

Assessment of Interpersonal Negotiation Strategies in Youth Engaged in Problem Behaviors

Bonnie J. Leadbeater and Iris Hellner
Barnard College, Columbia University

Joseph P. Allen
Department of Psychiatry, Harvard University

J. Lawrence Aber
Barnard College, Columbia University

Explored relations among developmental levels and styles of interpersonal negotiation strategies (INS) and competence in social problem-solving skills (SPS-skills). Also assessed relations among levels and styles of INS and self-reported engagement in problem behaviors, including hard and soft drug use, delinquent acts, official criminal status, running away, and unprotected sexual activity. For both males and females (*M* age = 16.7 years), a moderate positive correlation was found between level of INS and SPS-skills. Older males with lower INS scores who used a more other-transforming (assertive) style reported greater involvement in problem behaviors. For females, no significant relations between levels and styles of INS and involvement in problem behaviors were found. Advantages of a developmental model for the evaluation of deficits and changes in interpersonal negotiation strategies are discussed.

Social-skills deficits in delinquent adolescents have been consistently and widely reported (Dishion, Loeber, Stouthamer-Loeber, & Patterson, 1984; Freedman, Donahoe, Rosenthal, Schlundt, & McFall, 1978; Kaplan & Arbuthnot, 1985). Despite, or perhaps because of, encouraging evidence supporting the effectiveness of social-skills training programs, fundamental questions have emerged concerning both the precise nature of the skill deficits that are characteristic of problem youth and

the actual aspects of training programs that are responsible for improvements. Reviews of this literature (Dodge & Murphy, 1984; Dodge, Pettit, McClasky, & Brown, 1987; Urbain & Kendall, 1980) highlight particularly the needs for (a) clarification of the construct of social skills, (b) a model of the developmental organization of social skills, and (c) a theoretical perspective for identifying qualitative markers of higher-level compared with lower-level skills.

An organizing model for assessing the development of a component of social skills is offered in recent work exploring the development of interpersonal negotiation strategies (Brion-Meisels & Selman, 1984; Selman, Beardslee, Schultz, Krupa, & Podorefsky, 1986). Following Werner (1957), development in this model reflects an increasing differentiation of the needs of self and other. Following Selman's (1980) structural developmental model of interpersonal understanding, it also reflects an increasing ability to coordinate the perspectives of self and other in resolving interpersonal conflicts. Qualitative markers of higher-level skills compared with lower-level skills are described in terms of four developmental levels of behavioral or functional responses (interpersonal negotiation strategies) to situations of interpersonal conflict. These levels, outlined in Table 1, range from impulsive ego-centered negotiations to mutually collaborative solutions.

At each level, a response can be further categorized by its interpersonal orientation (see Table 1). Orientation is considered to be a stylistic aspect of interpersonal negotiation strategies and distinguishes assertive (other-transforming) from submissive (self-transforming) interpersonal behaviors at each level (Selman & Schultz, 1988). Interpersonal orientation is defined as the "individual's feelings of power or efficacy relative to the other—represented by her or his attempt to 'change the other' or to 'change the self'" (Brion-Meisels & Selman, 1984, p. 281).

Empirical research using this developmental model for the assessment of interpersonal negotiation strategies has reported

An earlier version of this article was presented at the meeting of the Society for Research in Child Development, Baltimore, April 1987. A generous grant from the W. T. Grant Foundation to J. L. Aber made conducting this research possible. Additional funds were provided by a postdoctoral fellowship from the Social Sciences and Humanities Research Council of Canada to B. J. Leadbeater and by a grant from the Spencer Foundation and the National Institute of Mental Health to J. L. Aber.

We also gratefully acknowledge data coders Lisa Berlin, Steve Botticelli, Lisa Goudar, Erin Mullin, and Charles Sachs and the staff and interviewers of the Adolescent Risk Research Project, Barnard College, Columbia University, especially Vicki Nakkula and Amy Baker. We would particularly like to thank the staff and young people of the several agencies who participated in this research, including Bridge Over Troubled Waters, Place Runaway House, ESAC, and Herrick Center for Girls in Boston; Youth Action Project, East Harlem Tutorial Program, and Julia Richman High School Guidance Program, in New York; and Three Rivers Youth, Alternative Program Associates, Catholic Families, and the Family Division of the Allegheny County Court of Common Pleas in Pittsburgh. Finally, we appreciate the comments of Christina Mitchell, Robert Selman, Lynn Schultz, and three anonymous reviewers.

Correspondence concerning this article should be addressed to Bonnie J. Leadbeater, Department of Psychology, Yale University, P.O. Box 11A Yale Station, New Haven, Connecticut 06520-7447, or to J. Lawrence Aber, Department of Psychology, Barnard College, Columbia University, New York, NY 10027.

