

MOTIVATING CHANGE IN HIGH-RISK ADOLESCENTS:  
AN INTERVENTION FOCUS ON THE DEVIANT  
FRIENDSHIP PROCESS

by

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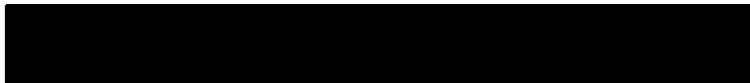
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## An Abstract of the Dissertation of

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Title: MOTIVATING CHANGE IN HIGH-RISK ADOLESCENTS: AN  
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Words and behaviors are associated. Verbally reinforcing even the discussion of an action with positive affect can be equivalent to endorsing the action itself. Previous studies of adolescents at-risk for problem behavior have observed delinquent youth frequently reinforcing verbal aggression and antisocial talk with laughter and social support. The specific verbal/social reinforcement dynamics commonly observed between these adolescents and their peers has been dubbed “deviancy training” and is identified as an strong indicator for later, serious delinquency, substance abuse and arrest. A sample of 40, 12 to 17-year-old, primarily European-American, male adolescents who were either diagnosed as having an emotional/behavioral disorder (EBD) or who were at-risk for school failure due to disruptive behavior was recruited for participation in this study. A pre-test post-test experimental control group design was utilized to compare the potential efficacy of a video-based, Motivational Interviewing (MI) intervention to a psychosocial

placebo. This design examined the potential utility of video-based MI as an intervention for the deviancy training process common to adolescents who are at-risk for problem behavior. Six dependent constructs were examined: (a) coping and locus of control, (b) problem behavior in the home, (c) problem behavior at school, (d) adolescent motivation to change, (e) adolescent self-reported externalizing and delinquent behavior, and (f) direct observation data of peer deviancy training dynamics. Results offered no support for the effectiveness of this experimental intervention in reducing adolescent problem behavior at home, school, or by self-report. Findings instead suggested that the reinforcement dynamics of deviancy training are stable, difficult to disrupt, and prone to escalation. Motivation and locus of control were observed to have important relationships with intervention outcomes, especially concerning the willingness to experiment with changes in peer social behavior. The importance of assessing motivation, the potential role of social skills education and parenting practices, and threats to the validity of these findings are all considered.

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- Knopes, D. (1993). *On laughter and humor: The physiological, existential and  
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## CHAPTER I

### Introduction

Language is important. It is through language, the spoken word, that we as people clearly indicate our thoughts, values, and intent. Language is a form of behavior and like all behavior it is highly susceptible to the shaping processes of reinforcement. This observation is especially true and has unique consequences for the behavior of adolescents who are at risk for serious delinquency.

The purpose of the following literature review is not to exhaustively survey the current state of delinquency intervention science. Rather, the goal is to clearly delineate the developmental and peer social processes that reinforce and exacerbate adolescent problem behavior. Reviewed literature focuses on the developmental impact of family of origin, detailing how coercive family dynamics negatively impact social skills development. Consideration is then given to the difficulties children from coercive families have with school transitions. Reviewed research suggests that children who remain reliant on coercive interpersonal processes can commonly be directed by both punishments and interventions towards delinquent peer clustering, inadvertently creating environments that reinforce and exacerbate pre-delinquent social dynamics. Focus is then turned to the unique social and reinforcement dynamics inherent in these delinquent peer groups, identifying language and verbal dynamics as being a special risk factors and predictors of later problem behavior. This review, although necessarily limited in scope, argues that for the highest risk adolescents, delinquent talk and the behavioral

reinforcement that it generates within the delinquent peer group is a powerful primer for later delinquent action. I also argue that high-risk adolescents' verbal behaviors are both visible and viable targets for intervention efforts.

This review of existing literature resulted in a research design that examined the potential utility of video-based Motivational Interviewing as an intervention for the peer deviancy training process common to adolescents who are at-risk for problem behavior. The project used a pre-test post-test experimental control group design to compare the potential efficacy of a video-based, Motivational Interviewing (MI) counseling intervention against a strength-focused counseling control condition of equivalent duration. Participants were a sample of 40, primarily European-American, male adolescents and their peers, teachers, and primary care givers. The boys were between 12 and 17 years of age, and were either specifically labeled by their school district or other mental health care provider as having an emotional/behavioral disorder (ED) or were reported by their teachers as being at-risk for academic failure due to disruptive and/or aggressive behavior. All participants and their families were recruited from one of several participating public schools, special education programs, court school, or independent alternative education programs.

This study is important in a number of different ways. First, this project extends the application of the principles of Motivational Interviewing beyond the established treatment of adult and adolescent addictive behaviors (Aubrey, 1998; Miller, Benefield, & Tonigan, 1993; Miller & Rollnick, 1991). Broader applications to adolescent delinquency and behavior problems have been suggested in the theoretical literature, but

remain largely untested (Dunn, 2000). MI is a brief psychotherapeutic intervention that seeks to increase the likelihood of clients considering, initiating, and maintaining specific change strategies to reduce harmful behavior. This dissertation reviews research evidence for the efficacy of MI, provides a rationale for MI as an appropriate brief intervention for adolescents, and examines a novel application of the principles of MI to a behaviorally at-risk adolescent sample.

Second, the use of pretest posttest control group factorial design represents a true experimental examination of the proposed intervention. This design is well suited for examining the short term effects of the video-based MI intervention and is further strengthened by the use of randomized matched pairs, controlling for the variance in both participant age and pretest teacher reported behavior between experimental and control groups. Ecological validity of measurement is paid special consideration with multiple sources of data being collected including direct observation, adolescent and peer self-report, and behavioral ratings from both teachers and primary care givers.

Third, this project specifically targets adolescents who are identified with ED and/or at-risk for school failure due to disruptive behavior. This vulnerable population has been shown to respond best to active prevention verses later, after-the-fact intervention (Dishion, Capaldi, Spracklen, & Li, 1995). Based on this important supposition, this project provided direct service to at-risk youth, families, teachers and schools by offering a unique intervention for an early sign of later delinquency, antisocial verbal behavior. A basic tenant of this project states that effective intervention strategies can only be developed when working directly with the target vulnerable population. Thus



this proposal seeks to maximize the benefits of direct intervention for later serious delinquency in a practical and ethical research context.

## CHAPTER II

### Literature Review

#### *Social Development & Adolescent Delinquency*

##### *Coercive Family Process Model*

The coercive family process model is one of the most widely accepted explanations of how family dynamics contribute to the development of delinquency in adolescence (Patterson, Reid, & Dishion, 1992). According to this model, the more severe forms of adolescent antisocial behavior are rooted in the interaction patterns of the family of origin (Patterson, 1993). Patterson begins his argument by recognizing the unique role parenting has in the development and socialization of children. However the very complexity of the parenting process makes it highly vulnerable to a number of powerful psychosocial risk factors that can seriously undermine the prosocialization of children. Three primary social risk factors are poverty (limited resources), stigmatization and isolation (limited social support), and deviancy (limited connection/commitment to cultural-community norms, personal psychopathology, antisocial behavior, addictive behavior, etc.) (McLoyd, 1990; Patterson, 1993).

The theory states that these parenting risk factors contribute to disrupted parental monitoring, foster inconsistency in discipline practices, and amplify parents' own predispositions for modeling coercive behavior (Patterson & Bank, 1989). Parents who demonstrated these disrupted parenting practices have been observed to rely more heavily on angry, coercive language and punitive behaviors (Patterson, 1982; Webster-Stratton,

1998). These “coercive families” are further characterized by the tendency to reciprocate negative behaviors in kind, have rapid escalations in anger, and increased durability of this anger once initiated (Patterson, 1982). The parenting behaviors in coercive families are associated with reduced problem solving, lower responsiveness to child prosocial behavior, and low warmth among family members (Patterson et al., 1992).

Jorgenson (1985) found that parents who model the coercive process for their children are likely to become victims of related verbal abuse and behavioral aggression themselves as children become adolescents. This transmission of coercive family behavior was further hypothesized to have intergenerational consequences as this pattern of behavior is likely to be reenacted in the adolescent’s own relationships with their own future spouses and children (Jorgenson, 1985).

The coercive family process teaches children to initiate negative behaviors as a tool for getting what they want. Many children from such familial environments eventually learn and master the rules of coercive behavior and become, more often than not, the “winner” in these power struggles. Coercive parents responses to this loss of control are often both inconsistent and unpredictable, and commonly revert to more explosive and harsh discipline strategies in the attempt to control the escalating child’s problem behaviors (Patterson, 1982; Webster-Stratton, 1998).

Over the course of development, this behavior results in family members habitually attempting to control each other’s behavior primarily through aversive means. The verbal aggression common to the coercive family process serves to significantly undermine the parent-child affective bond (Patterson, 1982). Parents who verbally abuse

by way of labeling their child as a “bad” or “stupid” risk the child internalizing the meaning and behaviors indicated by such labels. This results in a “deviance amplifying” process where the child gradually comes to act out the role dictated by the negative label, licensing them for further coercive behavior (Scheff, 1984). This erosion of the affective bond between child and parent reduces the chance of effectively using non-punitive methods of influencing a child’s behavior as such methods depend heavily on a healthy attachment between parent and child (Webster-Stratton, 1998).

The consequences of the verbal aggression common to coercive families have been well documented. In a study of a nationally represented sample of 3,346 children, Vissing, Straus, Gelles, and Harrop (1991) found that about two out of three American children are victims of verbal aggression. This same study found that the more verbal aggression a parent used, the greater the probability of the child being physically aggressive, delinquent, or having interpersonal problems. Verbal aggression by parents was a more powerful indicator for later psychosocial problems in these children than was physical aggression. These researchers concluded that the verbal aggression common to coercive families is a demonstrated risk factor for later conduct disorders and problem behavior in adolescence. These findings were consistent for all age groups, for both boys and girls, in both high and low socioeconomic families (Vissing et al., 1991).

