

PROBLEM SOLVING THINKING OF ADOLESCENT
DRUG ABUSERS: DEVELOPMENTAL
CONSIDERATIONS

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INTRODUCTION AND LITERATURE REVIEW

In the last two decades, a dramatic increase has been documented in the use of illegal substances among adolescents, involving the use/abuse of a variety of different drugs (e.g., see, Kaufman, 1977). The National Youth Polydrug study (1979) surveyed 2,750 adolescents in treatment programs. This study documented two major patterns: a) Use typically began early; of these adolescents, the average age of initiating substance use was 13. b) Frequent use was the common pattern; since the initiation of drug use, 80% of the adolescents had used marijuana and alcohol several times a week on a regular basis.

In the past, prevention of drug abuse, in the form of drug education programs, has been oriented toward school age and early adolescent populations. In contrast, drug treatment programs have not been geared toward school age children or adolescents but toward adult abusers. Recently, as a response to the growing awareness of their illegal substance use, drug treatment programs for adolescents have multiplied. The most common practice in these programs is to provide interventions similar to those used with adults.

Research on normative adolescent populations (as well as adolescent problem populations) emphasizes that adolescents struggle with many aspects of their socio-emotional development (Conger, 1973). In addition to their use of drugs, many

adolescents have problems adjusting in other areas of their life, namely in academic or job pursuits, in their family relationships, and in other interpersonal relationships. How the adolescent views situations and acts in accordance with his/her views is related to adjustment in these areas. Jahoda (1953) and Spivack (1976) have put forth the thesis that the essential ingredients to positive social/emotional adjustment are the ability to acknowledge/admit to a problem, to make a decision, and to take action. Additionally, in dealing with intra- and inter-personal demands, an adolescent must be cognitively capable of responding in a competent manner.

The increased pressure to make decisions is experienced by all adolescents. However, some adolescents appear to be more vulnerable, to engage in "faulty" decision making which leads to risk-taking and health compromising behaviors, such as drug-taking. Although research in this area is limited, it is clear that the adolescent drug-abusing population not only may have a problem with drugs per se, but also may be ineffective in their ability to make decisions and to solve problems in their everyday life. Therefore, one potentially fruitful area of research with drug-abusing adolescents involves examining their difficulties with problem-solving.

Furthermore, information obtained from an examination of relationships among interpersonal problem solving, drug abuse and social competency/emotional adjustment may be utilized in designing a maximally effective intervention program for adolescents which would include practice in interpersonal

problem solving. By providing adolescents who are abusing drugs with effective problem solving strategies, they may be able to make more effective decision regarding drugs and in their everyday life. Additionally, being able to effectively make such decisions may help them to feel more competent and may help them become less reliant on drugs to cope.

Problem Solving

Although problem solving has been an active area of research, the majority of studies have focused on the problem solving ability of individuals using impersonal measures (refer to Davis, 1966; Simon & Newell, 1971, for a description of these measures). One specific study in this area is that of D'Zurilla and Goldfried (1971). These authors delineated the stages of problem solving (i.e., orientation, problem definition, generation of alternatives, decision making and verification) and taught problem solving strategies to individuals based upon these stages. Informal evaluation of their clients indicated that individuals in therapy were able to apply these strategies to solving their problems.

The research group of Platt, Spivack, and Levine has focused on interpersonal problem solving. Spivack and Levine (1963) and Platt (1974) required subjects to respond to interpersonal problem situations. This research delineates specific deficits in adolescents who are having problems adjusting. They appear to be deficient in two interpersonal problem-solving skills: a) the ability to generate possible

courses of action when confronted with an interpersonal situation and b) the ability to articulate a related and sequential set of steps which may solve a given problem (defined by Platt as means-end thinking). Platt and his colleagues at the Hahnemann Medical College (1975) have developed a measure of interpersonal problem solving - Means End Problem Solving (MEPS) Procedure.

Means End Problem Solving Procedure

The MEPS test measures the extent to which the subject, when presented with problem situations involving an aroused need and thus a required resolution of the problem, is capable of conceptualizing appropriate and effective means of reaching the problem resolution stage of the situation. Levinson and Neuringer (1971) used this measure with adolescents who were exhibiting behavioral problems, such as suicidal adolescents and drug abusers. They found such adolescents to be deficient in their ability to spontaneously explore the pros and cons of a situation prior to making a decision.

Using the MEPS test, Platt, Scura, and Hannon (1973) studied older adolescents who were incarcerated heroin addicts (mean length of addiction was 3.8 years). The mean age and educational level of the addicts were 21.8 and 10.6 years in comparison to 19.5 years and 9.2 years for the control group. Despite their older age and higher educational level, the addict group was less able than the control group to provide relevant steps towards reaching a resolution to a problem situation. On the basis of their data, Platt et al.

decided that drug treatment programs should include the training of effective problem solving strategies.

In a review of the literature which focuses on interpersonal problem solving, Pellegrini and Urbain (1985) stated that teaching problem solving strategies may be an effective intervention for disturbed children. However, there are singular studies which have found little improvement in problem solving and subsequent behavior after training in problem-solving (e.g., Elias, 1979). One possible problem with previous research studies is that they examine problem solving ability in "problem" populations without taking into account other factors, such as cognitive egocentrism and cognitive capacity, which may interfere with problem solving ability. These factors are especially critical when examining adolescent subjects in light of the accelerated physical, social and emotional development occurring in this age group. Taking cognitive capacity and egocentrism into account when teaching interpersonal problem solving may help explain discrepant findings in this area.

Cognitive Changes

According to Piaget, as the individual moves into adolescence, she or he progresses toward formal operational functioning. The essential features of thought attained in this stage are the abilities to: a) conceive of all possibilities regardless of their abstraction; b) consider the future as reality; c) base experiments on deductions from

hypotheses and d) examine a problem from different perspectives (Conger, 1973). This new set of mental abilities allows the adolescent to distinguish between objective vs. subjective rules, test hypotheses, predict the consequences of events and comprehend events which are contradictory (Elkind, 1973).

Since they have developed a new set of mental abilities, adolescents are increasingly able to examine themselves in relationship to others, to generate alternative solutions to interpersonal problems, to articulate step-by-step solutions to problems and to understand the consequences of their behavior. Thus, they should be able to be good problem solvers. Yet, although presumably capable of making good interpersonal decisions, some adolescents make poor decisions, such as being sexually active without using contraceptives, committing delinquent acts, taking drugs. Thus, although the attainment of these cognitive abilities are prerequisites for mature decision-making, it would appear that cognitive skills are not the only factors underlying decision-making. Other factors must be influencing adolescents' problem-solving ability. One such factor, supported by research (Porter, 1984), is that adolescents' cognitive egocentrism limits their cognitive capacity and thus their decision making. Porter found that, in comparison to nondelinquents (matched for age and socioeconomic status), delinquents displayed lower cognitive abilities and greater cognitive egocentrism. Both these factors were related to lower decision making abilities.