Table 1
Structural Components at Four Levels of Interpersonal Negotiations Strategies (INS)

Level of INS	Social perspective- coordination component	Interpersonal orientation	
		Self- transforming	Other transforming
0. Impulsive egocentric negotiations; fight or flight; noncommunicative	Other is viewed as an object; self in conflict with external forces	Whine Flee Hide Ignore	Fight Grab Hit Curse
1. Command or one-way negotiations; command or obey; no reciprocity	Self is seen as a subject with interests separate from those of other	Obey Give in Be helpless Wait for help Go behind back	Command Bully Assert Appeal to Authority Threaten Challenge
2. Reciprocal exchange-oriented negotiations; influence; accommodate	Needs of self and others are taken into account sequentially and separately	Accommodate Barter Go second Ask for reasons	Influence Barter Go first Give reasons Persuade Appeal to Mediator
3. Mutual collaborative negotiations	Needs of self and others are integrated in mutual third-person perspective	Works out conflicts in terms of needs and relationships; collaborate	

Note. From "Early Adolescent Development of New Interpersonal Strategies: Understanding and Intervention" by S. Brion-Meisels and R. L. Selman, 1984, *Psychology Review*, 13, 278-291. Adapted by permission.

relationships between levels of interpersonal negotiation strategies and age, gender, and IQ in middle-class adolescents. Older, female, and brighter adolescents generally receive higher-level strategies scores (Beardslee, Schultz, & Selman, 1987; Selman, Beardslee, et al., 1986). Previous research has also suggested that the development of interpersonal understanding in children and adolescents with emotional or interpersonal difficulties lags behind that of their "normal" peers (Brion-Meisels & Selman, 1984; Selman, 1980; Selman & Demorest, 1984). There is also evidence that the impoverished interpersonal environment of the children of parents with affective disorders impedes the development of the capacity for expressing mutuality in relationships (Beardslee et al., 1987). However, the empirical validity and usefulness of this developmental model for the assessment of interpersonal skills of problem youth has not yet been investigated.

There are three specific purposes of this study. First, we aim to develop a method for the assessment of interpersonal negotiation strategies that would be sensitive to the within-group differences in the performance of youth who engage in problem behaviors. In previous research, neutral, hypothetical situations of interpersonal conflict have been used to evaluate interpersonal negotiations strategies. Here, provocative situations are used to place greater demands on youths' social skills. Second, we begin to examine the validity of the assessment of this theoretically derived, developmental model of a specific component of social skills—interpersonal negotiation strategies—by exploring its relationship to a widely used, empirically derived in-

ventory assessment of general social problem-solving skills (Freedman et al., 1978; Gaffney & McFall, 1981). Third, we test the association of both level and orientation of interpersonal negotiation strategies and youths' engagement in problem behaviors (including delinquent behaviors, official criminal status, hard and soft drug use, unprotected sexual activity, and running away from home). Previous research has demonstrated the value of assessments of social skills in differentiating delinquent from nondelinquent youth (Freedman et al., 1978; Kaplan & Arbuthnot, 1985). Here we examine the sensitivity of the construct to detect individual differences in social skills within a sample of youth in which all of the subjects are engaged in problem behaviors.

Method

Subjects

The youth who participated in this study included 150 males and 121 females with a mean age of 16.7 years for both groups (range = 13.8 to 18.6 for males, and 14.6 to 18.2 for females). All subjects were participants in a short-term longitudinal study assessing the impact of comprehensive services on the development of high-risk youth (Aber, 1984). They were recruited within 2 to 4 weeks of their admission to one of several agencies that offer services to delinquent, runaway, and disadvantaged youth in Boston, New York City, and Pittsburgh. This sample includes youth from large urban centers who are engaged in a range of problem behaviors and have been identified by service agencies. For males reporting on their behavior in the past 6 months, 43% reported

involvement in more than one delinquent act per week, 16.2% reported using hard drugs more than once a month, and 44.3% reported using soft drugs more than once a week. In addition, 39.5% had been convicted of a crime, 56.2% reported having unprotected intercourse in the past month, and 15.4% had run away from home and lived on the street or with friends for more than a week in the past year. For females reporting on their behavior in the past 6 months, 26.7% reported involvement in more than one delinquent act per week, 24.2% reported using hard drugs more than once a month, and 38.8% reported using soft drugs more than once a week. In addition, 11.8% had been convicted of a crime, 49.6% reported having unprotected intercourse in the past month, and 28.2% had run away from home and lived on the street or with friends for more than a week in the past year. As can be seen in Table 2, the levels of engagement in delinquent acts and hard drug use for this sample are two to four times higher than norms for a national probability sample of 16- and 17-year-old males and females (Elliott, Ageton, Huizinga, Knowles, & Canter, 1983).

Of all youth participating, 29% were Black, 23% were Hispanic, 45.5% were White, and 2.5% were from other ethnic groups. Fifty-seven percent reported that their families had received welfare at some time during their lives, and 75% came from nonintact families (i.e., the parents were never married, the parents were currently separated or divorced, or one parent had died). At the time of the data collection, 64.4% of the youth lived with their parents or an adult relative, 24.7% lived in residential treatment facilities, group homes, emergency shelters, 8.4% lived on the street or with friends, and 2.2% had other residences.

Procedure

Each youth was interviewed in a private room at the agency where he or she was recruited or in his or her own home. Each was paid \$15 for participation in the 1½-hr interview. The measures used in this research were among several being used in the longitudinal study. All interviewers had graduate or undergraduate training in psychology as well as experience in working with adolescents and were given specific training and ongoing supervision for this interview.