#### *Coercive Children & Social Skills Deficits*

Researchers commonly link adolescents’ early family experience to their ability to form and maintain relationships outside the family (Parke & Ladd, 1992; Patterson, 1982; Webster-Stratton, 1998). Through interactions and experiences with family members,

children develop their initial understanding of themselves, others, and learn specific social information processing patterns. These social information processing patterns are composed of learned cognitive behavioral schemata that inform the coercive child of what they can expect from the environment and also what the environment will expect from them (DeBaryshe & Fryxell, 1989). These learned behavior patterns may guide the development of friendships with peers and relationships with important adults outside the family.

As participants and witnesses to the modeling of the coercive behavior, children from coercive families may be at a functional disadvantage in the formation of prosocial friendships. These children were observed to be more aggressive towards peers (Kaufman & Cicchetti, 1989), were less competent and prosocial in social interactions (Alessandri, 1991), responded with inappropriate aggressiveness in response to friendly overtures by peers, and were less likely to expect kind acts to be reciprocated (Howes & Espinosa, 1985).

This repertoire of negative and coercive behavior, often established early in childhood, is characterized by at least two specific deficits in social information processing (Dodge, 1980). First, these children were likely to interpret ambiguous social information negatively and attribute hostile or malicious intent to social cues more often than would be expected. As a result, these children were more likely to perceive peers and others as a threat and were more likely to react aggressively in response to this threat. This negative attribution to social events initiated a negative dynamic where social events were perceived as threatening and requiring an aggressive response. As peers responded

negatively to this aggression, the children interpreted this response as evidence supporting their initial negative perception.

This aggression/rejection dynamic is further compounded by a second social information processing deficit. As aggressive children evaluate possible social responses to their actions, researchers have shown that these children are highly confident in their ability to perform aggressive acts and overestimate the effectiveness of their aggression for meeting their social needs (Dodge & Crick, 1990). This positive evaluation of aggression as an effective social tool increases the likelihood that aggressive behavior will be utilized in social interactions. As the aggression is successful in meeting short-term goals, it is reinforced as an effective pattern of behavior.

#### *Coercive Children and School Transitions*

Children who have been socialized in the coercive family process face new social challenges as they leave the home and enter school. It is a central tenant of this literature review that adolescent coercive and delinquent behavior is most effectively understood as an adaptive response to disruptive and coercive development. This repertoire of behavior, developed in the family of origin, is readily transferred to new social environments and relationships outside the home (Bronfenbrenner, 1979).

As coercive children enter school they join an environment in which they spend increasing amounts of time and energy interacting with peers. This new social environment offers increased opportunity to interact with more typical, positive behaviors as modeled by non-coercive peers and teachers. Whereas some coercive children are socialized by the influences of new adults and peers, the behavioral repertoire developed

within the coercive family is durable and produces behavioral and social skills deficits that greatly impede successful school transitions (Patterson et al.,1992; DeBaryshe & Fryxell, 1989).

When children engage in transitions, such as entering new schools and classrooms, they are likely to experience feelings of wariness and insecurity. One way that children resolve these feelings is seek out the familiar. As coercive children enter school they bring with them their experiences and expectations of coercion and verbal aggression. The more heavily coercive behavior patterns are relied upon, the more poorly the coercive youth is prepared for the behavioral demands of school. Children who remain dependent on these aggressive and coercive behaviors throughout grade school are “set-up” for continued difficulty with middle and secondary school transitions (DeBaryshe & Fryxell, 1989).

Coercive students exhibit many problem behaviors in school. They can quickly find that peers and teachers poorly receive their coercive and aggressive behavior. This social feedback can significantly impact the student’s self-efficacy, diminishing self-esteem and academic motivation (DeBaryshe & Fryxell, 1989). Attempting to cope with this negative social feedback, they revert to the coping skills known to them, using coercive behavior to exert control. These behaviors can include being defiant, impulsive, verbally and physically aggressive with peers, and/or destructive (Alessandri, 1991; DeBaryshe & Fryxell, 1989; Kaufmann & Cicchetti,1989).

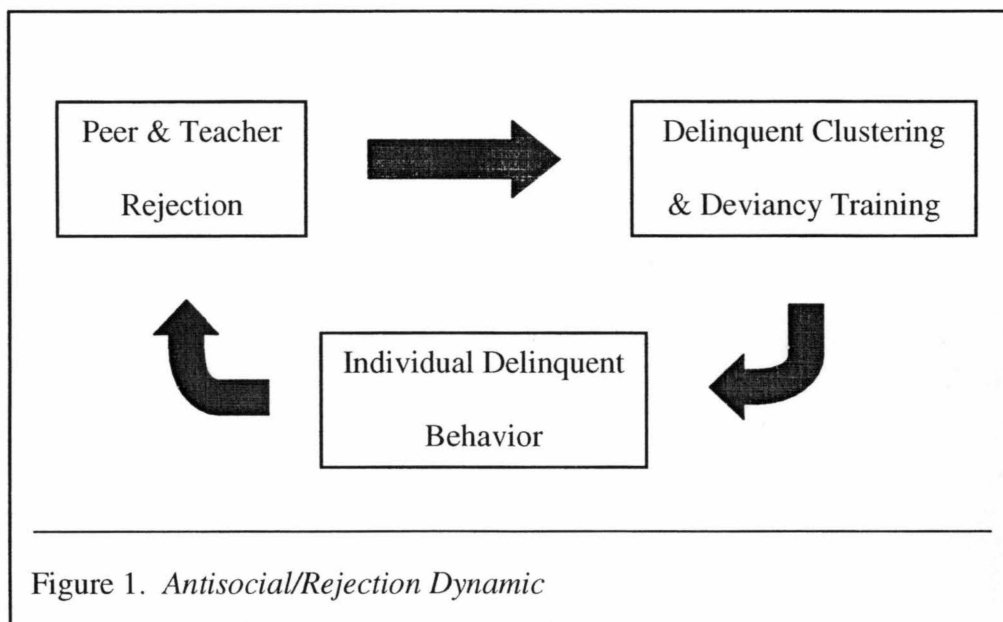
Teachers and school administrators commonly deal with these problem behaviors in the classroom with detentions, suspensions, reducing extra-curricular activities, or

simply treating these students as undesirable (Bullis, Yovanoff, Havel, & Mueller, 2000). The more severe and resistant behaviors have the risk of being diagnosed as Oppositional Defiant Disorder, Conduct Disorder, Emotional Behavioral Disorder, or any of the various learning disabilities. These diagnoses are not uncommon and can result in these students being placed into specialized behavior management classrooms with peers with similar problem behavior (Bullis, 2000).

As these interventions and punishments distance problem students from pro-social influences, these youth are clustered with and socialize with peers who are more similar to themselves, including the propensity to recognize, tolerate, and accept their coercive behaviors. Friendships formed in this environment constitute natural communities of reinforcement that provide a rich context for the practice and maintenance of the coercive interpersonal process learned at home (Ladd & Kochenderfer, 1996). These peer clusters support reciprocation and escalation in coercive behavior while fostering a value structure that promotes antisocial behavior towards non-members (Cairns, Cairns, Neckerman, Gest, & Garipey, 1988). A direct consequence of the behavior reinforced in these delinquent clusters is further rejection by pro-social peers and teachers. In response to social rejection, most coercive children do develop friendships, but they do so in an environment that not only perpetuates their maladaptive social skills, but also significantly contributes to the escalation of problem behavior (Dishion et al., 1995).

Figure 1 highlights this antisocial/rejection dynamic.





### *Friendships and Social Development*

Moore, Cartledge, and Heckaman (1995) argue that the most important task for school aged youth is to establish good, ongoing peer friendships and teacher relationships. Friendships make unique contributions to social and emotional development. From the experience of having friends, children and adolescents learn various social competencies, extend their knowledge of themselves, and derive emotional support (Price, 1996).

Compared to relationships with parents, teachers, and other authority figures, peer friendships are more egalitarian. Peer friendships lack the large differences in power, cognitive skills, experience, and personal perspective that are unavoidable in adult/adolescent relationships. This relative equality of power in adolescent relationships allows peer interactions to provide mutual, experience-based learning in the areas of

perspective taking, conflict management and emotional self-regulation (Gottman, 1983; Laursen, Hartup, & Koplak, 1996).

DeBaryshe and Fryxell (1998) further suggested that adolescent peer relationships are uniquely voluntary, engaged by two or more willing participants who to an important extent negotiate and then self-select themselves into and out of the peer groups. Being voluntary, adolescent friendships require high and consistent levels of equity and affective investment to maintain the relationship. As participants are free to end the relationship, conflicts with close peers are risky. These researchers asserted that it is a developmentally appropriate task that adolescents learn the prosocial skills of compromise, negotiation, and perspective taking as they invest in the maintenance of their peer relationships. The egalitarian and voluntary qualities of healthy adolescent friendships are thus hypothesized to be the best opportunities for adolescents to learn constructive and positive approaches to handling conflict (Laursen, 1996).

But even in the most healthy and social adaptive adolescent friendships, peer relationships are commonly and frequently terminated. In one study, 31% of fourth and eighth graders did not keep at least one best friend for 6 months (Berndt, Hawkins, & Hoyle, 1986); in another study, 67% of fifth to twelfth graders did not remain friends with their top three nominations for 12 months (Epstein, 1983). Even if these estimates are high, they nonetheless indicate that the termination of friendships in adolescence is both common and normal.

Aboud and Mendelson (1995) suggested that this process of termination is best thought of as continued process of selection. According to these researchers, as

adolescents mature, the basis of friendship expands beyond simple similarity and compatibility. Cognitive development allows for the increased importance of six primary factors: communication, information exchange, common ground, self-disclosure, extending activities, and conflict resolution (Gottman, 1983). Healthy adolescent friendships are initiated and terminated as more complete and beneficial matches are found between oneself and ones' peers. The results of this process are that while friendships do terminate easily, they do so with ever increasing selectivity to meet adolescents' increasing developmental needs (Aboud & Mendelson, 1995).