Cognitive Egocentrism

As adolescents make the transition into formal operational thought, they become capable of complex and highly abstract reasoning. However, adolescents have not yet acquired the necessary experiences to apply these new abilities effectively. During this transition, several aspects of adolescent egocentrism emerge. On the basis of Piagetian theory and his own clinical experience, David Elkind (1967) postulated two constructs of egocentrism which have been used to explain adolescent behavior. One of these constructs, the Imaginary Audience, involves the belief that others are as concerned with our thoughts and behaviors as we are. The second construct, Personal Fable, involves the adolescent's belief in his/her uniqueness, invulnerability and immortality. This belief can have positive consequences, such as feelings of self-confidence. However, this belief can also lead to risk-taking behaviors due to faulty decision-making. Given these cognitive limitations, adolescents assume they will not be harmed even if they see others harmed by the same action. For example, they may drink to excess and drive with a cognitive awareness of the effect such behavior may have on others but without any affective awareness of the consequences upon themselves. Green, Miller, Cornell, Jones and Jaynes (1988) have devised a measure of the personal fable. This measure has been employed with several adolescent risk taking populations (e.g., Porter, 1984; Green & Johnson, 1988).

One of the essential ideas generated from the research discussed above is that adolescents are strongly influenced by their personal experiences. To become cognitively and emotionally aware of consequences, they have to experience them. Since adolescents view themselves as unique and invulnerable from harm and only learn from experiencing the consequences of specific actions, adolescents have been found to be very difficult to treat effectively. Intervention programs which do not take their egocentrism into account may fail to produce any significant changes in behavior. Obviously, the best strategy to reduce egocentrism is to use an experiential approach. In employing an experiential approach in their intervention programs, several researchers have found positive changes in behavior (Goodstadt & Calleekal-John, 1984; Rozelle, 1979).

The present study: a) measured the cognitive capacity and cognitive egocentrism of drug abusing adolescents and minimal using adolescents and b) examined the interpersonal problem solving strategies of these two groups of adolescents. Hypotheses generated were as follows:

Hypothesis I

The research by Platt et al. (1973) on adolescent heroin addicts demonstrated that these individuals are ineffective in solving interpersonal problems in their everyday life. Based on these findings, it was predicted that adolescent drug abusers will be ineffective in their ability to solve problems in real life situations. More specifically, hypothesis I

predicts that compared to a minimal using group, a group of adolescent drug abusers will exhibit ineffective problem solving ability as measured by the number of irrelevant solutions given to hypothetical problems. Irrelevant solutions are those which fail to specify in sufficient detail how the goal was reached, those which simply repeat or paraphrase part of the story or make a value judgment on some aspect of the story.

Hypothesis II

The research by Piaget (1972) suggests that higher levels of cognitive capacity facilitate interpersonal problem solving ability. The research by Porter (1984) indicates that higher levels of cognitive capacity and lower levels of cognitive egocentrism are related to higher decision making capacity. Elkind (1967) suggests and Porter (1984) and Green and Johnson (1988) found that cognitive egocentrism limits the capacity for interpersonal problem solving ability. Based on these findings, hypothesis II predicts that a group of minimal users will be more cognitively advanced and less egocentric than a group of abusers. Also based on these findings hypothesis II predicts that those adolescents who are less egocentric and more cognitively advanced will be more effective in their ability to arrive at a solution to an interpersonal problem situation than those adolescents who are more egocentric and less cognitively advanced.

If drug abusers are found to be lower functioning in their cognitive capacity and demonstrate increased cognitive

egocentrism, and these two variables are shown to be related to interpersonal problem solving, then intervention programs will have to be designed taking these findings into consideration.

METHOD

Subjects

Subjects were selected for the study upon admission to a residential vocational training program. During a five month time period, all adolescents who entered the program were screened as to their drug usage. Assignment to one of two groups (drug abusing and minimal using) was based upon testing during the orientation period. In the screening process, very few adolescents reported to be nondrinkers. Therefore, rather than a nondrinking control group, the control group was a minimal using group. Fifty-six adolescent subjects (41 males and 15 females) participated in the study. Consent from the staff, program directors, and subjects was obtained prior to the initiation of the experiment.

Materials

Materials consisted of four sets of instruments designed to assess subjects' drug and alcohol use, cognitive capacity, cognitive egocentrism, and problem-solving abilities in applied social situations.

Drug Interview

A semi-structured interview was employed which assesses the extent and severity of alcohol and drug use and psychosocial risk factors. Specific criteria were employed to define minimal use versus abuse of alcohol or drugs. Based on

this interview, an individual was assigned to either an abuser or a minimal user group if his/her responses fit the criteria for either group. Additionally, two abuser sub-categories were noted: Harddrug and Polydrug. The Harddrug category included subjects who only used hard drugs, such as cocaine and heroin. The Polydrug category included subjects who either used both hard drugs and other substances, such as alcohol or marijuana, or used both alcohol and marijuana. Refer to Appendix A for copies of the questionnaire and criteria for placement into groups.

Cognitive Measures

In order to assess the level of cognitive functioning, three measures were employed: proverbs, puns and word problems. For the proverbs and the puns tasks, subjects were required to explain the meanings of two puns and two proverbs. An example of a pun is the following: "Wrestling is a sport which gets a hold on you". An example of a proverb is the following: "Large oaks from little acorns grow". According to Piaget, in order to successfully respond to the puns and proverbs, formal operational thinking is necessary. Higher scores are indicative of higher cognitive functioning. Scoring for the proverbs is taken from the Stanford Binet (1973). Scoring for the puns follows a pattern similar to that for the proverbs (see Jones & Green, 1988, for a description of the establishment of scoring criteria). For the word problems, subjects were instructed to read two problems and to respond

with the correct answer. An example of a word problem is the following: "Helen is taller than Mary and Mary is taller than Jane; who is the tallest of the three?" If subjects answer both word problems correctly, they are considered to have higher cognitive functioning. The specific items for all of these tasks and the scoring system for the puns and for the proverbs can be found in Appendix B. Scores for all measures were totaled. The dependent measure ranged from a score of 0 to a score of 10, higher scores were interpreted to reflect higher cognitive capacity.