Measures

Assessment of social problem-solving skills (SPS-skills). We used the Adolescent Problem Inventory for Boys (API; Freedman et al., 1978) and the Problem Inventory for Adolescent Girls (PIAG; Gaffney & McFall, 1981) to assess the competence of the youths' social problem-solving skills. Tape-recorded readings of specific, hypothetical social situations involving requests, temptations, demands, and accusations of peers, parents, and adult authorities (e.g., a friend asks you to deliver drugs for him for money, you are bored and want some fun, a policeman stops you) are presented one at a time. After each, subjects are asked, "What would you do or say in this situation?". SPS-skills scores are assigned for each item in comparison with the empirically derived criterion in the rater's manuals. To construct the criterion for the rater's manual, Freedman et al. (1978) asked a group of advanced undergraduate psychology students, psychology interns, and professional psychologists to rate the competence of sample responses "using whatever subjective criteria they felt were important." The judges' statements of the criteria that they used and response examples were incorporated into the scoring manual as anchors for a 9-point scale (higher scores indicate greater competence). A maximally skillful response is more generally defined as one that effectively resolves the problem situation and makes it less likely that the youth will have to face more of the same problems in the future. Scores are averaged across situations for an overall measure of social skills.

We made slight modifications of item content for both the API and

PIAG to make the items more relevant to urban populations. Recent work by Ward and McFall (1986) has supported the validity of the PIAG with both Caucasian and Black adolescents. Items were reduced to 16 for the PIAG and 12 for the API to decrease the length of the interview to approximately 20 min. Scores for the shortened version of the male API were highly correlated ($r = .95$) with a 22-item version used in previous research (Allen, Leadbeater, & Aber, 1988). Our reanalysis of Gaffney and McFall's (1981) original PIAG data for females (done in communication with Gaffney) also indicates that performance on the shortened female version was also highly correlated with their 52-item measure ($r = .93$). Cronbach's alphas for the shortened version of the measure were .79 for males and .85 for females, which is adequate for an inventory measure tapping situations varying widely in content. Responses were audiotaped and coded from the tapes by a team of six graduate and undergraduate psychology students who were blind to the hypotheses of the study and the youths' other scores. Interrater reliability was computed on the basis of subsamples of 110 individual items scored for males and 130 individual items scored for females and was high in both cases ($r = .91$ for males and .89 for females).

Assessment of interpersonal negotiation strategies (INS). We selected seven items from the API and eight from the PIAG that met the Selman, Beardslee, et al. (1986) definition of a situation of interpersonal conflict. Such a situation involves a mutually perceived disequilibrium in the needs of self and other in an ongoing relationship of some personal meaning (e.g., your father tells you to stay home Saturday night; you miss the bus, arrive late for work, and get fired by your boss; or your girlfriend or boyfriend wants to break up with you). Compared with the neutral dilemmas used in previous research on interpersonal negotiation strategies (Selman, Beardslee, et al., 1986), the provocative interpersonal conflicts described in these dilemmas may place greater demands on the youths' social skills. Therefore, they are more likely to reveal individual differences within this sample of problem youth. The youths' responses to the question "What would you say or do in this situation?" were rescored for the levels of interpersonal negotiation strategies and styles of interpersonal orientation evident in the response. This scoring was based on criteria that were theoretically derived from Selman's (1980) work on the development of interpersonal understanding. These are detailed, with response examples, in the INS manual (Selman, Schultz, Krupa, Beardslee, & Podorefsky, 1986) and are summarized in Table 1.

A team of three graduate and undergraduate psychology students, who were blind to the hypotheses of the study and the youths' other scores, coded the levels of interpersonal negotiation strategies. Reliability for coding levels of interpersonal negotiation strategies (consisting of percentage of exact agreement between the coder and Bonnie Leadbeater) were 78%, 88%, and 90%. Disagreements were resolved by discussion among the four judges.

We computed average interpersonal negotiation strategy (INS) scores. Overall Cronbach's alpha levels were .57 for both the male and female versions, suggesting that INS may not be a unidimensional construct and that this measure should not be used for individual-level analyses. Previous research suggests that INS performance is related to whom is involved in the dilemma (peers or adults), what his or her relationship is to the youth (familial or nonfamilial), whether the youth initiates negotiations for his or her own benefit or reacts to the demands of others, and what affective salience the conflict holds for the youth (Selman & Schultz, 1988). For the purpose of this initial study of the relationships among INS and youth problem behaviors, average INS scores were used to represent best the youth's cross-context performance. Higher scores indicate better performance.

Assessment of interpersonal orientation. We also calculated interpersonal orientation scores to represent the percentage of other-transforming responses for each subject.¹ We used arc sine transformation to

¹ Because the interpersonal orientation coded for Level 3 responses is, by definition, mutual (i.e., neither self nor other), these infrequently

transform these percent scores as recommended by Winer (1971). Percentages of exact agreement between Bonnie Leadbeater and the three coders for coding interpersonal orientation of each strategy were 88%, 81%, and 85%.

Assessments of youth problem behaviors. We obtained measures of youths' problem behaviors using a structured interview compiled from existing self-report measures of youth problems. The use of such self-report measures has been found to be reliable and valid in previous research (Elliott et al., 1983; Quay, 1987; Rutter & Giller, 1983). In an effort to represent comprehensively the problem behaviors of the youth that come to the attention of service agencies, the problem behaviors assessed included delinquent acts, official criminal status, illicit drug use, unprotected sexual activity, and running away from home.