#### *Delinquent Friendships*

Termination of friendships in favor of new, "more complete and beneficial" social relationships is one important tool used to meet the social and emotional needs that grow concurrently with adolescent cognitive development. Coercive adolescents are at a distinct disadvantage in this process. As has been stated, coercive and aggressive students are considered to be less likable and are largely rejected by prosocial peers. This rejection, resulting from the adolescent's use of coercive social behavior, necessarily limits the pool of available prosocial peers who would be willing engage in a friendship. Coercive adolescents thus have limited social avenues to explore when a friendship goes bust. Instead of pursuing new friendships based on the peers ability to meet his or her evolving cognitive and emotional needs, the terminated friendships of coercive students are usually replaced by relationships based more on proximity (being in the same behavior management classroom, detention hall, etc.) and social accessibility (being similarly coercive). As some researchers have noted, "The faces change, but the process

remains the same" (Dishion et al., 1995). Though coercive and delinquent peer friendships may be as short lived as other adolescent friendships, the reinforcement for coercive behavior continues from one peer relationship to the next.

The friendships between coercive and delinquent peers have several unique and seemingly contradictory qualities. Analyzing the self-reports of friendship quality of 206 13-14 year-old boys participating in the Oregon Youth Study (OYS), researchers found that the friendships of delinquent boys were somewhat low in quality, relatively short lived, perceived as being only marginally satisfactory, and tended to end acrimoniously (Dishion, Andrews, & Crosby, 1995). When combined with evidence that coercive children and adolescents are largely rejected by prosocial peers, these findings portray these youth as being lonely victims of a vicious, developmental cycle of coercion, maladaptive social behavior, and social alienation.

Coercive youth, despite the observation that they are at-risk for social rejection, do still have friends. In a study of 695 fourth and seventh grade boys and girls, aggressive students tended to be "best friends" with other aggressive students and were consistently rated as less popular and less likable by the general student body (Cairns et al., 1988). These findings were consistent with previous research on the rejection and subsequent clustering of delinquent youth. Contrary to this, however, were the findings that aggressive children were equally likely to be nuclear members of extended social groups. Aggressive students also did not differ from matched control subjects in the number of times nominated as a "best friend" nor did they differ in the chances of having their own friendship choices reciprocated by their peers (Cairns et al., 1988).

These contradictory findings, that aggressive girls and boys were solid members of peer groups, but yet were less likable and popular, suggests that aggressive adolescents have “concealed competencies” that permit these youth to survive and flourish in particular social contexts (Cairns et al., 1988). Whereas aggressive and coercive behaviors alienate more prosocial peers, the social connections aggressive youth do establish are no less meaningful than those of more normal adolescents. These delinquent friendships do not lack positive behaviors such as sharing and self-disclosure (Dishion et al., 1995). Rather, it is the presence of coercive and bossy verbal behavior that accounted for compromised relationship integrity.

Coercion and aggression are not enough to preclude peer friendship, and may indeed be sufficient to form the foundation of a meaningful, if not long lasting, relationship. But as coercive and aggressive adolescents select one another as peers, they are at-risk for beginning to operate with confluence directed toward delinquent behavior. Dishion, Capaldi, Spracklen, and Li (1995) forward the perspective that this peer/social context for delinquency is best understood as an adaptive behavior for the adolescent. Secondary gains from delinquent group membership are strong and may include social inclusion, increased functional autonomy from parents and other authority figures, experimentation with controlled substances, and accelerated introduction of sexually mature behaviors (Dishion et al., 1999). Thus, coercive, aggressive behaviors that began as an adaptive means of navigating a coercive environment in the home are reinforced in the peer group by way of powerful secondary gains. In this way, the delinquent peer

group helps maintain coercive behavior patterns even in the absence of ineffectiveness in new tasks, e.g., school success.

This acceptance by a delinquent peer group is, however, a mixed bag. On the one hand, it becomes a way of dealing with stress of social rejection and provides a receptive social audience with similarly socialized peers (Elder, 1980). On the other hand, these same behaviors predispose the individual to further isolation from pro-social influences and net an escalation of consequences resulting from the delinquent behaviors themselves. As dependence on delinquent peer support increases with the escalation of pro-social rejection, members of delinquent adolescent peer groups are observed to be both 'architect' and 'victim' of their own entrenched behavior patterns (Patterson, 1976, p.268).

#### *Risk Factors for Delinquency*

Substantial research (Dishion et al., 1999; Gold, 1970; Herrenkohl et al., 1998; Lipsey & Derzon, 1998; Moffitt, 1993) has been conducted to identify the individual and social factors that contribute to adolescents being "at-risk" for participating in future violent and delinquent behavior. Lipsey and Derzon (1998) used meta-analysis methodologies to examine 66 different longitudinal studies of adolescent delinquency. All studies examined had results based on prospective data so that exposure to risk factors preceded delinquent behavior. These studies also identified and defined a wide variety of indicator variables, each of which was a potential predictor of later delinquency. Results from the meta-analysis produced five general domains of risk

factors for delinquency: individual, family, community, school, and peer-related predictors.

The results of this effort were divided into two age groups, 6-11 and 12-14 years of age. Correlation coefficients were used to quantify the strength of association between particular risk factors and later delinquency. In both age groups, being raised in a single parent or divorced home was among the poorest predictors of later delinquency ( $r = 0.09$  for ages 6-11,  $r = 0.10$  for 12-14 years old). The best predictors of serious delinquency or violence differed according to age. Results showed that a juvenile offense at ages 6-11 was the strongest predictor of later delinquency, even if the first offense was not violent in nature ( $r = 0.38$ ). This differed with the 12-14 year old group where the lack of social ties and involvement with antisocial peers held the highest predictive power ( $r = 0.39$  and  $r = 0.37$ , respectively). Relatively fixed personal characteristics (i.e., hyperactivity and risk taking) were the second and third most powerful predictors for 6-11 year olds ( $r = 0.24$ ), whereas 12-14 year olds' future delinquency was better predicted by behavioral performances (i.e., general offenses  $r = 0.26$ , aggression  $r = 0.19$ , and school performance  $r = 0.19$ ).

These meta-analytic findings were further supported by Herrenkohl, Maguin, Hill, Hawkins, Abbott, and Catalano (1998) who investigated the power of diverse factors measured at ages 10, 14, and 16 to predict delinquency by the age of 18. Consistent with the coercive family process model, this study reported that parental attitudes favorable to violence, poor family management practices, and parental criminality each more than doubled the risk of the adolescent participating in serious delinquency and/or violence by

the age of 18. Low commitment to school, low academic performance, and behavior problems at school also significantly increased the likelihood of delinquency by the age of 18. Importantly consistent with previous research, Herrenkohl and his colleagues found that the single most powerful predictor of later delinquency was membership in a delinquent peer group. According to their findings, having delinquent friends at the ages of 10, 14 and 16 more than tripled the risk for involvement in violence and/or serious delinquency by the age of 18.

Research efforts to identify risk factors for adolescent delinquency engage in this work for two reasons. First, to identify what psychosocial factors are predictors for later delinquency, and second, to target the strongest risk factors for efforts in prevention and intervention. Research has shown that delinquent peers have a greater influence on later delinquency during an individual's adolescence than they do in earlier ages (Moffitt, 1993). Appreciation of the power of delinquent peers as a risk factor has prompted some researchers to conclude that delinquency itself is a "group activity" (Gold, 1970).

Consistent with outcomes from both meta analysis and quasi-experimental research, the two strongest predictors of subsequent antisocial behavior for early and middle adolescence were the lack of pro-social ties and the existence of an antisocial peer group (Herrenkohl et al., 1998; Lipsey & Derzon, 1998). One important process underlying this connection between delinquency and peer affiliations concerns the process of verbal reinforcement inherent in adolescent antisocial friendships.



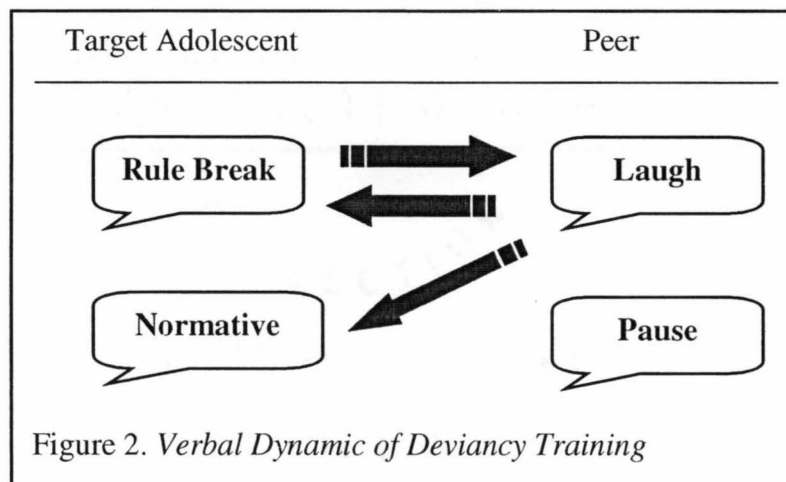
### *Verbal Reinforcement and Delinquent Friendship*

The Peer Interaction Task (PIT) was developed by Dishion and colleagues (1996) to examine the process of peer influence associated with antisocial behavior. Adolescent boys ( $n = 176$ ) and their friends were videotaped during a 25-minute session where they were asked to plan an activity together and then to solve four current problems: (a) a problem for the target boy related to getting along with parents, (b) a problem the target boy had related to getting along with peers, (c) a problem the friend had related to getting along with parents, and (d) a problem the friend had related to getting along with peers. The videotaped discussions were later coded for general topics (Normative vs. Rule-Breaking) and for the affective reaction of the listener (Laugh vs. Pause).

The topics that garnered affective reinforcement in the 25-minute session were prognostic of later social trajectories. Delinquent dyads (both boys having previous arrests) showed significant levels of Laugh *only* in response to Rule-Breaking topics and introduced more Rule-Breaking topics as a consequence of laughter. This pattern demonstrated a feedback loop for antisocial verbalizations in which delinquent talk both excited and engaged the peers, taking them off task in preference of discussing delinquency, sexual risk-taking, substance abuse, etc. This verbal behavior was in stark contrast to non-delinquent dyads (both boys having never been arrested) in which they showed Laugh responses to Normative topics and virtually ignored Rule-Breaking topics.