Egocentrism Measure

The measure used to assess the Personal Fable aspect of egocentrism was Green, Miller, Cornell, Jones and Jaynes (1988) Personal Fable instrument. The instrument included 43 items, tapping different aspects of the Personal Fable and behaviors related to Fable thinking. An additional item measured the subject's likelihood of taking chances. Subjects responded to each item using a 5 point scale, ranging from strongly agree (4) to strongly disagree (0). Five scales are scored. Each scale score was the total sum of the scale items. For all but independence, higher scores reflected higher levels of egocentrism. The instrument tapped the following areas: egocentrism, uniqueness, magical thinking, impulsivity/breaking the rules (one scale), and independence. Refer to Green et al.(1988) for specific information about reliability and validity. See Appendix C for a copy of the Personal Fable and scoring instructions.

Problem-Solving Measure

The subjects' problem-solving ability was assessed by means of the MEPS. The subjects were presented with 5 stories. Each story portrays a situation in which a need is aroused in the hero at the beginning of the story, and is satisfied by him/her at the end of the story. The subject is required to complete the story by filling in those events which might have occurred between the arousal and the satisfaction of the hero's need. Each story was scored for the number of relevant means, for the number of obstacles and for time. A relevant mean was defined as a discrete step which was effective in either enabling the hero of the story to reach the resolution stage of the story or in overcoming an obstacle which prevented the hero from reaching the goal in the story. An irrelevant mean was a step which was irrelevant or ineffective in resolving the situation. An obstacle was scored when the subject mentions some difficulty (either internal or external) which might cause the hero some problems in reaching the goal. In a story about searching for a missing watch, some examples of obstacles are: a guilty conscience, shyness, burglar alarm. Time was scored when the subject specified an amount of time elapsed between the beginning and the end of the story.

The composite score of relevant means, obstacles, and time across all five stories were totaled for each subject. Higher scores reflected more effective means-end thinking. In addition to the composite score, a relevancy ratio was

calculated. This ratio was obtained by dividing the total number of relevant means provided by the subject by the total number of relevant means, irrelevant means, and ineffective means. A ratio closer to 1.0 reflected the utilization of more effective solutions to the problem-solving situations. Refer to Platt and Spivack's MEPS manual for specific information about reliability and validity. See Appendix D for a copy of the problem solving situations and scoring criteria.

Procedure

All subjects were tested in small groups. A brief introduction regarding the purpose of the study was provided; the subjects were assured that all information would remain confidential. Subjects gave their written approval to participate in the study. Testing was completed with the assistance of an undergraduate and two graduate students. All individuals who entered the program were interviewed for their drug usage. Based on specified criteria, subjects were assigned to either a drug abusing or minimal using group. Those individuals who did not fit either criteria were not used in the study. Depending upon their reading level, subjects were then either asked to read or were read the cognitive tasks and the Means End Problem Solving situations. Lastly, the Personal Fable instrument was administered using a tape recording.

Subjects were given a prepared answer sheet and were instructed to listen to the tape and to record their answers.

RESULTS

In order to define the two samples demographically and to delineate information concerning differences between the abuser and minimal user groups for the dependent variables, summary descriptive statistics are provided. The sample was 73% male and 27% female. Subjects in both groups were, on the average, 18 years old, and had a tenth grade education. On the average, their parents had a tenth grade education. Additionally, for most of the subjects, their mother was unemployed or working in the home and their father worked as a semi-skilled laborer. Refer to Table 1 for a summary of means and standard deviations for all scaled variables.

INSERT TABLE 1 ABOUT HERE

T-tests or Chi Square analyses were applied to assess group differences (minimal user vs. abuser) for the dichotomous or the equal interval level variables. With the exception of gender, no differences were found between the two groups. Thus, Hypothesis I was not supported. No significant differences in the problem solving ability of the minimal users and drug abuser groups were found. Additionally, Hypothesis II was not supported. No significant differences

TABLE I
 MEANS AND STANDARD DEVIATIONS OF ALL SCALED
 VARIABLES BY GROUP AND BY GENDER

	ABUSERS (N=28)		MINIMAL USERS (N=28)		
	males (N=24)	females (N=4)	males (N=17)	females (N=11)	
DEMOGRAPHIC					
EDUCATION	2.93/1.3	3.25/1.5	3.23/1.0	3.73/1.6	1=8th 2=9th
MOTHER'S					3=10th 4=11th
EDUCATION	3.84/1.6	3.00/1.7	3.13/1.9	3.82/1.5	5=12th
FATHER'S					
EDUCATION	3.50/1.7	3.66/2.3	3.46/1.7	2.55/1.6	
COGNITIVE EGOCENTRISM					
UNIQUENESS	2.83/.91	2.65/1.1	2.40/.64	2.74/1.1	1=strongly dis-
MAGICAL					agree (nonego-
THINKING	2.79/.91	2.31/.66	3.04/.66	2.95/.63	centric) to 5=
EGOCENTRISM	2.16/.80	1.88/.63	2.34/.83	2.09/.82	strongly agree
RULES/					(egocentric)
IMPULSIVITY	2.40/.81	2.59/.49	2.17/.62	2.19/.68	
INDEPENDENCE	3.95/.69	3.75/.94	3.47/.71	4.05/.65	1=strongly dis-
					agree (not inde-
					pendent) to 5=
					strongly agree
					(independent)
COGNITIVE					
PUNS	6.16/2.8	4.75/3.6	5.65/2.5	7.00/2.0	0= no credit to
WORD					10=quality
PROBLEMS	3.66/.71	3.50/1.0	3.71/.59	3.18/.98	0= no credit
PROVERBS	2.88/.89	2.75/.96	2.59/.87	2.82/.87	to 4=correct
TOTAL (COGN)	12.71/3.6	11.00/4.9	11.94/3.3	13.00/3.1	0= low score
					18=high score
PROBLEM-SOLVING					
MEPS	10.78/1.36	9.50/2.0	8.46/1.5	8.21/1.7	Number of relevant
					Means
RR	.67/.28	.59/.21	.59/.19	.51/.16	Ratio of relevant
					Means to irrelevant
					Means

^a M/S.D.

in the cognitive capacity and level of cognitive egocentrism of the minimal users and drug abusers were found. Gender differences ($\chi^2 = 4.46$, $p < .05$) were found. In comparison to the females in the abuser group (14%), there were a greater proportion of females (39%) in the minimal user group.

In order to rule out the effect of gender upon subsequent analyses, an analysis of covariance (ANCOVA) was employed using gender as the covariate. After partialling out the variability accounted for by gender, no significant differences were found between the groups for the dependent variables from the problem solving, cognitive egocentrism, and decision-making measures. Thus, for this reason and because the groups did not differ on the basis of any other demographic characteristics, both groups were combined in further analyses of the data.