We administered self-report measures of *delinquent acts* and *hard drug use* and *soft drug use* previously used in a longitudinal study of these activities in a national probability sample of youth (Elliott et al., 1983). Delinquent behaviors questions asked the number of times that youth had engaged in each of 30 nonoverlapping criminal acts during the previous 6 months. Answers were summed to provide a *delinquent behaviors index*. Questions assessing the use of hard drugs (heroin, cocaine, hallucinogens, amphetamines, and tranquilizers) and soft drugs (alcohol and marijuana) also asked the number of times that the youth used each of the drugs over the previous 6 months. Summary scores for hard drug use and soft drug use were calculated separately.

To assess how often the youths' delinquent activities had come to the attention of authorities—an index of the seriousness of delinquent behaviors (Quay, 1987; Rutter & Giller, 1983)—a 5-point *index of official criminal status* was devised (0 = no arrests or convictions, 1 = arrested [for other than minor traffic offenses] or put on probation but never convicted, 2 = convicted but never locked up, 3 = convicted and locked up less than 3 months, and 4 = convicted and locked up for more than 3 months).

Running away from home. To assess the levels of seriousness of runaway behaviors, a 4-point *runaway index* was calculated (0 = never ran away, 1 = ran away for less than a week, 2 = ran away for more than a week but did not live on the street or with friends in the past year, 3 = ran away for more than a week and lived on the street or with friends for less than 3 months in the past year, and 4 = ran away and lived on the street or with friends for more than 3 months in the past year).

Unprotected sexual activity was measured for all adolescents on a 9-point scale indicating the relative risk of pregnancy from sexual activity in the prior month. The scale score was calculated on the basis of a rating of the following three scores: (a) the frequency of intercourse in the past month (0 = none to 8 = more than once weekly), (b) the probability of failing to use birth control during intercourse (0.00 = never to 1.00 = always), and (c) the probability of failure of method used (.05 = reliable methods, including birth control pill, diaphragm, condom, and spermicidal jelly, to .50 = less reliable methods, including withdrawal, rhythm, and douching). The approximate probability of contraceptive failure was calculated as the sum, up to a maximum of 1.00, of the probability of failure to use birth control and the probability of failure of the methods used. An overall unprotected sexual activity score was then calculated by multiplying the probability of contraceptive failure by the frequency of intercourse. The resulting score ranges from 0 (no unprotected sexual activity) to 8 (maximum unprotected sexual activity). For example, an adolescent who reported having sex more than once weekly (approximate frequency/month = 8), using birth control almost always (probability of not using = .25), and using a reliable method (probability of failure = .05), would have an unprotected sexual activity score as follows: $8(.25 + .05) = 2.40$.

occurring scores ($n = 4$) were omitted in calculations of overall interpersonal orientation scores.

Table 2
Means, Standard Deviations, and Ranges
for Youth Problem Behaviors

Behavior	<i>M</i>	<i>SD</i>	Range
Males			
Hard drug use	10.9	45.5	0-365
Soft drug use	85.6	194.9	0-1600
Delinquent acts	97.6	214.1	0-1730
Criminal status	1.3	1.1	0-3
Runaway index	.9	1.3	0-4
Unprotected sex	1.6	2.5	0-8
Females			
Hard drug use	17.1	72.4	0-720
Soft drug use	56.2	78.0	0-278
Delinquent acts	45.4	91.5	0-352
Criminal status	.7	1.0	0-3
Runaway index	1.5	1.5	0-4
Unprotected sex	1.3	2.4	0-8

Note. Comparable national norms for 16- and 17-year-old males and females, using identical measures, are as follows: $M = 2.3$ and $SD = .9$, for hard drug use, and $M = 23.8$, and $SD = 79.5$, for delinquent acts (Elliott, Ageton, Huizinga, Knowles, & Canter, 1983, p. 436).

Interrelations among problem behaviors. Descriptive statistics for males' and females' reported involvement in each of the problem behaviors are given in Table 2, and intercorrelations among the problem behaviors are shown in Table 3. Donovan and Jessor (1985) suggest that a variety of behavior problems are highly correlated in adolescents and may be understood as evidence of a single "behavior problems syndrome." Therefore, it appeared desirable to evaluate the factor structure of the problem behaviors of youth in this sample before proceeding to an analysis of their relationships to INS and interpersonal orientation. Distributions of scores for self-reported delinquent behaviors, hard drug use, and soft drug use were positively skewed; thus, each was subjected to natural log transformations, and transformed scores were used in all analyses.

We used a principal-components factor analysis (with scores for males and females combined²) to explore the factor structure underlying the six youth problem behaviors for the 251 cases (93%) with complete data.³ One factor accounted for 42.1% of the variance in the matrix of correlations among the six self-report problem behaviors, with each behavior loading above .44 on this single factor. A summary *problem behaviors factor score* was constructed by summing the unit weights of standard *z* scores for each of the six problem variables.

Results

Relation of INS and Interpersonal Orientation to Sex and Age

Because previous research reports gender differences in both interpersonal negotiation strategies (Selman, Beardslee, et al., 1986) and in youth problem behaviors (Quay, 1987; Rutter & Giller, 1983), we planned gender-specific analyses. Average INS scores for females and males were low ($M = 1.29$, $SD = .31$,

² These results were replicated in principal-components analyses with male and female data considered separately.

³ Scores for one variable were missing for 20 (7%) subjects because of interviewers' errors or subjects' refusal to answer delinquency or sexual history questions.

