></td>
</tr>
<tr>
<td>EXT</td>
<td></td>
<td></td>
<td></td>
<td>.34**</td>
<td></td>
<td>.20**</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>OPN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.06</td>
<td></td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>AGR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.21**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>25.49</td>
<td>45.54</td>
<td>18.20</td>
<td>98.42</td>
<td>116.56</td>
<td>119.57</td>
<td>45.49</td>
<td>45.76</td>
</tr>
<tr>
<td>SD</td>
<td>7.20</td>
<td>11.96</td>
<td>5.20</td>
<td>23.52</td>
<td>18.34</td>
<td>16.55</td>
<td>7.16</td>
<td>7.73</td>
</tr>
</tbody>
</table>

Note. PSI = Problem Solving Inventory, NEO–PI = NEO Personality Inventory, PSC = Problem Solving Confidence, AA = Approach–Avoidance, PC = Personal Control, NEU = Neuroticism, EXT = Extraversion, OPN = Openness to Experience, AGR = Agreeableness, CON = Conscientiousness. Higher scores on PSC, AA, and PC scales indicate ineffective problem solving ability; higher NEU, EXT, OPN, AGR, and CON scores denote greater intensities on each respective scale.

*p < .05. **p < .01.
PC was selected as the best single predictor of TNA, \( F(1, 192) = 146.73, p < .0001, R^2 = .43 \). Ineffective skills in regulating emotions in problem solving situations were again associated with greater neuroticism. PSC was selected at the second step as the next best predictor, \( F_{\text{inc}}(1, 191) = 15.50, p < .001, R^2_{\text{inc}} = .04 \). At the final step, AA was entered as a significant predictor, \( F_{\text{inc}}(1, 190) = 7.24, p < .01, R^2_{\text{inc}} = .02 \). Ineffective skills in approaching and defining problems were associated with greater neuroticism.

In the second regression equation, PSC was selected as the best predictor of TPA, \( F(1, 192) = 9.64, p < .01, R^2 = .05 \). Greater confidence in problem solving ability was again associated with a greater proclivity toward positive affect. PC was entered at the second step of the equation, \( F_{\text{inc}}(1, 191) = 5.06, p < .05, R^2_{\text{inc}} = .02 \). Ineffective skills in regulating emotional reactions when problem solving were associated with lower extraversion.

**Post Hoc Analysis**

The E scale is comprised of six separate subscales: Warmth, Gregariousness, Assertiveness, Activity, Excitement-Seeking, and Positive Emotions. In light of our interest in the relation of the problem orientation component to positive affect, we computed Pearson correlations between the three PSI factors and these six subscales. PSC was significantly correlated with Assertiveness (−.29), Activity (−.16), and Positive Emotions (−.20). PC and AA were also significantly correlated with Assertiveness (−.19, −.20, respectively; all \( ps < .05 \)).

**STUDY 3**

Clark and Watson (1991) believe that TPA and TNA are essentially mood-based dimensions. Therefore, it is expected that although individuals varying in levels of emotionality give different reports of distress and adjustment, differences on actual behavioral criteria may be minimal. Persons high in TNA, for example, report more physical problems and coping difficulties than those low in TNA, but these two groups do not differ on measures of performance or on the basis of physical examinations (Watson & Pennebaker, 1989). Thus, the Positive and Negative Affective Schedule (Watson et al., 1988) has been construed as an explicit mood-based measure of TNA and TPA. Comparing the problem orientation variables on the PSI to an explicit measure of positive and negative affectivity would advance our understanding of the mood-appraisal relationship. Our final study directly examined the relation of the problem orientation component to these trait affectivity scales.
Research Participants

Participants were 233 female and 108 male undergraduate students (average age = 21) at a large state university in an urban locale. The study was announced as an investigation into personality. Participants were awarded psychology course credit. Participants were given a packet containing the research instruments. These were returned to the researchers within one week.

Instruments

The PSI was used as the measure of self-appraised problem solving ability. The Positive and Negative Affective Schedule (PANAS; Watson et al., 1988) was used to measure trait negative and positive affectivity (TNA and TPA). The PANAS contains 10 positive and 10 negative affective adjectives. Respondents are required to rate each adjective on a Likert scale ranging from very slightly or not at all (1) to extremely (5) to signify the degree to which they are experiencing that particular mood on the average. Internal consistency reliabilities for the TPA and TNA scales have been acceptable (.87, .88, respectively) and test–retest reliabilities have been as well (.68 and .71 over 8 weeks, respectively; Watson et al., 1988). Validity coefficients for the scales indicate that they are appropriately correlated with similar measures of affect (Watson et al., 1988). Higher scores on each scale denote higher general levels of affectivity.