Pearson product moment correlational analyses were utilized in order to determine the relationships among all variables. Of the total number of correlations, approximately 10% were found to be significant. Additionally, the significant correlations formed a consistent pattern. Significant correlations were found between the following dependent variables: a) Personal Fable variable egocentrism (EGO) and the cognitive variable, proverbs ($r = -.328$, $p < .01$); b) Personal Fable variable, uniqueness, and the cognitive variable, proverbs ($r = -.302$, $p < .05$); c) Personal Fable variable, magical thinking, and proverbs ($r = -.327$, $p < .01$); d) EGO and problem-solving variables Means End Problem Solving (MEPS), ($r = -.422$, $p < .001$) and Relevancy Ratio (RR), (r

=-.355, $p < .01$). Subjects who were the least egocentric (who exhibited less egocentrism, less uniqueness, and less magical thinking) were more likely to exhibit higher cognitive functioning. Subjects who exhibited less egocentrism were more likely to exhibit better problem solving ability, being able to elaborate in a step-by-step manner the solution to problems encountered in social situations. In addition, significant correlations were found between the three cognitive variables, puns, word problems, and the pooled cognitive variable (COGN) and the problem solving variables, Means Ends Problem Solving (MEPS) and Relevancy Ratio (RR): a) puns with MEPS, ($r = .392$, $p < .01$) and puns with RR ($r = .355$, $p < .05$); b) word problems with MEPS ($r = .437$, $p < .05$) and word problems with RR ($r = .386$, $p < .01$); c) COGN with MEPS ($r = .439$, $p < .001$) and COGN with RR ($r = .412$, $p < .01$). Subjects who had a higher level of cognitive functioning, were more likely to engage in better problem solving, such as reporting on the steps taken to find a lost watch.

Significant correlations were found between several variable abuser categories and the Personal Fable variable, magical thinking (MAG): a) between POLYDRUG (users of hard drugs, such as heroin and cocaine, and other substances, such as marijuana or alcohol or users of both alcohol and marijuana) and MAG ($r = .333$ $p < .01$); b) between HARDDRUG (Users who only used hard substances vs. users who used alcohol and/or marijuana) and MAG ($r = .415$, $p < .01$). Subjects who were either harddrug users or polydrug users were more likely to

engage in magical thinking (i.e. I can make something happen if I work very hard at it) than were subjects who were not harddrug or polydrug users.

Significant correlations were also found between the abuser categories and gender: a) GROUP (Abusers vs. Minimal Users) with gender ($r = .28$ $p < .05$); b) POLYDRUG and gender ($r = .299$ $p < .05$). Compared to females, males were more likely to be Polydrug users and abusers.

Multiple regression techniques were utilized to determine whether problem-solving and drug use could be predicted by specific sets of predictor variables. Two sets of stepwise multiple regression analyses were performed using SAS PROC STEPWISE.

INSERT TABLE 2 ABOUT HERE

In the first set of analyses, gender, Personal Fable, Cognitive, and Abuser categories were employed to predict the problem solving variables, Means End Problem Solving (MEPS) and Relevancy Ratio (RR). Refer to Table 2 for a summary of these regression analyses. For the outcome variable, problem solving MEPS, the summed cognitive variable, COGN, and the Personal Fable variables, independence (IND) and egocentrism (EGO), were found to be significant predictors, accounting for 37% of the variability. For the

TABLE II
STEPWISE MULTIPLE REGRESSION ANALYSIS FOR THE PROBLEM
SOLVING VARIABLE MEPS

SOURCE	DF	SS	MS	F
Regression	3	39.48	13.16	9.17***
Cognition total+	1	14.21		9.90**
Independence	1	9.77		6.80*
Egocentrism	1	8.08		5.63*
Error	52	74.64		1.44
Total	55	114.13		

+SUM TOTAL OF COGNITIVE VARIABLES

*** $P < .0001$

** $P < .001$

* $P < .05$

STEPWISE MULTIPLE REGRESSION ANALYSIS FOR THE PROBLEM
SOLVING VARIABLE RELEVANCY RATIO (RR)

SOURCE	DF	SS	MS	F
Regression	3	21.05	7.01	7.52**
Word Problems	1	4.05		4.34*
Cognition total	1	5.27		5.65*
Independence		5.66		6.07*
Error	52	48.51	.93	
Total	55	69.55		

** $P < .0001$

* $P < .05$

outcome variable, problem solving RR, the summed cognitive variable, COGN, the cognitive variable, word problems (WORD) and the Personal Fable variable, independence (IND) were found to be significant predictors, accounting for 30% of the variance. In support of hypothesis 2, adolescents' cognitive ability and some aspects of cognitive egocentrism (eg. the independence and egocentrism scales) accounted for a portion of the variability in their ability to solve problems in their environment.

In the second set of analyses, gender, Personal Fable, cognitive, and problem solving variables were employed to predict the substance use variables, GROUP and HARDDRUG. Refer to Table 3 for a summary of this regression analysis.

INSERT TABLE 3 ABOUT HERE

For the outcome variable, GROUP, gender was found to significantly predict group membership, accounting for 7% of the variance. For the outcome variable, HARDDRUG, Magical thinking was found to be the significant predictor, accounting for 17% of the variance.

TABLE III

STEPWISE MULTIPLE REGRESSION ANALYSIS FOR THE GROUP (MINIMAL
USER VS. ABUSER) VARIABLE

SOURCE	DF	SS	MS	F
Gender	1	1.11	1.11	4.67*
Error	54	12.88	.24	
Total	55	14.00		

$p < .05$

STEPWISE MULTIPLE REGRESSION ANALYSIS FOR THE HARD DRUG
VARIABLE

SOURCE	DF	SS	MS	F
Magical thinking	1	1.97	1.97	11.24*
Error	54	9.46	.18	
Total	55	11.43		

$p < .001$

DISCUSSION

The present study examined interpersonal problem solving as an integral part of the adolescent's ability to adapt to and to adjust to his/her environment. The first hypothesis that, in comparison to minimal users, drug abusers would be inefficient in their ability to generate solutions to interpersonal problems was not supported by this study. Additionally, the second hypothesis that, compared to the group of drug abusers, the group of minimal users would be more cognitively advanced and less egocentric was not supported in this study. Although speculative, the following factors may have accounted for these findings.

First of all, there may have been a problem with the measurement of drug abuse and, thus, placement into groups. Adolescents who participated in this study had recently entered a vocational training program. Background information from other sources, such as prior drug use, was unobtainable; therefore, placement of subjects into groups and scoring for other substance abuse variables was based on self-report. It may have been informative to have collected behavioral information by talking with other informants, such as the school or parents, and/or by obtaining Urine Analyses as a way of corroborating subjects' report of drug

use, and/or by using a sample of subjects who had been in the program for a sufficient period to be identified as having drug problems.