Table 3
Intercorrelations Among Individual Problem Behaviors, Interpersonal Negotiations Strategies (INS), and Interpersonal Orientations for Males and Females

Factor	1	2	3	4	5	6	7	8
1. INS	—	.01	-.34***	-.29***	-.25***	-.14*	-.20**	-.10
2. Orientation	.24**	—	.19**	.17*	.12	.04	.09	.06
3. Hard drug use	-.06	-.08	—	.54***	.47***	.19**	.34***	.19**
4. Soft drug use	-.15	.03	.54***	—	.55***	.34***	.40***	.15*
5. Delinquency	-.06	.09	.47***	.42***	—	.34***	.30***	.14
6. Criminal status	-.05	.21*	.23**	.37***	.22**	—	.33***	.13
7. Runaway index	-.20*	.16*	.27**	.39***	.23**	.36***	—	.18*
8. Unprotected sex	.03	.04	.20*	.25**	.32***	.27**	.15*	—

Note. Correlations are above the diagonal for males and below for females. Because of missing data, *Ns* range from 143 to 148 for males and from 114 to 120 for females.

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

and $M = 1.08$, $SD = .33$, respectively). The mean transformed percent score for interpersonal orientation was .92 ($SD = .30$) for males and .50 ($SD = .30$) for females, indicating that males used mainly other-transforming strategies, whereas females used both self- and other-transforming strategies. Average SPS-skills scores were 4.36 ($SD = 1.08$) for males and 4.23 ($SD = 1.24$) for females. Caution must be taken in interpreting these findings as indicative of sex differences, because we used overlapping, but nonidentical, gender-specific measures of INS and SPS skills. Thus, significance tests were not conducted. As might be expected given the restricted age range (14 to 18 years) and the overall low scores of the youth sampled here, correlations between age and the INS scores were not significant.

Relation of INS and Interpersonal Orientation to SPS-Skills

In order to test the relations between the theoretically derived ratings of INS and the empirically derived, criterion-referenced ratings of SPS skills, we used correlations and hierarchical multiple regression analyses to examine the relationships among levels of INS, style of interpersonal orientation, and SPS skills for males and females. Level and style of INS were not linearly related for males. For females, a small but significant positive relationship was found, so that females using more other-transforming strategies had higher INS scores ($r = .24$, $p = .004$). Moderately high, positive correlations between INS and SPS skills were found for both males ($r = .66$, $p < .001$) and females ($r = .58$, $p < .001$). The use of more other-transforming strategies was not significantly related to SPS skills for males, although a small negative trend was found ($r = -.11$, $p = .08$). A small, but significant, negative correlation was found between orientation and SPS-skills for females. Females using fewer other-transforming (i.e., more self-transforming) strategies had higher social competence scores ($r = -.17$, $p = .03$).

A hierarchical regression analysis explored the effects of INS level, style of interpersonal orientation, and the interaction of INS and orientation on SPS skills. As shown in Table 4, 43% of the variance in the males' SPS-skills scores was explained by INS, and an incremental contribution in R^2 of 2% was observed when interpersonal orientation was entered into the regression.

Similarly, 33% of the variance in SPS-skills scores for females was explained by INS level, and an additional 10% of the variance was explained by interpersonal orientation. Both males and females using fewer other-transforming strategies had higher SPS-skills scores. No incremental contribution in R^2 was observed for either males or females when the interaction of INS with interpersonal orientation was entered into the regression.

Relations of INS, Interpersonal Orientation, and SPS-Skills to Problem Behaviors

We performed correlations and multiple regression analyses to investigate the abilities of levels and style of INS and of SPS-skills to predict involvement in problem behaviors statistically. Because age has been found to correlate with problem behaviors in youth (Quay, 1987; Rutter & Giller, 1983), it was also added to these analyses as a covariate.

In this sample of problem youth, age was slightly correlated with problem behaviors for males ($r = .21$, $p \leq .002$; $n = 136$) but not for females. Furthermore, a moderate negative correlation was found for males between levels of INS and the problem behaviors factor ($r = -.33$, $p < .001$), and a slight positive correlation was observed between the problem behaviors factor and the use of more other-transforming interpersonal orientation strategies ($r = .20$, $p = .01$). For females, a small but significant

Table 4
Interpersonal Negotiation Strategies (INS) and Orientation as Predictors of Social Competence in a Stepwise Regression Model

Predictor	R	R ²	ΔR ²	β	ΔF
Males ($n = 145$)					
INS	.66	.43	.43	.61	108.05**
Orientation	.67	.44	.02	-.14	5.08*
Females ($n = 120$)					
INS	.58	.33	.33	.58	58.78**
Orientation	.66	.43	.10	-.32	20.55**

* $p \leq .05$. ** $p \leq .001$.

Table 5
Age, Interpersonal Negotiation Strategies (INS), and Orientation as Predictors of Problem Behaviors for Males

Predictor	R	R ²	ΔR^2	β	ΔF
Age	.25	.06	.06	.25	8.89*
INS	.39	.15	.09	-.30	14.25**
Orientation	.45	.20	.05	.22	8.06*

Note. *N* males = 136.
 * $p \leq .05$. ** $p \leq .001$.

negative correlation between INS and youth problem behaviors was observed ($r = -.17, p = .04; n = 108$).