The verbal reinforcement of the delinquent dyads was prognostic of increases in self-reported delinquency and substance abuse two years later, even after controlling for prior levels of delinquent behavior. Thus boys in friendships that provided reinforcing

responses to Rule-Breaking Talk demonstrated a peer dynamic that accounted for the emergence of new patterns and escalations in problem behavior. This verbal dynamic has been dubbed “deviancy training” and is illustrated in Figure 2.



*Adolescence and the Power of Verbal Behavior*

#### *Language and Deviancy Training*

Results from this study showed that words and behaviors are highly associated. Verbally and affectively reinforcing even the discussion of an action can be equivalent to endorsing the action itself (Dishion et al., 1996). The talk and topics of a delinquent peer group are neither empty nor hollow. Rather, the social and verbal reinforcement of antisocial acts within these groups was demonstrated to be highly indicative of later escalations in self-reported delinquency and arrest (Dishion et al., 1996). The fact that these conversations with “best friends” lasted only 25-minutes in a laboratory setting suggests that this specific pattern of verbal behavior may be a clear indicator variable for later delinquency.

The talk of delinquent peers has several unique qualities. Delinquent peer groups create an environment that amplifies the power of antisocial verbal reinforcement. Perhaps delinquent talk serves as a currency for group membership within these groups. Rojo (1994) conducted a qualitative study of the verbal behaviors of adolescents incarcerated for theft as they interacted with delinquent peers and authority figures. He found that delinquent conversations conveyed at least three different interaction processes: Power dynamics, social distance and space, and attitudes and values. In conversations between peers and authority figures, delinquent adolescents change their use of language between jargon and more formal language to control emotional connectedness, power, and attitudes communicated between speaker and listener. Different conversational strategies were used to control the level of disclosure, being more energized and less guarded with peers and more distant and power focused with authority figures.

Rojo (1994) suggested that delinquent verbal behavior be thought of as an active balancing act between the desire to individualize one's self and the desire to establish social bonds. Conflict between these two distinct desires is always present, sometimes more latent, whatever the relationships between speaker and listener. Importantly, adolescent delinquents were observed to use specialized language, slang and jargon, to provide social cues as to their identification within the social group of delinquent peers. In this way language is an important, adaptive tool to indicate group membership, signify individual power, and is used in controlling the emotional distance and disclosure processes.

*Words as Practice for Delinquency*

Verbal behavior of delinquents is more than “mere words.” Rather, antisocial verbal behavior represents a currency for delinquent group membership, communicating group membership, power, and self-concept. But the verbal behavior of delinquent adolescents has been shown to be more than a social device. Tinklenberg, Steiner, Huckaby, and Tinklenberg (1996) recruited 114 youth who were incarcerated between 1974 and 1977 for either physically or sexually assaultive crimes. At the beginning of their sentence, each subject gave a verbal narrative of the incident that led to their conviction. These narratives were then dictated to research staff who then coded them to determine ratings of personal distress and self-restraint. In a 10-13 year follow-up, the adolescents who gave narratives with the lowest levels of self-restraint were significantly more likely to have recommitted assaultive crimes. This difference was characterized by an effect size of 0.67.

In the attempt to understand the power of brief verbal narratives to predict recidivism and violent behavior up to 13 years later, McCord (1997) developed the following theory. This theory asserted that delinquent adolescents derive meaning and value from the use of language in the deviancy training process. This use of language can support a cognitive basis for the motivation to commit delinquent acts in the future. The general notion is that through repetition, habitual ways of speaking develop that are both self-reinforcing and reinforced by others. These verbalizations become internally organized through the development of cognitive sets about the nature of the self and relationships with others (Rutter, 1989). For the delinquent adolescent, words about

violent and delinquent action become a way to gain acceptance into a receptive and available peer group. Gaining social support partially as a result of the language used, adolescents initiate increased disclosure and introduce more, similar verbal behavior to sustain this social relationship (Rojo, 1994).

According to this theory, an individual is able to use words to experiment with new behaviors and to test the social reaction to those behaviors without risking social rupture if the potential acts are unacceptable to the peer group (McCord, 1997). An individual utilizing a verbal representation of reality is able to test potential future behaviors in the arena of thought and retain or disregard these potential actions based on feedback, encouragement, or estimated social consequences. Words thus become a way to rehearse an action, to test its social acceptability, before the action itself is engaged. This cognitive flexibility available through verbal symbolization allows people to create novel and inexperienced potential actions that transcend their sensory experiences.

This process is thought to have special consequences for the behavior of adolescents at risk for delinquency. Words are put out into the peer social arena where they are either reinforced or ignored. As talk about delinquency is a key to delinquent group membership, these topics can dominate the focus of the peer interactions. Furthermore, as delinquent peer groups can both actively shun and be rejected by prosocial influences, adolescents in these groups can lack a source for realistic estimates of the incidence and prevalence of deviant behavior. Without this prosocial counterbalance, the reinforcement of antisocial talk can go largely unchecked. This consistent reinforcement of delinquent talk may desensitize the adolescent so that the

information garnered is not cognitively organized as a cautionary tale, but rather as a "how-to manual" for future problem behavior.

This delinquent social experience is confounded by the availability heuristic where at-risk adolescents are not primed to critically evaluate their peers as sources of accurate information, but instead rely on peers' information simply because it is available to them (Shrum, 1995). Adolescents can come to accept delinquent behavior as normal, because everyone they know is either talking about it or doing it. The at-risk adolescent is thus poorly prepared to rebut peers' escalations if they eventually challenge them with the question, "Are you all talk, or do you act too?" Having been primed by delinquent peers, delinquent talk, and related cognitive expectations about the prevalence and normalcy of antisocial behavior, the at-risk adolescent is indeed now ready to act out. Thus peers, delinquent talk and the resulting cognitive expectations combine to provide a powerful risk factor for delinquent behavior.

The research program of Dishion and colleagues (1996) clearly demonstrated the prognostic power and cyclic relationship between antisocial verbal behavior and delinquent peer reinforcement. Within the delinquent peer group, deviancy training takes place, escalating both the talk and the likelihood of delinquent action. Furthermore, the antisocial/rejection dynamic coalesces the delinquent peer group, making the whole more resistant to prosocial influence (Dishion et al., 1995). The potential power of this dynamic is most clearly understood when rates of peer reinforcement are considered. In institutional settings, such as schools and treatment centers, peers were observed to provide social reinforcement nine times more frequently than teachers or adult staff

(Buehler, Patterson, & Furniss, 1966). This rate and density of reinforcement underscores the potential prevalence of the deviancy training process during adolescence.

The process of deviancy training is rarely given its proper weight and this is clear when we consider standard practices of aggregating “at-risk” youth together for the treatment of delinquent behavior. This common practice may produce iatrogenic effects that increase the likelihood of negative behavioral outcomes (increased antisocial behavior, increased tobacco and drug use, etc.) as a consequence of this social clustering (Dishion et al., 1999). This aggregation of delinquent youth commonly appears in schools through placement into special behavioral classrooms and discipline practices such as after-school detentions. As Dishion and Andrews (1995) observe, these groups effectively serve as hotbeds of antisocial initiation and delinquency training. The question quickly becomes, if group interventions for at-risk adolescents have as great or greater risk of contributing to further delinquency as they do for reducing these behaviors, what works?

The challenge for intervention science is to identify early antecedents of delinquent behavior and to intervene in a timely manner. For this primary goal to be accomplished key elements that reinforce and exacerbate delinquent behavior need to be identified. Waiting for the onset of serious delinquency before engaging in any effort of intervention is not only irrational but also unethical. Instead, this review argued that antisocial verbal behaviors are important and often overlooked antecedents to delinquent actions. As antecedents, delinquent verbal behaviors and the socialization process behind them are easily identified and can be targeted as a previously unexplored window of opportunity for delinquency prevention efforts.

*Deviancy Training and Addiction*

One potential avenue for delinquency prevention research appreciates important parallels between the deviancy training process and the behaviors of addiction. A defining characteristic of addictive behaviors is that they involve the pursuit of short-term gratification at the expense of long-term harm (Miller & Rollnick, 1991). Often the person is quite aware of damaging consequences, and has resolved to control or abandon the addictive behavior, and yet returns to the old familiar pattern time and again. This process of addictive behavior maps onto delinquent peer group socialization in two important ways. First, adolescent delinquency might be analogous to addictive behavior in that the duration of delinquent behavior is negatively related to self-efficacy for change, pro-social contacts, and positive expectations for the future (Dunn, 2000). Second, and more importantly, both the behavior patterns of delinquent peer socialization and addiction show the inability to delay gratification and seek to maximize short-term payoffs.

For the addict, the continued abuse of the substance of choice nets the short-term gain of quelling the pangs of physical and psychological addiction. For the delinquent and coercive adolescent, dependence on delinquent peer group acceptance and support nets a reduction in the stress resulting from larger prosocial rejection. But, as has been shown, continued dependence on the social support and verbal reinforcement of the delinquent peer group is highly associated with escalations in later serious delinquency and poor adult life outcomes. Thus the attention and acceptance of the delinquent peer group is like a drug. On the one hand, pursuit of delinquent social support is a way of



adaptively dealing with the stress of larger prosocial rejection. On the other, dependence on this kind of peer acceptance predisposes the adolescent to mounting consequences from the delinquent behaviors themselves as their use increases with the escalation of rejection. Behavior that began as a coping mechanism, navigating a coercive environment in the home, is reinforced in the delinquent peer group and is maintained even to the absence of effectiveness in new social environments, e.g., school, prosocial peers, teachers, etc. Like drugs in the hands of an addict, this pattern of maladaptive social coping highlights not only the perpetuation of anti-social acts but also the escalation of consequences.