The second methodological problem which may have affected the lack of differentiation between the two groups on the problem solving variables was that the measure employed to assess subjects' problem solving ability may have not been a sufficiently relevant one. Specifically, the problem situations may not have been appropriate to this population. For example, in Porter's study (1984), both delinquents and nondelinquents could not be differentiated in their decision making in responding to a neutral situation. However, in responding to a criminally applied dilemma, delinquents displayed poorer problem solving strategies. In light of this finding, using situations which were maximally related to substance abuse decision making might have yielded more extensive solutions and greater differences between groups. Also, as suggested by Kennedy, Felner, Cauce and Primavera (1988), instead of relying on a paper and pencil measure, the administration of the Means-End situations in an interview format may have resulted in more numerous and more elaborate answers.

A final factor contributing to the finding that the substance use variables were not significant predictors of the problem solving, cognitive and cognitive egocentric variables may have been the nature of the sample used. Participants in this study were adolescents from minority and lower

socioeconomic status class groups, often considered vulnerable to and at high risk for exhibiting problem behaviors. Such individuals are likely to have less effective problem solving skills (Kennedy et al., 1988; Kendall & Fischler 1984).

Adolescents in both groups may not be functioning at a "higher" cognitive level and may not have the experience and/or skills to engage in effective problem-solving. Although there is no way to statistically analyze the difference between the performance of subjects in this study and in two previous studies completed by this author, a comparison may provide important insight into the problem. In comparison to studies using college students, subjects in the present study, both minimal user and drug abusers, were found to be not only less efficient in their ability to generate means-end solutions to problems but also were less cognitively advanced as measured by the Piagetian tasks. Perhaps in such a low functioning group, abuse per se does not significantly add to the cognitive or problem-solving deficit.

Given the inability to demonstrate significant group differences in the present study, a more fruitful approach is to consider both groups as one sample and to examine important variables which may mediate the relationship between interpersonal problem solving and adjustment. One set of mediators proposed included the adolescents' cognitive level and cognitive egocentrism, which may provide a link between the ability to apply problem-solving skills to actual behaviors exhibited in social situations. For both problem-solving

variables, MEPS and RR, the summed cognitive variable (COGN) was found to be one of the significant predictors, accounting for 19% of the variance in the former and 17% in the latter. COGN was found to be highly positively correlated with both problem-solving

variables: thus, the predictive relationship was a positive one. Since generating a number of logical steps in reaching a goal (resolving the problem) requires an ability to abstract, those who are formal operational thinkers would better be able to utilize this skill. Although it has been demonstrated that, with adults, means end problem-solving is not dependent on IQ or influenced by verbal skills (Intagliata, 1978), an adolescent's ability to problem solve appears to be dependent upon his/her cognitive ability.

Additionally, the Personal Fable variable, egocentrism (EGO), was a significant predictor of one problem solving ability variable, MEPS, but not for the other, RR. EGO was found to be negatively correlated with MEPS, indicating the less egocentrism exhibited, the better able the person is to utilize problem solving strategies. Perhaps, the ability to generate means-end thinking requires an individual to be less self-focused, to be able to speculate on the actions of others and the effect of one's own behaviors on others. This conclusion has been suggested in previous research (Platt, Spivack, Altman, Altman & Peizer, 1974). Although a significant relationship was found between egocentrism and the problem solving variable, Relevancy Ratio, egocentrism was not

found to be a significant predictor. RR differs from the MEPS score in that it considers the number of irrelevant solutions generated by subjects. The number of irrelevant means generated by subjects may be more dependent on cognitive ability than on egocentrism.

The Personal Fable variable, independence (IND) was found to be a significant predictor for both problem solving variables, RR and MEPS. Although nonsignificant, there was a positive correlation between RR and MEPS and IND, indicating that problem-solving may require an independence of thought, an ability to see oneself as capable of making one's own decisions. Given such findings, this research lends some support for a model delineating the relationship between cognition, cognitive egocentrism, and decision-making. The findings related to predicting behavior are much less clear, however.

Other than gender and magical thinking, no predictors were found for the substance abuse variables. Gender was found to be the only predictor for the group variable (minimal vs abuser groups), accounting for 7% of the variance. The cognitive egocentrism variable, magical thinking, was the only predictor of hard drug use, accounting for 17% of the variance. The relationship between harddrug use and magical thinking was a positive one. This finding suggests that hard drug users are more likely to use wishful or magical thinking. This belief may account for why some adolescents to engage in risk-taking

behaviors, such as drinking and fighting, without any consideration of future consequences.

In summary, this study examined drug abusers versus minimal users who were predominantly from a minority and low SES population and who were attending a vocational training program. Regardless of the extent and type of drug use, these adolescents displayed deficiencies in their cognitive capacity and their ability to generate relevant solutions to problems and exhibited cognitive egocentrism, which would hinder their ability to make mature decisions in an array of intra- and inter-personal situations. A noteworthy finding was that several cognitive and personal fable variables were found to be predictive of the ability to utilize effective problem solving strategies. Thus, these findings suggest that such individuals might be viewed as a single group with deficiencies in their ability to problem solve, placing them at risk for a wide array of problems (e.g. drug use and delinquency). Therefore, all individuals in this program might benefit from training in interpersonal problem solving which consider these contributing variables. In designing an intervention, cognitive ability and cognitive egocentrism would need to be incorporated into the planning and implementation of such an intervention. Specifically, in order for these adolescents to benefit from such an intervention, it would be necessary for group leaders to provide problem solving situations which are concrete and are highly relevant to the adolescent's immediate situation. Group leaders would also want to maximize the personal reality

of the intervention. For example, a cognitive behavioral approach such as that designed by Kendall (1984) might be utilized, which involves modeling effective problem solutions via thinking outloud their solutions to problems. Role-playing has been shown to be successful with adolescents (Dennison 1977, Rozelle 1980 and Goodstadt & Caleekal-John, 1984). Finally, feedback would provide adolescents with the effect of their behaviors on group members.

As indicated by Kennedy et al. (1988), to know that adolescents are deficient in problem solving does not provide specific information as to what types of strategies are employed in specific situations. Therefore, future research is needed to expand upon the present findings. Such research might examine the adolescent's specific strategies which are employed in generating solutions to interpersonal problems. For the purposes of intervention, it would be useful to determine the types of strategies that the adolescent uses to arrive at a decision in identified high risk situations. Understanding these strategies would have important implications for adjustment and would further clarify the adolescent's deficiencies in utilizing problem-solving in his/her environment.