Table 5 presents the results of a hierarchical, multiple regression analysis of the effects of age, INS, interpersonal orientation, and the interaction of INS and interpersonal orientation on the problem behaviors for males. Age was entered first, followed by level of INS, style of orientation, and their interaction. Results revealed that 6% of the variance in males' problem behavior factor was explained by age. An additional 9% was explained by INS level, and style of orientation added a further 5% to the explained variance. Older youth with lower average INS scores, who used more other-transforming strategies, reported involvement in more problem behaviors. No additional variance was accounted for by the interaction of INS and interpersonal orientation. Age, INS, and orientation did not predict problem behaviors for females.

Correlations between SPS-skills and the problem behaviors factor were moderate, $r = -.48$ for males ($p < .001$), and $r = -.38$ for females ($p < .001$). To test further whether INS and interpersonal orientation should be considered components of SPS skills in the prediction of youth problem behaviors, we performed two hierarchical regression analyses. In the first, age was entered first, followed by SPS-skills, level of INS, and style of interpersonal orientation (Equation 1). In the second, age was entered first, followed by level of INS, style of interpersonal orientation, and finally by SPS-skills (Equation 2). If level of INS and style of interpersonal orientation are components of SPS-skills, it is expected that they would not add to the explained variance in youth problem behaviors beyond that afforded by SPS-skills. On the other hand, SPS-skills would be expected to add to the explained variance in problem behaviors after INS and interpersonal orientation are entered into the equation. Our findings confirmed these expectations for both males and females. For males ($n = 133$), in Equation 1, 7% of the variance was explained by age, with an additional 21% accounted for by SPS-skills, $\Delta F(1, 130) = 37.9, p < .001$. INS and interpersonal orientation did not add significantly to the explained variance. In Equation 2, however, a total of 19% of the variance was explained by the effects of age, level of INS, and style of interpersonal orientation. An additional 9% of the variance was explained by SPS-skills, $\Delta F(1, 128) = 19.9, p < .001$. For females ($n = 108$), in Equation 1, only .09% of the variance in problem behaviors was explained by age and an additional 19% by the effects of SPS-skills, $\Delta F(1, 105) = 24.6, p < .001$. No further variance was significantly explained by INS and orientation. In Equation 2, a total of 6% of the variance was explained by age,

level of INS, and style of interpersonal orientation, and an additional 15% was explained by the effects of SPS-skills, $\Delta F(1, 103) = 19.9, p < .001$.

Although youth problem behaviors appear to be well characterized as a single problem behavioral syndrome, exclusive focus on their syndrome-like nature may obscure important differences in understanding the specific manifestations of youth problem behaviors. In addition, unique research literatures have emerged that investigate each problem behavior separately. Thus, to ensure that important relations were not overlooked among levels of INS, style of interpersonal orientation, and the individual youth problem behaviors, we computed zero-order correlations among these variables (see Table 3). Correlations were strongest in males for INS with hard and soft drug use, delinquent behaviors, and runaway behaviors. Neither INS nor interpersonal orientation was related to self-reported official criminal status or unprotected sexual activities. Analyses of the same correlations for females revealed slight correlations for INS and runaway behaviors ($r = -.20$) and for interpersonal-orientation and runaway behaviors ($r = .16$) and criminal status ($r = .21$). Females using more other-transforming responses received higher scores for each of these problem behaviors.

Discussion

We explored the use of a developmental model for the assessment of levels and styles of interpersonal negotiation strategies used by problem youth. Despite the somewhat restricted range of INS scores, our findings give evidence of important within-group differences in a sample of youth engaged in problem behaviors. We found associations among the youths' levels of interpersonal negotiation strategies, styles of interpersonal orientation, competence in social problem-solving skills, and self-reported involvement in actual problem behaviors.

Relations Among INS, Interpersonal Orientation, and SPS-Skills

The predicted relationship between INS levels and styles and SPS-skills scores was supported. Forty-five percent of the variance in males' SPS-skills scores and 43% of the variance in the females' scores were explained by INS and interpersonal orientation. This suggests that levels and style of interpersonal negotiation strategies may be important components of SPS skills. The API and PIAG sample skills in a wide range of situations, including dealing with nonconflicting peer invitations to get involved in illegal activities, nonnegotiable encounters with authorities (e.g., police), and coping with one's own bad mood. In the criterion-referenced scoring manual, a competent response is defined as one that effectively resolves the problem situation, however, no overall definition of *effective* is given. Thus, the scoring reflects both the situational specificity of the youths' performance and the criterion judgments of the reference group of psychologists and psychology students who analyzed the original data (Freedman et al., 1978). Therefore, a particular behavior may be considered adaptive in one situation and not in another; for example, nonverbal obedience may be a socially adaptive (respectful) response in situations involving parents or

officials but less adaptive (submissive) in a job interview. Moreover, different reference groups might make different judgments about the competence of a given behavior; for example, parents may not agree with their adolescent's use of birth control, whereas health professionals may see this as a competent behavior. In contrast, the INS model specifies a hierarchical set of developmental levels reflecting an increasing ability to differentiate and coordinate the needs of self and other and in a corresponding evolution from nonverbal (ignores or hits) to more verbal and collaborative strategies for resolving interpersonal conflicts. Here, nonverbal obedience in any situation is considered a Level 1 self-transforming strategy.