#### *Motivational Interviewing and Adolescent Harm Reduction*

As researchers allow themselves to look at the behavior dynamics of delinquent peer groups through the theories and model of addiction, they open the possibility for examining the effectiveness of novel intervention strategies. One promising intervention strategy focuses on the techniques of Motivational Interviewing (MI). MI is a brief, interpersonal counseling methodology that is not at all restricted to formal counseling settings. It is a subtle balance of directive and client-centered components and is shaped by a guiding philosophy and understanding of what triggers change (Miller, Benefield, & Tonigan, 1993). There are, nevertheless, specific and trainable therapist behaviors that are characteristic of a MI intervention. These behaviors include: (a) seeking to understand the person's frame of reference via reflective listening, (b) expressing acceptance and affirmation, (c) eliciting and selectively reinforcing the client's own self motivational statements, recognition of problems, desire and intention to change, and ability to change,

(d) monitoring the client's degree of readiness to change, and not generating resistance by jumping ahead of the client, and (e) affirming the client's freedom of choice and self-direction.

One study evaluated the use of MI as an effective tool for reducing the self-harming behaviors that resulted from adolescent alcohol abuse (Monti, Colby, Barnett, Spirito, Rohsenow, Myers, Woolard, & Lewander, 1999). In this study, 18 to 19 year olds ( $n = 94$ ) were recruited as they entered emergency rooms following injuries they had sustained while intoxicated. Once recruited, the patients were randomly assigned to receive either standard ER care alone or receive this care in conjunction with a brief MI counseling intervention. The researchers hypothesized that the MI intervention would be particularly powerful in this setting as it capitalized on a “teachable moment” created by the recency of the injurious event and the patient’s correspondingly high emotional arousal.

The MI counseling intervention, while on average only 20 minutes long, resulted in substantially reduced alcohol related injuries at the 6-month follow-up. More specifically, those patients who received only standard care (SC) were four times more likely to report drinking and driving compared to those in the MI condition. At six months, 23% of patients who were in the SC condition reported having another moving violation compared to only 3% for the MI condition. Self-reports of alcohol-related injuries were also significantly less for the MI condition (21%) compared to the SC condition (50%).

### *Mechanisms of MI*

These statistically and clinically significant effects were particularly impressive given that the MI intervention did not emphasize a reduction in drinking per se, but instead focused on the harmful consequences of this behavior. The conceptual framework of MI interviewing utilized (a) a review of events, (b) exploring motivation, (c) personalized feedback, (d) imagining the future, and (e) establishing goals (Miller & Rollnick, 1991). MI hypothesizes that the best way to affect change is to engage the individual in the process of change. Change is never conceptualized as something that is done to the individual, instead, it is something that individuals do for themselves. Timing is emphasized as a critical element in MI methodology. By intervening in “teachable moments” (i.e., ER visits and other times of high emotional salience) MI seeks to develop personal responsibility for pursuing self-made goals and considering alternate behaviors.

MI may capitalize on the same growing autonomy that serves to disenfranchise behaviorally challenged adolescents from adult involvement. Youth tend to rebel against prescriptive authorities (parents, teachers, etc.) who may foist misinformation on them to change their behavior. Attempts to teach or confront delinquent behavior are associated with higher levels of resistance (Dunn, 2000). If you tell an adolescent “You can’t,” the more likely they may be to tell you, “I will!” MI may be a particularly good match with behaviorally challenged adolescents as it avoids argument, direct advice, labeling, and coercive dialogue. These counseling elements are particularly useful in monitoring and minimizing resistance (Miller & Rollnick, 1991).

MI, with its focus of personal empowerment, possibly presents a new way for behaviorally at-risk adolescents to take responsibility and make changes. By clearly and specifically identifying personal power for goal achievement, MI may avoid chain reaction antagonism between at-risk youth and the adults who are invested in their pro-social development. Non-confrontational in its approach, MI may allow society's most socially disenfranchised adolescents to be the primary driver in their own pro-social development. The value of this MI application to teachers, parents, and schools is inherently clear as the standard practices of limit-setting, suspension, and exclusion may be avoided as self-directed change becomes the mutual goal.

#### *Teachable Moments*

Overall, MI has been shown to be a brief, cost-effective method of intervention for reducing harm associated with addictive behavior in adolescence (Aubrey, 1998; Dunn, 2000; Miller & Rollnick, 1991; Monti et al., 1999). If researchers follow the analogy of addiction to delinquent peer socialization, they allow the possibility that MI may be a particularly good counseling match for adolescents at-risk for delinquency. Self-reflection and goal setting in adolescence are developmentally appropriate and are associated with resiliency, pro-social relationships, and positive later-life outcomes (Rutter, 1989). Although it is true that the mechanism of MI depends heavily on self-reflection and goal-setting, MI has been shown to be most effective when paired with emotionally salient "teachable moments." It may be possible to manufacture such moments in the experimental setting and the original research on deviancy training suggests one potential method.

The delinquent peer dyads videotaped in the original ATP Peer Interaction Tasks were aware that neither they nor their parents would ever see their taped conversations (Dishion et al., 1996). The delinquent peers, more often than not, took this opportunity to engage in high levels of tangential and “horseplay”-like behavior that was at times alarmingly coercive, hypersexual, and physically and verbally aggressive. Upon viewing these videotapes in design stage of this project, three simple questions arose. First, how would the boys respond to seeing themselves and their videotaped behavior on TV? Second, would this video self-observation be emotionally salient, i.e., a teachable moment? And third, could brief counseling with a sample of behaviorally at-risk boys be augmented by video self-observation presented within the MI methodology?

The potential efficacy of video self-observation is partially supported by the large body of research on the influence of TV during childhood and adolescence. Speaking generally of television as a stimulus, TV is recognized as a powerful influence on children and adolescents' developing value systems and behavior (Aronson, 1995; Charlton & Gunter, 1999; Surgeon General's Scientific Advisory Committee on Television and Social Behavior, 1972; Tannenbaum & Zillman, 1975). The behavior of children with emotional, behavioral, learning or impulse control problems has been observed to be more susceptible to TV influence, especially in the modeling of violent and aggressive behavior (Charlton & Gunter, 1999). Arguably the most influential researcher into the effects of television on children is Albert Bandura. Bandura (1973) strongly believed that both children and adults acquire attitudes, emotional responses, and new styles of conduct through filmed and televised modeling.

In Bandura's (1961) "Bobo doll" studies, preschool age children observed a video recording of an adult hitting, kicking and throwing a large inflatable doll. The children were later observed as they played alone with the doll. A control group of children was allowed to play with the doll without watching the aggressive adult behaviour. As expected, the children who watched the video of the adult aggression performed similar acts; the others did not (Bandura, Ross, & Ross, 1961).

In a later version of the experiment, the children were divided into 3 groups (Bandura, 1965). One group went straight into the playroom. The second group saw a video of the model being rewarded for beating the Bob doll before taking their turn in the playroom. The third groups saw a film of the model being punished. Those children who watched the model being punished showed significantly less aggression against Bobo than did those who saw the film of either the model being rewarded or having no consequences. This did not suggest that watching a model being punished led to less learning of the model's behavior. Instead, after all the children had played in the playroom with the doll, they were offered treats to demonstrate the behavior they had observed from the adult model, which children in all three conditions were able to do.

In the first stage of the experiment, observing consequences for aggressive behaviour reduced those children's later initiation of aggression behavior. The second stage, being rewarded for copying the aggressive behavior, showed that the children had in fact learned the behaviour because they were able to perform it when properly motivated to do so. Bandura interpreted these findings as supporting an important distinction between the acquisition of a behavior and the performance of that behavior.

Although it is true that observation can be a key component of behavioral learning, reinforcement for that behavior is necessary for acts to be actually performed. Individuals are more likely to adopt a modeled behavior if it results in outcomes they value, and even more likely, if the model is similar to the observer and has admired status and the behavior has functional value (Bandura, 1977).

There is thus a clear cognitive component in the development of behavior that is modelled from video observation. Children are not passive viewers engaged in the passive learning of habitual behaviour through conditioning. Instead it is important to appreciate the active meaning-making that children engage in, and the variety of meanings which they construct from the images and information they receive from video stimuli (Dorr & Kovaric, 1980). TV viewing influences not only behaviour but also attitudes and beliefs. TV also reinforces certain values about the appropriateness of some behaviors (rather than directly influencing behaviour), even to the extent of providing youth subcultures a way of acquiring or maintaining a sense of group identity (Chandler, 1992).

The goal of this study's video-based intervention was not to provide a video self-model to aggravate or reinforce an at-risk adolescent's own already coercive, hypersexual, and aggressive behaviors. Instead this discussion of the influence of video stimuli seeks to highlight the subjective and cognitive components of interpreting what is seen on a video screen. Video self-observation, presented in the context of Motivational Interviewing, could be helpful in examining the functional value and probable outcomes of the behavior observed. As goal setting is developmentally appropriate for adolescents,



it may possible to use videotape evidence of an adolescent's own behavior as a tool to highlight discrepancies between the adolescent's previously self-reported goals and the behavior he or she actually exhibits. The viewing of this video feedback of actually behavior may be sufficient to produce a cognitive dissonance with the goals, possibility forming a rupture in current cognitive-behavioral schemata and allowing for the consideration, or at least discussion, of new behavioral repertoires. Piaget (1969) held that such cognitive ruptures are not only emotionally charged but also are a fundamental tool in cognitive development.

#### Purpose of the Study

The purpose of this study was to examine if MI counseling methodology could be combined with cheap, commonly available video technology to create a useful adjunct to counseling interventions with behaviorally at-risk adolescents. Current research shows that the most common forms of behavioral interventions do not necessarily improve the prognosis for behaviorally challenged adolescents (Kazdin, 1987). Indeed, aggregating high-risk youth into homogeneous groups such as special behavioral classrooms and after-school detentions has been shown to aggravate serious delinquency and substance abuse (Dishion et al., 1995).

In contrast, this proposed study examined individual interventions that targeted the early antecedents of later delinquency, antisocial verbalizations. This novel intervention combined video behavior feedback and MI in the context of brief counseling. Overall, MI has been shown to be a brief, cost-effective method of intervention for reducing harm associated with addictive behavior in adolescence.



Likewise, adolescent verbal behavior has been shown to be a powerful reinforcer of future antisocial actions. Using behavioral tasks developed by Dishion and associates (1996), this project examined the potential efficacy of Motivational Interviewing (MI) as an individual, brief, cost-effective counseling intervention for antisocial verbal behavior common to adolescents who are at-risk for future serious delinquency.