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APPENDIXES

APPENDIX A
SUBSTANCE ABUSE QUESTIONNAIRE AND
CRITERIA FOR PLACEMENT INTO GROUPS

SUBSTANCE USE QUESTIONNAIRE

Y N 1. Do you smoke cigarettes?

1a. If yes, how many per day?

Y N 2. Over the past 12 months, have you used any alcohol?

Y N 2a. If no, have you ever had any alcohol to drink (other than sips an adult gave you as a child on 3 or less occasions?)

Y N 2b. If yes, to # 2 or #2a, would you say that you had used alcohol 10 or more times over your whold life?

Y N 2c. If yes, to #2, on the average, how often have you been drinking alcohol over the past 12 months? (circle one category only)

_____ times per year or month or week

2d. If yes to #2, what kind of alcohol do you usually drink?

_____ Beer

_____ Wine

_____ Liquor

2e. If yes to #2, how much of this kind of alcohol

alcohol do you usually drink at a time?
 (Number of beers, glasses of wine, or mixed
 drinks)

- _____ 1
 _____ 2-3
 _____ 4-5
 _____ 6
 _____ > 6 Specify

Y N 2f. If yes to #2, in the past 12 months, have you
 had any days in which you drank a lot of
 alcohol and stayed high for most or all of the
 day (> 12 hours)?

Y N 2g. If yes to #2, prior to the past 12 months,
 have you typically used alcohol any more than
 you just described?

2h. If yes to #2, what has been your most frequent
 use of alcohol, for at least a one month
 period, over your life? (circle one category)

_____ # times per year or month or week

Y N 3. Over the past 12 months, have you used any
 marijuana ("weed" "pot")?

Y N 3a. If no, have you ever used any marijuana, even to experiment with?

Y N 3b. If yes, to # 3 or #3a, would you say that you had used marijuana 10 or more times over your whole life?

Y N 3c. If yes, to #3, on the average, how often have you been using marijuana over the past 12 months? (circle one category only)

_____ times per year or month or week

3d. If yes to 3, in the past 12 months, have you had any days in which you used a lot of marijuana and stayed high for most or all of the day (> 12 hours)?

Y N 3e. If yes to #3, prior to the past 12 months, have you typically used marijuana any more than you just described?

3f. If yes to 3e, what has been your most frequent use of marijuana, for at least a one month period, over your life? (circle one category)

_____ # times per year or month or week

Y N 4. Over the past 12 months, have your used any drugs other than marijuana?

4a. If yes-specify:

Y N Opioids (e.g. heroin)

- Y N Sedative/Hypnotics/Tranquilizers/
Barbiturates (Valium, Quaaludes)
- Y N Cocaine
- Y N Amphetamines (speed)
- Y N PCP
- Y N Hallucinogens (LSD, mushrooms)
- Y N Inhalants (glue, liquid paper, paint)
- Y N Other(s) -Specify: _____

Y N 4b. If no to # 4, have you ever used any drugs,
not including marijuana, even to experiment
with?

4C. If yes to #4b- specify:

- Y N Opioids (e.g. heroin)
- Y N Sedative/Hypnotics/Tranquilizers/
Barbiturates (Valium, Quaaludes)
- Y N Cocaine
- Y N Amphetamines (speed)
- Y N PCP
- Y N Hallucinogens (LSD, mushrooms)
- Y N Inhalants (glue, liquid paper, paint)
- Y N Other(s) -Specify: _____

4d. If yes to #4 or #4b- Specify the number of
times you have used each of the substances
over your whole life. Also, specify how
often you have been using each substance

over the past 12 months.

times current
in life frequency circle one category

per year or month or week Opioids
 year month week Sedative/
 year month week Hypnotics/
 year month week Tranquilizers/
 year month week Barbiturates
 year month week Cocaine
 year month week Amphetamines
 year month week PCP
 year month week Hallucinogens
 year month week Inhalants
 Other(s)

year month week -Specify:

CRITERIA FOR ASSIGNMENT TO GROUPS

GROUP 1

ABUSERS

CRITERIA: Individual meets at least one criteria specified below.

1. Individual drinks alcohol, as specified below, on two or more days per week.
 - a. 3 six-packs
 - b. 1 fifth or liter of liquor
 - c. 3 bottles of wine

2. Individual drinks alcohol, as specified below, on four or more days per week.
 - a. 4 beers
 - b. 4 mixed drinks
 - c. 4 glasses of wine

3. Individual uses drugs on four or more days per week.

GROUP 2

MINIMAL USERS

CRITERIA: Individual meets all five criteria specified below.

1. Individual has used alcohol at least 10 times in his/her life or individual has used marijuana at least 10 times in his/her life. (EX = if 5 uses of alcohol and 6 uses of marijuana, then individual does not meet criteria).

2. Individual has a current frequency (last year) of use of alcohol or marijuana that averages two days permonth or less. (EX = if 1 use of alcohol on one day and 2 uses of marijuana on two other days in last month, then individual does not meet criteria) (EX = if 1 use of alschol and 1 use of marijuana on same day, and 1 other use of alcohol on another day, then individual does meet criteria).

3. Current (last year) use of alcohol and marijuana does not include any binges (e.g., continuous intoxication for 12 or more hours).

4. Frequency of use of alcohol or marijuana has never been more than an average of two days per month.

5. Individual has used drugs other than marijuana only three times or less in entire life.

APPENDIX B
COPIES AND SCORING CRITERIA OF
THE PUNS, PROVERBS AND WORD PROBLEMS

INSTRUCTIONS

The following are some word problems about puns and proverbs. Read them carefully and follow the instructions for each.

PUNS:

A pun is the humorous use of word or words in such a way as to suggest different meanings. For example, this pun,

- "Elevator companies have their ups and downs", can mean
- a) the elevators move up and down. or
 - b) the elevator companies have their good days when they make lots of money and bad days when they don't make lots of sales.

The pun is made on the words ups and downs, which are underlined.

Below are other puns. Underline the word or words in each sentence used to form the pun and list the different meanings suggested.

1. Wrestling is a sport which gets a hold on you.

- a. _____

- b. _____

2. When adding machines were first used, they were so popular they began to multiply.

- a. _____

- b. _____

PROVERBS:

Here are some proverbs and you are supposed to tell what they mean. For example, this proverb, "Large oaks from little acorns grow", means that great things may have small beginnings. What do the following proverbs mean?

3. We only know the value of water when the well is dry?

4. Let sleeping dogs lie.

SCORING FOR PUNS--REVISED

(+)=quality; (-)=marginal quality; (0)=non-scorable.