Results of regression analyses further suggest that level of INS and style of interpersonal orientation can be considered important components of social problem-solving competence in predicting involvement in problem behaviors. SPS-skills explained the variance in problem behaviors beyond the effects age, level of INS, and style of interpersonal orientation, whereas the reverse was not found. This is expected given the wider range of social skills sampled by SPS-skills and given the difficulty in specifying the precise skills assessed, using the criterion judgments of the reference group who scored the original data. The INS model has the advantage, not for the empirical prediction of youth problem behaviors but, rather, in providing a meaningful hierarchy of the development of one specific component of social skills—interpersonal negotiation strategies. This hierarchy may also offer a developmentally meaningful foundation for intervention programs. Other components of social competence (e.g., perceived self-efficacy and the valuing of competent behaviors by significant others) have similarly been found to be related to youths' involvement in delinquent behaviors, hard drug use, and unprotected sexual activity (Allen et al., 1988) and may add increments of explained variance in predicting SPS-skills and problem behaviors over and above INS and orientation (Aber, 1988).

The construct of interpersonal orientation also adds to our understanding of the relationship between interpersonal negotiation strategies and social skills. Interpersonal orientation explained an additional 10% of the variance in SPS-skills scores for females and 2% for males. Youth who used fewer other-transforming strategies scored higher for SPS-skills. At INS Level 1, fewer other-transforming responses indicate that those individuals who received higher competence scores attempt to negotiate interpersonal conflicts through such self-transforming (submissive or passive-aggressive) behaviors as obeying, giving in, being helpless, and so on. At Level 2, self-transforming change efforts involve such behaviors as accommodating and going second. That these stereotypical female behaviors should be predictive, particularly for females, of SPS-skills may evidence an emphasis on compliance in the PIAG scoring manual. In contrast, females scoring higher on the INS measure tended to be slightly more other-transforming, that is, they were more likely to assertively attempt to change others in their responses. Other-changing (assertive) females are thus evaluated as more skillful when compared with the developmental hierarchy of the INS model, than in relation to the reference group judgments of competent behavior that are specified for SPS-skills. This finding confirms the need for a theoretical perspective to complement and challenge the more conventional norms expressed in

the empirically derived perspective of SPS-skills. Further studies are necessary to clarify theoretical differences in the two constructs of INS and SPS-skills and to tease out the problem of shared method variance inherent in the methodology used in this research.

Relations of INS and Orientation to Problem Behaviors

Our findings also give evidence of an association between levels of INS, style of interpersonal orientation, and youth problem behaviors. This was the case only for the males in our sample, where age, INS, and interpersonal orientation predicted a total of 20% of the variance in a factor summarizing six self-report problem behaviors (including hard and soft drug use, delinquent behaviors, and indices of official criminal status, runaway behaviors, and unprotected sexual activity). Older males with lower INS scores and who used more other-transforming interpersonal negotiation strategies reported more problem behaviors. Previous research has found that youth involvement in problem behaviors like delinquency and substance abuse increases with age to a peak at 15 years and then begins to decrease (Quay, 1987). Failure to develop higher-level INS may contribute to involvement in problem behaviors or involvement in problem behaviors may hamper development of INS. Age, INS level, style of interpersonal orientation, and the youth problem behaviors were not correlated for female adolescents in our sample. These findings highlight the need for a differential understanding of the correlates of problem behaviors in male and female youth.

Correlations among each of the individual problem behaviors and INS and interpersonal orientation were strongest for males' self-reported hard and soft drug use, delinquent behaviors, and runaway behaviors. INS was not significantly correlated with the indices of official criminal status and unprotected sexual activities. Official criminal status in part reflects chance variations in the youths' directly coming to the attention of adult authorities and is less exclusively a measure of youth's performance. Unprotected sexual activity was reported by 58% ($n = 81$) of the males in our sample, and of these 68% ($n = 55$) received the maximum score. It is possible that INS and interpersonal orientation cannot predict the subtle variations in these generally high levels of unprotected sexual activities.

Longitudinal data are needed to explore the developmental course and causal relations suggested in this theory. Does movement toward more assertive strategies indicate development away from the predominant use of Level 0 (impulsive physical aggression or withdrawal) even if these higher-level strategies involve bullying? Does movement away from an exclusive use of the Level 1, other-transforming responses (i.e., away from bullying, threatening, directing) indicate movement toward a flexible, Level 2 use of a combination of self-transforming and other-transforming (accommodating or persuading) strategies? What are the causal relations between INS and engagement in problem behaviors over time?

Comparative studies with samples of youth both engaged and not engaged in problem behaviors are also needed to extend the results from this within-group analysis to between-group assessments. Are the low levels of INS performance in provocative interpersonal situations typical only of problem youth? Fur-

thermore, the low internal consistency among the items assessing the youths' levels of INS suggest that this is not a unidimensional construct. Recent research (Selman et al., 1986; Selman & Schultz, 1988) on context differences in INS performance in middle-class adolescents attending school suggests that INS performance would be better in neutral rather than provocative interpersonal situations, in those where youth are motivated to initiate the negotiation to get something that they want rather than react to the wants of another, and in those involving peers rather than adults. The measure of INS used here focused specifically on situations in which subjects are asked to react to the provocative demands of others, because it is in handling these situations that problem youth are most likely to "lose their cool" and get into further trouble. Studies that systematically measure INS in a range of situations (e.g., proactive compared with reactive) involving differing interpersonal relations (e.g., with peers, adults, employers, or teachers) would increase our understanding of the context-specificity of these strategies.