### *Research Questions*

This application of MI as an intervention for antisocial verbal behavior was guided by six questions: (a) Will a brief video-based MI intervention improve an at-risk adolescent's methods of coping with social stress?, (b) Does this format of intervention reduce reported problem behavior at home?, (c) Does this format of intervention reduce reported problem behavior at school?, (d) Will a brief video-based MI intervention impact an at-risk adolescent's readiness to change?, (e) Does this format of intervention reduce reported externalizing and delinquent behavior?, and (f) Does video-based MI counseling reduce an at-risk adolescent's use of antisocial talk?

The research hypothesis for this project states that the brief, video-based MI intervention will reduce high-risk adolescents' initiation and reinforcement of antisocial verbal behavior. I further hypothesized that this change in verbal behavior will be congruent with changes in overt behavior as is measured by parents' and teachers' reports. This intervention was also expected to have positive effects on the target adolescents' self-reports of adaptive coping and internal locus of control.

## CHAPTER III

### Method

#### *Participants*

A total of 40 male adolescents between the ages of 12 and 17 were recruited as Target Adolescents (TA) for this project. The TAs were fluent in English, were not involved in any other experimental intervention and were either labeled by their school as having an Emotional and/or Behavioral Disorder (ED) or were identified by school personnel as being at-risk for school failure due to behavior problems in the classroom. Each participating adolescent had the further requirement of recruiting a peer to participate in the videotaped Peer Interaction Tasks (PIT) required in the pretest and posttest phases of this project. This peer of the TA had no requirements of being behaviorally at-risk but needed to be within 2 years of the target adolescent's age and be willing to commit to completing both pre and post experimental activities. This design led to a total of 80 male adolescents, 40 TAs and 40 peers, being recruited for participation in this study.

#### *Recruitment and Nomination*

The recruitment plan for this project was first outlined for the University Of Oregon's Office of Research Services and Administration (ORSA). ORSA reviewed the recruitment plan in its Human Subjects Compliance Committee, evaluating the procedure on the dimensions of informed consent, potential for harm, protection for the confidentiality of minors, and on the plan's minimization of social pressure to comply

with participation. After two rejections, subsequent negotiations with the committee resulted in the following recruitment events.

Initial recruiting efforts concentrated on the Springfield and 4J School Districts in Western Oregon. Once cleared by committee, ORSA sent an approval letter to each school district's respective research evaluation committees. Once this mandatory letter was received, I contacted the school districts' research committees and scheduled a project presentation for the next available opportunity. Two separate meetings detailed the project goals, recruitment process, and specified the staff and logistical support required from each school. In both cases, clearance was given.

Clearance from the district research committees simply gave me permission to approach individual schools, principals, and teachers to enlist their aid. Participation for any of these individuals remained entirely voluntary. I made cold-calls to the principals of four local area high schools. Appointments were made with each principal and an abridged project presentation was given. In all cases, permission was granted to address teacher staff meetings.

I attended six separate teacher staff meetings, with teacher attendance ranging from the smallest, six teachers, to the largest, 40 teachers. At these meetings, teachers were given a brief presentation, informed of participation requirements, and given informed consent information. The student nomination procedure was the focus of these presentations.

The student nomination procedure was modeled on the Systematic Screening of Behavior Disorder's multiple gating procedure (Walker & Severson, 1990). First, the

teachers agreeing to participate were given a description of an externalizing behavior profile. They were then asked to identify and list students who exhibit these behaviors in their classrooms. Teachers then rank ordered the identified students having the highest externalizing behavior. These ranked listings were then collected and given to the school's central office personnel who then mailed pre-made recruitment packets to the parents of each nominated student. Students with an established ED diagnosis, and who met the other eligibility requirements, were automatically sent a recruitment packet.

400 students were nominated using this initial procedure, prompting the mailing of 400 recruitment packets to the homes of nominated students. These packets included a parental letter of introduction on school letterhead, a general information brochure, informed consents for participation and videotaping, and a release of information form. Also included were the general information/consent forms for the nominated adolescent's peer and the peer's parents/legal guardians (see appendix E). One week following the mailing, school office staff agreed to call the parents of each of their school's nominated students to follow-up on possible interest in participation. This phone call from the school staff asked if the packet was received and if the family was interested. If the family was interested, they were encouraged to either return the consent forms using the pre-addressed and stamped envelope, or call the student investigator. Nominated students and their parents who returned the completed consent forms to the student investigator were considered enrolled in the project.

Navigating the required meetings and getting clearance from the various clearance committees, meeting first with ORSA, then the school districts' research boards, then

principals, then with teachers, took time. This first recruitment phase began in December 2001, and took six months to complete. This timetable brought the project to the end of the 2001-2002 academic year with only 24 students having enrolled, begun or completed the intervention, a recruitment response rate of 6%.

Due to budget cuts in both school districts, the previously scheduled 2002 summer school session was canceled, depleting a highly anticipated source of potential participants. Instead, recruitment efforts refocused on local alternative education programs with special mandates for educating students with problem behavior. The directors of Gateways, TurnAround, Court School, and Pioneer Youth Corp were all cold-called and presentation meetings were again scheduled. All schools agreed to participate, and the student investigator again scheduled visits to teacher staff meetings to recruit teachers and student nominations. Activities at these meetings were identical to the teacher recruitment efforts in the public schools. Teachers were not, however, asked complete teacher nomination forms at that time. All students enrolled in these specialized education/behavior management programs were eligible for participation based on their behavioral history and/or behavioral diagnoses. Male students, meeting the age requirements were automatically mailed recruitment packets and given follow-up calls from school staff. Recruiting from these alternative education programs ran through out the summer and into the Fall of the 2002-03 school year. 12 students were recruited from these programs during this period.

Schools in the Springfield and 4J schools districts were re-approached in the Fall of 2002. Principals were re-contacted and subsequently gave a renewal of previous

permission to continue recruitment. Two additional teacher staff meetings were attended that Fall. However, extra effort was put into recruiting the participation of special education teachers and teachers who were reported to have classrooms with greater numbers of students with high incidents of problem behavior. General information flyers were delivered to those teachers' mailboxes several days prior to the staff meeting and presentation. The improved contact with teachers specializing in the population of interest significantly sped up the nomination and recruitment process compared to the previous year. Improved phone contact also helped targeted teachers better understand which students were sought by this project, and teachers in turn were able to make appropriate nominations of students who they believed were less likely to drop out once enrolled. The remaining four student participants were recruited with these efforts.

#### *Attrition and Missing Data*

Rates of attrition were reasonably high for this study. Each TA was recruited to complete three meetings, once a week for three weeks. Of these 120 scheduled meetings (3 meetings x 40 participants), 37 were no shows, and of those, only 27 were ever rescheduled. Six TAs began the project and completed the first meeting but never returned despite phone calls and one letter of inquiry mailed to the home. Four TAs completed the first two meetings but did not return to complete the third. Overall attendance rate for scheduled appointments was 69%, and total rate of attrition was 20%.

Standard operating procedure for handling missing data was to throw it out. If a TA dropped-out for any reason, all data collected from this participant, his teacher, parents and peer was disregarded for the purposes of analysis. Statistical comparisons of

both experimental groups and peers on demographic and pretest variables are presented below in Tables 1, 2, and 3. This project's on-going recruitment efforts allowed attriting TAs to be replaced by other boys from either the second or third wave of recruitment who both committed to completing all required meetings and who met the participation requirements. This method resulted in a total 50 TA completing at least the first meeting, but only 40 TA completing all requirements.

#### *Group Assignment and Matching*

Once a target adolescent became enrolled in the project, his referring teacher was given the second part of the SSBD to complete. This second part, the Student Rating Form, had 15 items rating externalizing behavior, each item rated on a 5-point Likert scale. The project staff then collected these forms and ranked adolescent's score from high to low. The matching of two target adolescents into one pair had two criteria. Two target adolescents could become matched into one pair if their behavior score on Student Rating Form were within 3 points of each other and if their age was within 2 years of each other. Once two TAs were matched, a coin toss determined into which group the first member of the pair would go, heads led to assignment to the MI experimental group, tails into the strength focused control group. The remaining member of the matched pair was then assigned to the corresponding group.

#### *Demographics and Sample Characteristics*

The mean TA age was 14.7 years old ( $SD = 1.6$ ) for the MI group and 15.3 years old ( $SD = 1.3$ ) for the strength focused group. The mean behavioral rating of derived from the Student Rating Form was 41.7 ( $SD = 12.5$ ) for the experimental group and 44.1



( $SD = 12.4$ ) for the control group. Of the total sample, 30 TAs (75% of total participants) were labeled with ED and had either been reassigned from the general student population to special education classrooms within their schools or had been removed from mainstream schools entirely and were instead attending secure, off-site education centers.

Although the total sample of adolescents was not entirely homogeneous with respect to ethnic composition, it was primarily composed of Euro Americans ( $n = 61$ , 76.3%). The next largest ethnic group was African Americans ( $n = 6$ , 7.5%), followed by Hispanic Americans ( $n = 4$ , 5.0%), Native Americans ( $n = 2$ , 2.5%), and Pacific Islanders ( $n = 2$ , 2.5%). Multiple ethnic group self-identifications and all other ethnic groups combined represented 6.3% of the total sample ( $n = 5$ ). This sample exceeded the ethnic diversity of the local population from which these participants were recruited.