PUN # 1:

"Wrestling is a sport which really gets a hold on you"

(Quality responses using Hold as ATTENTION/INTEREST)

- +You can get into the sport
- +Keeps you interested
- +Grabs onto your liking
- +Gets you hooked
- +Wrestling gets a hold on the spectators as well as the opponents
- +To grab you emotioanlly
- +Because once you see a match you'll want to go back to see others
- +Can capture your attention

Quality responses using Hold as WRESTLING MOVES/PHYSICAL CONTACT

- +Grabs you physically
- +Wrestling moves/maneuvers
- +Contact sport

Responses of Marginal quality: ambiguous referent(s); tangential or inadequate content; other, marginal usages of Hold.

- Wrestling gets to you
- holding in wrestliing
- Wrestling is a sport that brings you down
- Grabbing you/grasp/grip (unqualified)
- it catches on

Non-scorable responses

- 0 Instead of getting into fights, fight for your team
- 0 Gets you nervous/uptight
- 0 You have to really understand the sport to enjoy
- 0 Tricks you

Pun #2

"When adding machines were first introduced, they were so popular they began to multiply"

Quality responses using Multiply as INCREASE IN PRODUCTION

- +Adding machines became so popular and the number of machines greatly increases
- +Many more were made and sold

Quality responses using Multiply as MATH FUNCTION

- +Eventually multiplication was added to their abilities
- +They could multiply numbers
- +The machines began to figure out numbers in multiplication

Responses of marginal quality: ambiguous referents.

- To grow rapidly
- They became useful and necessary tools
- Make more than one
- To times ex. $4 \times 4 = 16$
- A form of arithmetic

Non-scorable responses

- 0 The operation it does to make it work
- 0 To grow
- 0 Adding machines reproduced
- 0 Became more popular

PROVERB #1

"We only know the value of water when the well is dry"

- (A) To appreciate something fully we must first live without it
- (A) You can only appreciate something when it's gone
- (A) You don't miss something until it's gone
- (A) When things aren't there, their value is realized
- (A) You don't know how good you have it until you don't have it anymore
- (A) You can only judge something by how good it is when it's gone and you realize what you're missing now
- (A) We know how much we need things when we can't have them
- (A) You don't know how valuable something is until you don't have it anymore
- (A) We take things for granted until there is a lack
- (A) When you have good fortune you don't appreciate it. If you didn't have it you'd be wishing for it
- (A) We only know it's real value when something's happened to it

[ANY response using or alluding to WATER is TOO LITERAL]

- (B) You don't know what resources are really worth
- (B) We take things for granted [too general]
- (B) When you don't have something you miss it
- (B) You shouldn't overestimate a resource
- (B) You only know how much something is worth until you don't have it anymore [OPPOSITE generalization]
- (B) We realize something after it's gone
- (B) We don't appreciate it when we have it
- (B) We only appreciate something if we don't have it
- (B) That the things we find less important may not always be there

PROVERB # 2

"Let sleeping dogs lie"

- (A) Don't make waves
- (A) Don't stir up trouble
- (A) Let the past stay the past
- (A) Don't bother things that don't bother you
- (A) Let problems or fights rest
- (A) Let bygones be bygones
- (A) Don't bother what's ok as it is
- (A) Don't get people going, like don't complain about things that make them upset
- (A) Let old issues stay unprovoked
- (A) Don't wake up a sleeping giant
- (A) Put the past behind you; don't bring up old grievances
- (A) Stirring up the past can be dangerous
- (A) Don't press an issue that will cause problems
- (A) You should not provoke trouble; let it be
- (A) Don't disturb a potentially hazardous situation
- (A) If something is good Don't change the pace or disrupt it somehow

(ANY RESPONSE USING OR ALLUDING TO DOGS IS TOO LITERAL)

- (B) Lazy people don't get anything done
- (B) When things want to stay, let them
- (B) Leave something alone and mind your own business
- (B) If a person is ok, leave her alone
- (B) If something won't move, leave it
- (B) Don't bother anyone
- (B) Leave things alone
- (B) Let people be in peace
- (B) If something is good, leave it
- (B) Do unto others as others would do unto you
- (B) Live and let live
- (B) When someone is peaceful don't bother them
- (B) If something is good let it stay that way
- (B) Let people do what they want
- (B) Don't bug people for the hell of it
- (B) Leave someone disturbed/troubled alone
- (B) Let people who don't want to be bothered alone
- (B) Mind your own business
- (B) You should not bother things if they are alright unless it is necessary
- (B) If you don't get involved you can't get in trouble

INSTRUCTIONS

The following are some word problems. Read them carefully and mark your answer for each question on the IBM answer sheet.

Helen is taller than Mary and Mary is taller than Jane; who is the tallest of the three?

A) Helen

B) Jane

C) Mary

6. Jack is heavier than John and John is heavier than Peter; who is the heaviest of the three?

A) John

B) Peter

C) Jack

APPENDIX C
COPY OF THE PERSONAL FABLE INSTRUMENT

INSTRUCTIONS

The following questions are designed to learn more about people your age. There are no right or wrong answers to these questions, so please answer them according to how you feel. Please answer every question. If you are not sure about a specific question, please give the best answer you can.

Read each statement and then put an "X" through the letter at the right that best describes how you feel.

Example:	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
125. I like to get up early	A	B	C	D	E
If you <u>strongly disagree</u> with this statement, put an "X" through A, like this	X	B	C	D	E
If you <u>disagree</u> , put an "X" through B, like this	A	X	C	D	E
If you <u>agree</u> , put an "X" through D, like this	A	B	C	X	E

After you have put an "X" through the letter at the right that best describes how you feel, record that letter on the enclosed IBM sheet.

Example:																	
125.	A	B	C	D	E	or	A	B	C	D	E	or	A	B	C	D	E
	■	□	□	□	□		□	■	□	□	□		□	□	□	■	□
	If you <u>strongly disagree</u>						If you <u>disagree</u>						If you <u>agree</u>				

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. The way I look at things is the only way to look at things . . .	A	B	C	D	E
2. There are a lot of rules that don't apply to me	A	B	C	D	E
3. I can make things come true just by wishing	A	B	C	D	E
4. No one understands me	A	B	C	D	E
5. The world revolves around me	A	B	C	D	E
6. After I've done something that might get me in trouble, I can protect myself from harm by using will power	A	B	C	D	E
7. When I get away with breaking a rule, I am likely to break it again	A	B	C	D	E
8. I think: if it feels good, do it	A	B	C	D	E
9. Other people know what is best for me	A	B	C	D	E
10. When I'm faced with danger, I do the first thing that comes to my mind	A	B	C	D	E
11. I think about things differently than anyone else in the world .	A	B	C	D	E
12. Even if I wish very hard, I cannot make something happen	A	B	C	D	E
13. If I did something wrong, I would get caught	A	B	C	D	E
14. I feel like nothing can hurt me	A	B	C	D	E
15. No one else knows what my feelings are like	A	B	C	D	E
16. I think: if a little of something is good, a lot is better . . .	A	B	C	D	E