The findings of relationships among INS, interpersonal orientation, and engagement in problem behaviors in youth indicate that this method of assessment of interpersonal negotiation strategies and the construct itself have promise for expanding our understanding of this component of social skills. It also paves the way for exploring factors, contexts, and interventions that influence the development of interpersonal negotiation strategies in youth engaged in problem behaviors.

References

- Aber, J. L. (1984). *The impact of comprehensive services on the development of high-risk adolescents*. Unpublished grant proposal, submitted to the W. T. Grant Foundation.
- Aber, J. L. (1988, March). *A components analysis of social competence in multiproblem adolescents: Toward an integrative model*. Paper presented at the Society for Research in Adolescence, Alexandria, VA.
- Allen, J. P., Leadbeater, B. J., & Aber, J. L. (1988). *The relationship of social contingency beliefs to adolescent problem behaviours*. Manuscript submitted for publication.
- Beardslee, W., Schultz, L., & Selman, R. (1987). Levels of social-cognitive development, adaptive functioning, and *DSM-III* diagnosis in adolescent offspring of parents with affective disorders: Implications of the development of the capacity for mutuality. *Developmental Psychology*, 23, 807-815.
- Brion-Meisels, S., & Selman, R. L. (1984). Early adolescent development of new interpersonal strategies: Understanding and intervention. *Psychology Review*, 13, 278-291.
- Dishion, T. J., Loeber, R., Stouthamer-Loeber, M., & Patterson, G. R. (1984). Skill deficits and male adolescent delinquency. *Journal of Abnormal Child Psychology*, 12, 37-54.
- Dodge, K. A., & Murphy, R. R. (1984). The assessment of social competence in adolescents. In A. Karoly & J. J. Steffer (Eds.), *Advances in child behavior analysis and therapy: Vol. 4. Adolescent behavior disorders* (pp. 61-96). Lexington, MA: Heath.
- Dodge, K. A., Pettit, G. S., McClasky, C. L., & Brown, M. M. (1987). Social competence in children. *Monographs of Society for Research in Child Development*, 51(2, Serial No. 213).
- Donovan, J. E., & Jessor, R. (1985). Structure of problem behavior in adolescence and young adulthood. *Journal of Consulting and Clinical Psychology*, 53, 890-904.
- Elliott, D. S., Ageton, S. S., Huizinga, D., Knowles, B. A., & Canter, R. J. (1983). *The prevalence and incidence of delinquent behavior: 1976-1980*. Boulder, CO: Behavioral Research Institute.
- Freedman, B. J., Donahoe, C., Rosenthal, L., Schlundt, D. G., & McFall, R. M. (1978). A social-behavioral analysis of skill deficits in delinquent and nondelinquent adolescent boys. *Journal of Consulting and Clinical Psychology*, 46, 1448-1462.
- Gaffney, L. R., & McFall, R. M. (1981). A comparison of social skills in delinquent and nondelinquent adolescent girls using a behavioral role playing inventory. *Journal of Consulting and Clinical Psychology*, 49, 959-967.
- Kaplan, J., & Arbuthnot, J. (1985). Affective empathy and cognitive role-taking in delinquent and nondelinquent youth. *Adolescence*, 20, 323-333.
- Quay, H. C. (1987). *Handbook of juvenile delinquency*. New York: Wiley.
- Rutter, M., & Giller, H. (1983). *Juvenile delinquency: Trends and perspectives*. New York: Guilford Press.
- Selman, R. L. (1980). *The growth of interpersonal understanding: Developmental and clinical analysis*. New York: Academic Press.
- Selman, R. L., Beardslee, W., Schultz, L. H., Krupa, M., & Podorefsky, D. (1986). Assessing adolescent interpersonal negotiation strategies: Toward the integration of structural and functional models. *Developmental Psychology*, 22, 450-459.
- Selman, R. L., & Demorest, A. (1984). Observing troubled children's interpersonal negotiation strategies: Implications of and for a developmental model. *Child Development*, 55, 288-304.
- Selman, R. L., & Schultz, L. (1988). Interpersonal thought and action in the case of a troubled early adolescent: Towards a developmental model of the gap. In S. Shirk (Ed.), *Cognitive development and child psychotherapy* (pp. 207-246). New York: Plenum.
- Selman, R. L., Schultz, L., Krupa, M., Beardslee, W. R., & Podorefsky, D. (1986). *An interview method and scoring manual for the developmental assessment of interpersonal negotiation strategies*. Unpublished scoring manual, Harvard University.
- Urbain, E. S., & Kendall, C. (1980). Review of social-cognitive problem-solving interventions with children. *Psychological Bulletin*, 88, 109-143.
- Ward, C. I., & McFall, R. M. (1986). Further validation of the problem inventory for adolescent girls: Comparing Caucasian and Black delinquents and nondelinquents. *Journal of Consulting and Clinical Psychology*, 54, 732-733.
- Werner, H. (1957). The concept of development from a comparative and organismic point of view. In D. B. Harris (Ed.), *The concept of development: An issue in the study of human behavior* (pp. 149-161). Minneapolis: University of Minnesota Press.
- Winer, B. J. (1971). *Statistical principles in experimental design* (2nd Ed.). New York: McGraw-Hill.

Received September 28, 1987

Revision received June 27, 1988

Accepted July 11, 1988 ■