Results

Means, standard deviations, and Pearson correlations used in subsequent analyses are displayed in Table 3.

The stepwise regression equation using the forward-entry technique to predict TNA selected PSC at the first step, $F(1, 339) = 62.95, p < .0001, R^2 = .17$. Lack of confidence in problem solving skills was associated with greater TNA. PC was selected as the second best predictor of TNA, $F_{inc}(1, 338) = 21.66, p < .0001, R^2_{inc} = .05$. Ineffective skills in regulating emotions when problem solving was associated with greater TNA. AA was entered at the third step as a significant predictor, $F_{inc}(1, 337) = 51.11, p < .05, R^2_{inc} = .01$. Ineffective skills in approaching and defining problems were associated with greater TNA.

The equation to predict TPA selected PSC as the single best predictor, $F(1, 339) = 83.83, p < .0001, R^2 = .20$. Greater confidence in problem solving skills was associated with greater TPA. Interestingly, AA was entered at the
TABLE 3
Means, Standard Deviations, and Correlations of PSI and PANAS Variables in Study 3

<table>
<thead>
<tr>
<th></th>
<th>PSC</th>
<th>AA</th>
<th>PC</th>
<th>PA</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC</td>
<td></td>
<td>.44**</td>
<td>.50**</td>
<td>-.45**</td>
<td>.40**</td>
</tr>
<tr>
<td>AA</td>
<td></td>
<td></td>
<td>.50**</td>
<td>-.32**</td>
<td>.16*</td>
</tr>
<tr>
<td>PC</td>
<td></td>
<td></td>
<td></td>
<td>-.30**</td>
<td>.40**</td>
</tr>
<tr>
<td>PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.32**</td>
</tr>
<tr>
<td>NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>25.94</td>
<td>46.13</td>
<td>18.10</td>
<td>35.94</td>
<td>21.35</td>
</tr>
<tr>
<td>SD</td>
<td>7.65</td>
<td>11.99</td>
<td>4.46</td>
<td>6.17</td>
<td>6.53</td>
</tr>
<tr>
<td>Observed range</td>
<td>11–51</td>
<td>19–89</td>
<td>5–30</td>
<td>17–49</td>
<td>10–42</td>
</tr>
</tbody>
</table>

Note. PSI = Problem Solving Inventory, PANAS = Positive and Negative Affect Schedule, PSC = Problem Solving Confidence, AA = Approach-Avoidance, PC = Personal Control, PA = Positive Affectivity, NA = Negative Affectivity. Higher scores on PSC, AA, and PC scales indicate ineffective problem solving ability; higher PA and NA scores denote greater intensities on each respective scale.

*p < .05, **p < .01.

next step as a significant predictor, $F_{inc}(1, 338) = 7.79, p < .01, R^2_{inc} = .02$. Effective skills in approaching and defining problems were associated with greater TPA. The PC variable did not meet minimal criteria to justify entry into the equation.

GENERAL DISCUSSION

We reasoned that the PC and PSC factors on the PSI (Heppner, 1988) represented facets of the problem orientation component described by D'Zurilla (Nezu & D'Zurilla, 1989). It was predicted that ineffective skills in regulating emotions when problem solving (PC) and a lack of confidence in problem solving ability (PSC) would be consistently associated with higher TNA and lower TPA. Furthermore, it was argued that the AA factor on the PSI should evince little if any relation to measures of affectivity, as this factor represents the problem solving skills component of the social problem solving model.

Results from our three studies provide mixed support for our predictions. PSC was the best predictor of TPA in each study. PC was the best predictor of TNA in the two studies in which a multidimensional measure of TNA was employed; PSC emerged as the best predictor of TNA when a measure of chronic mood states was used in the final study. Contrary to predictions, the AA factor was associated with TNA and TPA in two of the studies, although the variance accounted for in each equation was relatively minimal (ranging from 1% to 2%).

Previous research has clearly indicated that self-appraised problem solving ability is related to negative emotional experiences such as depression,
anxiety, and distress (Heppner & Anderson, 1985; Nezu, 1985). Our results implicate a theoretically meaningful appraisal—affect relationship. Consistent with the social problem solving model, a positive problem orientation was associated with lower levels of negative affect. The relations between personal control and measures of negative affectivity could be interpreted as evidence of the construct validity of the PC factor. Individuals lacking skills in this domain have difficulty monitoring their negative emotional and behavioral reactions, and these reactions subsequently interfere with effective problem solving. The associations with the NEO–PI and the EPI Neuroticism scales are particularly compelling in this regard. Costa and McCrae (1985) observed that the behavioral facets of neuroticism entail a sense of vulnerability, emotional instability, maladaptive coping, unrealistic ideas, and excessive cravings. According to the social problem solving model, persons with a positive problem orientation are able to regulate these experiences so that effective problem solving strategies can be considered and implemented. The PC factor accounted for a considerable amount of variance in the NEO–PI (43%) and the EPI (22%) Neuroticism scales.