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
33. If I did something wrong, I wouldn't get caught	A	B	C	D	E
34. When I get bored, I seek out trouble	A	B	C	D	E
35. I believe that nothing really bad will ever happen to me	A	B	C	D	E
36. I can make something happen if I wish very hard about it	A	B	C	D	E
37. The world does <u>not</u> revolve around me	A	B	C	D	E
38. Once I have broken a rule, it's easier to break it again	A	B	C	D	E
39. No one else has ever looked at the world in the same way that I do	A	B	C	D	E
40. Even though I believe something is wrong, I'm likely to do it anyway	A	B	C	D	E
41. God protects me when I am in danger	A	B	C	D	E
42. I do things without thinking	A	B	C	D	E
43. Other people know more about what is best for me than I do . . .	A	B	C	D	E
44. Put an X through the letter that best describes what you do. Compared to people your own age, how many chances do you take?					
a) <u>many more</u> than other people my age					
b) <u>somewhat more</u> than other people my age					
c) <u>about as many</u> as other people my age					
d) <u>somewhat fewer</u> than other people my age					
e) <u>many fewer</u> than other people my age					

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
17. Before I make a choice, I think carefully	A	B	C	D	E
18. I obey rules	A	B	C	D	E
19. I like taking chances	A	B	C	D	E
20. I know what is best for me	A	B	C	D	E
21. When other people don't agree with me, they are wrong	A	B	C	D	E
22. Bad things can happen to me	A	B	C	D	E
23. I'm the only one in the world who feels the way I do	A	B	C	D	E
24. When I'm faced with danger, I think about several possible things to do	A	B	C	D	E
25. I don't do something just because it feels good	A	B	C	D	E
26. If I take risks, I won't get in trouble	A	B	C	D	E
27. I'm smart enough to keep myself out of trouble	A	B	C	D	E
28. My thoughts are so different that other people think they are weird	A	B	C	D	E
29. I do <u>not</u> obey rules	A	B	C	D	E
30. I know more about what is best for me than other people do	A	B	C	D	E
31. I think praying can keep bad things from happening	A	B	C	D	E
32. I'm the center of the universe	A	B	C	D	E

APPENDIX D
COPIES OF THE PROBLEM-SOLVING
SITUATIONS AND SCORING CRITERIA

Write at least one paragraph for each story.

1. Mr. A. was listening to the people speak at a meeting about how to make things better in his neighborhood. He wanted to say something important and have a chance to be a leader too. The story ends with him being elected leader and presenting a speech. You begin the story at the meeting where he wanted to have a chance to be a leader.

2. H. loved his girlfriend very much, but they had many arguments. One day she left him. H. wanted things to be better. The story ends with everything fine between him and his girlfriend. You begin the story with his girlfriend leaving him after an argument.

3. Mr. P. came home after shopping and found that he had lost his watch. He was very upset about it. The story ends with Mr. P. finding his watch and feeling good about it. You begin the story where Mr. P. found that he had lost his watch.

4. Mr. C. had just moved in that day and didn't know anyone. Mr. C. wanted to have friends in the neighborhood. The story ends with Mr. C. having many good friends and feeling at home in the neighborhood. You begin the story with Mr. C. in his room immediately after arriving in the neighborhood.

5. During the Nazi occupation a man's wife and children were viciously tortured and killed by an SS trooper, and the man swore revenge. The story begins one day after the war, when the man enters a restaurant and sees the ex-SS trooper. The story ends with the man killing the SS trooper. You begin when he sees the SS trooper.

6. One day Al saw a beautiful girl he had never seen before while eating in a restaurant. He was immediately attracted to her. The story ends when they get married. You begin when Al first notices the girl in the restaurant.

7. Bob needed money badly. The story begins one day when he notices a valuable diamond in a shop window. Bob decides to steal it. The story ends when he succeeds in stealing the diamond. You begin when he sees the diamond.

8. John noticed that his friends seemed to be avoiding him. John wanted to have friends and be liked. The story ends when John's friends like him again. You begin where he first notices his friends avoiding him.

9. One day George was standing around with some other people when one of them said something very nasty to George. George got very mad. George got so mad he decided to get even with the other person. The story ends with George happy because he got even. You begin the story when George decided to get even.

10.⁴ Joe is having trouble getting along with the foreman on his job. Joe is very unhappy about this. The story ends with Joe's foreman liking him. You begin the story where Joe isn't getting along with his foreman.

IV.6 EXAMPLES OF RESPONSES SCORED AS A MEANS,
 IRRELEVANT MEANS (IM), OR NO MEANS (NM) FOR EACH STORY

<u>Stories</u>	<u>Means</u>	<u>Irrelevant Means</u> (IM)	<u>No Means</u> (NM)
1 (Becoming a leader)	He began a campaign to set up committees	He studied	He was born to be a leader so he became a leader,
2 (Regaining girl (boy) friend)	They talked things over	He went around with his boyfriends OR He sees he can't make it so he gives up OR He destroyed all the love letters	He waited a little while and then everything was fine again
3 (Finding lost watch)	He retraced his steps	He called his mother and cried OR It was insured so the insurance company would investigate where he found it	The watch had a broken chain and it must have fallen off his hand
4 (Making new friends)	He joined a neighborhood club	He stayed in his room and watched his neighbors walk down the street	He was a nice man so he had many friends
5 (Getting revenge)	He ran him over	He ran over to him and threw his food all over him	He wanted revenge so he killed him

IV.6 (continued)

<u>Stories</u>	<u>Means</u>	<u>Irrelevant Means</u> (IM)	<u>No Means</u> (NM)
6 (Meeting someone of opposite sex)	He bumped into her to get her attention	He finished his meal and left the waiter a big tip	He fell in love with her and they got married
7 (Stealing a diamond)	He waited until night and then broke in	He decided to get a job and buy the diamond	It was wrong for him to steal
8 (Regaining friends)	He started using mouthwash	He found new friends OR He went away and did not keep in touch with people	His friends weren't nice to do that
9 (Betting even)	He embarrassed him publicly	He got an officer to explain it to him	He was mad so he got even
10 (Getting along with the boss)	He started to work harder and the foreman liked him more	He worked faster once the foreman began to like him again	It is important to get along with the boss.

VITA ²

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ABUSERS: DEVELOPMENTAL CONSIDERATIONS

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