Of the total sample, 26.3% ( $n = 21$ ) reported having a part-time job, and boys in the MI intervention were significantly more employed than their counterparts in the strength focused condition ( $\chi^2 = 5.52$ ,  $p = .02$ ). Only 3.8% ( $n = 3$ ) of the total sample reported having a driver's license. The majority of the sample (81.3%,  $n = 65$ ) reported living with one or more brothers or sisters, with 73.8% ( $n = 48$ ) of those siblings being younger. Of the participants who reported living in 2-parent families (58.8%,  $n = 47$ ), 22 (27.5%) reported living with both biological parents, whereas the other 25 (31.2%) lived with one biological parent and one stepparent. 36.3% percent ( $n = 29$ ) of the total sample reported living in a single-parent household. The remainder of the sample (5.0%,  $n = 4$ ) reported that they did not live with their parents but with an aunt or uncle, grandparents, or other primary care-giver. In summary, groups were equivalent with respect to most



pre-treatment demographic differences with the exception of employment differences between experimental groups. Nearly significant differences ( $p < .10$ ) existed between peer groups for GPA ( $\chi^2 = 12.12, p = .09$ ) and between experimental groups for self-report of Euro-American ethnic identity ( $\chi^2 = 4.48, p = .08$ ). Overall demographic comparison between groups is presented in Table 1.

Table 1

*Target Adolescent and Peer Demographic Information*

	Experimental Boys				Peers			
	MI	SF	$\chi^2$	<i>p</i>	MI Peer	SF Peer	$\chi^2$	<i>p</i>
Number by Group	20	20	-	-	20	20	-	-
Students with IEP	14	16	.11	.75	-	-	-	-
Previous Arrests	2	3	.13	.72	-	-	-	-
Age	14.7 (1.6)	15.3 (1.3)	38.0	.47	15.0 (1.4)	14.8 (1.3)	39.0	.43
Year in School	8.5 (1.6)	9.3 (1.3)	8.85	.12	9.3 (1.5)	8.7 (1.2)	6.12	.41
GPA	2.3 (1.3)	2.0 (1.3)	5.18	.74	1.7 (1.2)	3.1 (1.2)	12.12	.09*
Employed	8 (10.0%)	2 (2.5%)	5.52	.02**	6 (7.5%)	5 (6.2%)	.19	.66
Driver's License	-	1 (1.3%)	-	-	1 (1.3%)	1 (1.3%)	.01	.97
Euro-American	14 (17.5%)	19 (23.8%)	4.48	.08*	15 (18.8%)	13 (16.2%)	4.78	.24
African-American	1 (1.3%)	1 (1.3%)	.01	.94	2 (2.5%)	2 (15%)	.02	.87
Native American	1 (1.3%)	-	-	-	-	1 (1.3%)	-	-
Hispanic	-	-	-	-	1 (1.3%)	3 (3.8%)	.93	.34
Pacific Islander	1 (1.3%)	-	-	-	1 (1.3%)	-	-	-
Other Ethnicity	3 (3.8%)	-	-	-	1 (1.3%)	1 (1.3%)	.01	.94

Note. \*represents significance at .10. \*\*represents significance at .05.

## *Procedure*

### *Design*

A pretest-posttest experimental control group factorial design was used to examine the effects of brief, MI video-based behavior feedback on at-risk and ED adolescent behavior and communication dynamics (Cook & Campbell, 1979). The strength-focused and MI conditions were identical with respect to their pretest and posttest activities and the dependent measures. As stated previously, randomized matched pairs were used to assign participants to groups and to control for variance associated with level of externalizing behavior in the classroom and the participants' ages.

### *Research Procedures*

The procedure for this project followed five distinct steps.

*Step 1.* Step 1 required participating parents and teachers to complete a pre-test Parent Child Behavior Checklist (P-CBCL) and Teacher Child Behavior Checklist (T-CBCL). This double behavioral assessment provided a pretest baseline measurement of the target adolescent's home- and school-based behavior prior to the intervention. These same measures were then completed by both school personnel and parents/legal guardians one week following the target adolescent's completion of the posttest Peer Interaction Task. These second assessments were collected to quantify expected differences in the target adolescent's behavior in two different settings following the intervention.

*Step 2.* Step 2 invited the target adolescent and his peer into the laboratory to complete the first Peer Interaction Task (PIT) and an initial battery of assessments.

Equipment used in the pretest included a video camera, videotape, tripod, a stopwatch, PIT stimulus questions, and the pretest assessment battery. The meeting began with a brief explanation of activities and the collection of any remaining consent paperwork. The confidentiality statement and participant right to stop at any time was read aloud. The adolescents were then reminded to remain seated in their assigned seats for the duration of the taping.

The PIT videotaped target adolescents and their friends during a 25-minute session where they were asked to set goals and solve current problems they were having with peers and authority figures. The specific stimulus materials for this verbal interaction task are provided in Appendix A. For each of the five questions, the question was read aloud and then the door to the room was closed to provide relative privacy with the exception of the camera. A stopwatch was used to time 5-minutes, after which the project staff knocked, reentered and read the next question.

The paper and pencil assessment battery was completed after the PIT and included a basic demographic form, a teen self-report CFCQC, the Norwicki-Strickland Locus of Control Scale, the Adolescent Coping Scale, the University of Rhode Island Change Assessment Questionnaire (URICA, a.k.a., Statements About Problems and Goals), and the Children's Disposition Hope Scale. Both adolescents completed their own assessment batteries, the target adolescent completing all measures whereas the peer completed only their own demographic form and teen self-report CFCQC.

*Step 3.* Step 3 involved the experimental MI and control strength-focused feedback conditions. One week following the initial PIT and assessment battery, the

target adolescent came alone and met with a trained project counselor. The MI intervention utilized MI based counseling to deliver individualized, video-based feedback on personal communication style in a 50-minute counseling session. This brief counseling intervention matched project staff with target adolescents to review pre-identified sections of videotape from the first PIT on a large screen TV. To create a basic rapport, the same staff who facilitated the pretest PIT and assessment was the one who also facilitated this feedback session. To further engage the target adolescents in the process of feedback, the TAs were given the remote control for the videotape and were asked to “drive” the observed segments, stopping, fast-forwarding and pausing on therapeutically salient segments of the tape.

The strength-focused feedback condition was of equal duration and also matched counselors with target adolescents during a 50-minute session, but the feedback did not include video evidence of behaviors. Instead, this comparison condition reviewed the paper and pencil measure, the Children’s Disposition Hope Scale, with the target student and focused on the target adolescent’s self-reports of (a) self-esteem, (b) goals setting, (c) global functioning, (d) problem solving, (e) valuation of experience, and (f) persistence as reported on this original measure (questions 1-6 respectively, see appendix B). Each construct was evaluated using a single item measured on a 6-point Likert scale that provided a general indicator of relative strength and subjective value attributed to each of these measured attributes.

Both MI and strength-focused feedback sessions were videotaped. In the experimental feedback, the camera was positioned behind the TV to record the faces of

both adolescent and counselor as they watched the videotape of the pretest PIT. In control feedback, the camera was positioned in the same way as the pretest PIT, recording both counselor and target adolescent. The specific structure and manualized content for both feedback conditions is described below.

*Step 4.* Step 4 invited the target adolescent and their self-recruited peer back into the laboratory one week following the feedback to complete the second, posttest PIT and assessment battery. The equipment, duration, and content of the tasks were identical to the pretest activities. The second battery was also identical to the first (minus the Children's Disposition Hope Scale) and included the posttest teen self-report CFCQC, Norwicki-Strickland Locus of Control Scale, Adolescent Coping Scale, and URICA. Again, the target adolescent and his peer first completed the PIT and then completed their assessment batteries, the target adolescent completing all measures whereas the peer completed only his own teen self-report CFCQC.

*Step 5.* Step 5 required participating parents and teachers to complete a posttest Parent Child Behavior Checklist (P-CBCL) and Teacher Child Behavior Checklist (T-CBCL). This double behavioral assessment provided a posttest measurement of the target adolescent's home and school-based behavior following the intervention. An individual debriefing session was offered the target adolescent, friend, and their respective parents to voice their concerns and opinions about the project. At this confidential session, the research staff working with the individual case made a full disclosure about the aims and expected outcomes of this research project. Staff researchers also specifically inquired if any participant is experiencing any enduring psychological discomfort or distress that

was attributed to this experimental intervention. In this case, a menu of community counseling resources and referrals was made available.

#### *Participant Compensation*

To help recruit participants and to control for problems of attrition that are typical with at-risk adolescent populations, all target adolescents were paid for their participation. Each target adolescent earned \$15 in gift certificates for the first visit, \$20 for the second, and \$25 for the final visit. The target adolescent's friend also received payment for their efforts, \$10 in gift certificates for each of their two visits. Both parents and teachers were also compensated for their efforts in completing the parent and teacher CBCLs. For each measure completed, both parents and teachers received \$10. Each participating school was also given \$200 for their general fund to compensate for the time and effort in nomination procedures, the mailing of recruitment packets, and completing the essential follow-up calls.

#### *Experimental Conditions*

##### *Video-based MI Counseling*

The MI condition required the target adolescent to return to a second 50-minute counseling session one week following the initial PIT. The TA met in the same room where the first PIT took place with the same staff interventionist who facilitated the pretest battery. The project counselor paraphrased the following scripted introduction to the session's activities: "Thanks for coming. Your feedback is a very important part of the study. We need information that only you can provide. As you know this is a study on adolescent communication. What we'd like to do today is to review tasks and topics that

you and your friend talked about last week. We'd like your feedback and thoughts on what was recorded on tape. Think of it as doing a play-by-play commentary like sportscasters do for a football game. As we watch and make comments on the tape, please be as open and honest as you feel comfortable being. Also, we know that watching yourself on tape can sometimes feel a little strange. You are free to stop at anytime. Any questions about any of this?"

Following this introduction, questions were answered and the review of the videotaped pretest PIT began. Although the project counselors had previously reviewed and noted particular tape segments that were to be targeted for specific and focused feedback, the process of review began at the first segment and ran sequentially through all five segments. As stated earlier, the target adolescents were given the remote control for the videotape playback and were asked to "drive" the observed segments, stopping, fast-forwarding and pausing on segments of the tape that had been previously identified by the project staff as being visually, behaviorally, and/or therapeutically salient. These previously identified segments were chosen as they were able to meet the different, specific goals set for each of the five segments.

*First segment.* The review of the first segment began with a paraphrase of the following instructions, "You remember that you talked with your peer about 5 topics for 5 minutes each. As you watch this first segment, "Plan a fun activity" we'd like you to look for anything new you notice about yourself."