It is interesting that confidence in one’s problem solving ability emerged as the most significant predictor of positive affectivity, accounting for 5% of the variance in the NEO–PI E scale to 20% in the PANAS TPA scale. Additionally, PSC was the best predictor of the PANAS TNA scale. A positive problem orientation serves to motivate one toward problem solving efforts, promoting positive emotions in the process. Experimental research has noted that positive mood enhances creative problem solving (Isen, Daubman, & Nowicki, 1987). The PSC factor on the PSI seems to be particularly sensitive to prevailing mood states of the respondent in a manner consistent with the social problem solving model. A positive problem solving orientation—as measured by the PSC factor—may be related to greater sociability, activity levels, and capacity for joy.

Unexpectedly, several significant correlations in the second study pose other interpretive insights into self-appraised problem solving ability. In the second study, greater confidence in one’s problem solving ability and personal control over emotions were significantly correlated with greater A (–.17, –.23, respectively) and C (–.30, –.23, respectively). Similarly, a tendency to approach and define problems was associated with greater C (–.27). These correlations imply that ineffective skills in the core areas of problem solving are related to greater tendencies toward undisciplined and undependable behavior and a lack of goal-directed behavior (C), and with a more negative, uncooperative interpersonal style (A). Conscientiousness has been described as “will,” “dependability,” and “will to achieve” in personality research (Digman, 1990). Individuals with high C scores are thought to be efficient, hard-working, reliable, and motivated. C scores have been significantly correlated with measures of well-being (McCrae & Costa, 1991a). Consistent with these notions, self-appraised effective problem-solvers are thought to be capable of analyzing problems, generating options,
and evaluating outcomes while regulating emotional reactions and having confidence in their problem solving ability. Available data reveal that self-appraised effective problem solving is related to a variety of cognitive styles, including effective study skills and attitudes (Elliott, Godshall, Shrout, & Witty, 1990), internal expectancies for reinforcement, rational thinking, and need for cognition, generally (Heppner, Reeder, & Larson, 1983). Similarly, other research has indicated that effective problem-solvers are more assertive (Elliott et al., 1991) and skilled interpersonally (Heppner, Hibel, Neil, Weinstein, & Rabinowitz, 1982).

These qualities are conceptually similar to the C and A factors on the NEO-PI. The significant associations between these factors and components of problem solving provide further evidence of the associations between problem solving appraisal and personal styles other than mood-based traits, and prevent a simple interpretation of mood-appraisal relationships. Apparently, self-appraised effective problem solving can be characterized as a proactive cognitive style that may be reflected in measures of preferences for structure and activity, and also in a prosocial interpersonal demeanor.

Further research could explore the relative impact of problem solving training on individuals varying in negative emotionality. Though some theorists consider TNA to be enduring and stable (Watson & Clark, 1984), it is possible that those high in TNA could benefit from training in regulating emotional experiences and developing confidence in their problem solving abilities. Training in problem orientation and problem solving skills is an efficacious intervention in the treatment of depression (e.g., Nezu, 1986; Nezu & Perri, 1989), and it follows that a similar model could be applied with persons high in TNA to examine possible alterations in trait and state levels of other negative emotions (e.g., anxiety, anger, hostility). Possible changes on other personality dimensions (e.g., A, C, TPA), could also be monitored.

In summary, the findings of our research confirm that the problem orientation component of the social problem solving model is associated with trait affectivity. Negative affectivity was particularly related to deficiencies in regulating emotions when problem solving, and positive affectivity was associated with confidence in problem solving abilities. Although our results were consistent with the basic tenets of the social problem solving model, the overlap between the problem orientation variables and trait affectivity could be interpreted quite differently from contemporary perspectives of personality (e.g., Clark & Watson, 1991; Costa & McCrae, 1985). Direct tests of the mediating effects of trait affectivity on the relation of problem solving to criterion measures are required to clarify the predictive qualities of these different formulations. Other research investigating the impact of problem solving training on TPA and TNA could prove especially informative in disentangling the relations between cognitive appraisals and affect. Problem solving interventions should consider client affective dispositions, and training in the problem orientation component may have pronounced
effects on self-reports of mood, distress, and emotional regulation, generally. These possibilities should be examined in intervention studies.

REFERENCES


---

Timothy R. Elliott  
Department of Rehabilitation Medicine  
University of Alabama at Birmingham  
Birmingham, AL 35294

Received January 21, 1994  
Revised April 6, 1994