The goal of this first segment's review was to facilitate the target adolescent's focus on the tape, to help the TA focus on his physical and emotional reactions to self-



observation. Specific focus questions were learned by the project counselors. These questions served as the content for a qualitative analysis for fidelity of treatment, and each counselor's performance was rated on if the questions were asked, and if the questions were asked in such a way as to maximize the flow and investment in the segments reviewed. The specific process for this review of treatment fidelity is presented later.

The specific focus questions for this segment were the following: (a) Have you ever seen yourself on TV?, (b) As you watch yourself, do you see anything surprising? Why or Why not?, (c) Is there anything you've never noticed before?, (d) Examples other adolescents have noticed are hand motions, posture, certain words they use. What do you see?, (e) Does it feel funny to watch?, (f) How do you feel about what you see?, and (g) Is this hard to watch with an adult in the room?

*Second segment.* The review of the second segment began with the instructions, "As you watch the second topic "Problem at school", I'd like you pretend that you don't know the teens you're watching."

The purpose of this second segment's review was to isolate and objectify the TA's focus on the dynamics between him and his friend. Project counselors focused the TA on the issues of relationship quality, looking for and examining specific examples of verbal and non-verbal communication between the peers. The primary goal was to help foster a critical look at his peer relationship and how it may impact his behavior in school.

Again, specific focus questions were learned by the project counselors. The specific focus questions for this segment were the following: (a) Based just on what you see on the TV, what do you know about them?, (b) Are they good friends or bad friends?, (c) How do they do in school?, (d) How do they get along with their parents and teachers?, (e) What do they like to do?, and (f) Do they get in trouble? After the TA gave his observations he was then asked, (g) How do you know that?, and (h) What do you see and hear that supports these statements? This segment's review was closed with the questions, (i) "Does the story of the problem at school sound as good, as important, when watched later?, (j) Was it worth the consequences it created?, and (k) What else could have been done instead?"

*Third segment.* The review of the third segment began with the instructions, "As you watch the third topic "Beliefs about alcohol, tobacco, and drugs," I'd like you pretend that you are giving advice to someone younger than yourself, or someone you really care about, like a younger brother or sister."

The goal of this third segment's review was to facilitate a distinction between behavior in presence of a peer versus beliefs and opinions stated in the presence of counselor. Would there be a difference? Could the target adolescent attribute any difference to the influence of his peer or to the presence of an adult counselor?

The specific focus questions for this segment were the following: (a) As you watch, what advice are you giving?, (b) Would you give this advice to someone younger than yourself? Little brother or sister? Who?, (c) What advice would you really give?, (d) Is this advice that you would follow? If the TA was able to recognize a discrepancy

between his verbal behavior on tape and the advice he would give to an vulnerable other, the session was closed by asking, (e) “Why do people say one thing, but do another?”

*Fourth segment.* The review of the fourth segment began with the instructions, “As you watch the fourth topic ‘Importance of friends,’ I’d like you to remember that most kids don’t do this (the video feedback) with their friends. As this is a new way of looking at friendships, sometimes we see and learn something new about friendships.”

The goal of this fourth segment’s review was to investigate how heavily the target adolescent relies on peers for advice and problem solving and to have him verbalize this observation. Was he able to critically evaluate his peer relationships? Could he see both pros and cons to either his current or past friendships?

The specific focus questions for this segment were the following: (a) What do you notice about the communication between you and your friend? What parts stand out?, (b) Do friends give advice?, (c) How do you know when a friend gives good advice versus really bad advice?, (d) Has a friend ever given you bad advice? If target adolescent had trouble finding examples, he was asked, (e) “Have you ever had a friend who is not your friend now? What happened? What did that experience teach you?”

*Fifth segment.* The review of the fifth segment began with the instructions, “As you watch the last topic “Plans and goals,” I’d like you to watch and listen to the goals you hear yourself talking about on the videotape.”

The goal of this fifth segment’s review was to foster a self-assessment of goal setting ability. Time in this segment’s review was invested in exploring the TAs level of maturity and sophistication in goal setting. Did the target adolescent demonstrate problem

solving ability? Were his plans realistic or attainable? How did his peer impact his goals, constructive or disparaging?

The specific focus questions for this segment were the following: (a) As you watch yourself, do you like what you said about your goals?, (b) Are your goals well developed? What is a well developed goal?, (c) How do friends influence your goals? For the better? For the worse?, (d) Has a friend ever helped you with a goal?, and (e) Has a friend ever hindered you or your goals?

*Recap & closure.* The goal of the recap was to help the TA focus on and remember the observations of the video feedback that were meaningful to him. The specific focus questions for facilitating this retention were the following: a) What stands out from what you have seen?, (b) What is one thing that all adults should know about adolescent communication?, and (c) What do you think you will think about after you leave here? Following this discussion, the TA was thanked for his effort and his final appointment was scheduled for the following week.

#### *Strength Focused Counseling Condition*

Due to the ethical implications associated with not providing treatment to an at-risk or ED adolescent sample, we were precluded from using a non-treatment control group. Instead, the strength focused counseling condition was of equal duration and also matched interventionists with target adolescents during a 50-minute session, but did not include video feedback of previous behavior. Instead, this comparison counseling condition reviewed the paper and pencil measure, the Children's Disposition Hope Scale, and focused on the control adolescent's self-reports of (a) self-esteem, (b) goals setting,

(c) global functioning, (d) problem solving, (e) valuation of experience, and (f) persistence as reported on this original measure.

Like the MI condition, project interventionists were trained to apply specific process questions that structured this strength focused feedback session. Again, like the MI condition, these questions served as the content for a qualitative analysis for fidelity of treatment, and each counselor's feedback session's performance was rated on the presence of these questions, if they were asked, and if they were asked in such a way as to maximize rapport with the control adolescent.

The strength focused feedback session began with a paraphrase of the following instructions, "What we'd like to do today is to review one of the forms you filled out about your goals. One of the big questions this project has is about how people in your age group see the future and make plans. What we'd like to do is to go through each of these 6 questions and talk about the thoughts and examples you had when you answered each question. This is information that only you can give. Please talk about each question as openly and honestly as you feel comfortable. You can stop at any time. Any questions about any of this?"

The adolescent in the strength focused condition was asked to read each question from Children's Disposition Hope Scale out loud. He was then asked to read the answer he marked when he originally completed the form. After reading each question, he was prompted with the following questions: (a) When you marked that answer, what examples were you thinking of? What others?, (b) What answer would you mark today? How are they different?, (c) What answer would you mark on your best day? What

makes any day a “good day?” and, (d) What answer would you mark on your worst day? What happens on your worst day?

The goal of the strength focused condition was to create a positive dialogue between the adolescent and the invested, positive and adult influence of the project counselor. This 50-minute session probed for topics of high self-esteem and self-efficacy, and each question was used to probe for something the control adolescent felt positive about. The boys’ statements were heard and reflected back. The discussion of each item was closed with this reflection of meaning and the question, “Did I miss anything?” If the TAs answer was “no,” the counselor moved on to next question until either all questions were completed or the allotted time had expired.

#### *Project Staff*

##### *Interventionists*

Clinical interventionists were selected to facilitate the pretest and posttest PITs and assessment batteries and the experimental and control interventions. The interventionists were volunteers who had clinical experience working directly with behaviorally at-risk adolescents and who were also interested in practicing basic principles of MI. They had either completed or were currently enrolled in a graduate level human service education program (e.g., counseling psychology, clinical psychology, social work, human service programs, etc.). A total of five interventionists, three female and two male, were chosen using this criteria.

*Training and supervision.* Training of the clinical interventionists was managed by the student investigator and included the following steps. First, each interventionist

was directed to read Miller, Zweben, DiClemente, and Rychtarik's (1992) Motivational Enhancement Therapy Manual. This manual contains scripted therapy session detailing the developers' expectations of appropriate MI counseling interventions. From this text, interventionists were responsible for generating a list of questions and role-play scenarios germane to this project that were later used in the group training sessions.

All intervention staff were also encouraged to review six MI training videotapes developed by Miller and Rollnick (1990). This series is a professional training resource offering six hours of explanation and practical modeling of the component skills of MI. Because it is helpful to see how a method is practiced in various contexts, the tapes included clinical demonstrations of the skills of motivational interviewing, showing ten different therapists working with twelve clients who brought up a variety of problems. Topics covered in this video curriculum included: (a) Introduction to Motivational Interviewing, (b) Opening Strategies, (c) Handling Resistance, (d) Feedback and Information Exchange, (e) Motivational Interviewing in Applied Settings, and (f) Moving Toward Action.

After gaining familiarity with the principles of MI, the intervention staff were given the project's Interventionist Training Manual (appendix C) containing the scripted feedback structures used in both the experimental and control conditions. This content was practiced via role-plays in the weekly group supervision meetings. This initial training was conducted twice for two cohorts of interventionists. Each training was completed in an average of four hours, two hours per week over two weeks, and was completed prior to any contact between interventionists and participants.



The general format of these training sessions involved a review of the manual and the condition specific feedback questions. Previously videotaped feedback sessions, both control and experimental, were reviewed each week during the training meetings. These reviews provided examples of both mistakes and correct applications, providing a useful stimulus for skill development. An interventionist was considered trained after they had completed all steps of this preparation, were able to verbalize the basic principles of MI, and were able to demonstrate an acceptable learning of the manualized content.

#### *Coding Staff*

Coding staff were hired to code both videotapes of the pretest and posttest PITs and to score pretest and posttest assessment batteries. This staff was hired based on their previous experience working on other video based research projects. The coding staff needed to have a minimum of one previous job as a video coder and be able to demonstrate a reasonable ability to learn and reliably apply the project specific coding scheme to the collected videotape data. A total of eight coders, seven female and one male, were trained using this criteria.

*Training and supervision.* This project hired a staff coordinator to train and supervise all data scoring staff. This staff coordinator was a full-time staff member at the Child and Family Center and had extensive experience in data management and direct observation/video coding methods. All coders and the staff coordinator were kept blind to both the time (i.e., pretest/posttest) and group (i.e., experimental or control) the of both the tapes they coded and the assessment batteries they scored. Training of this staff lasted three weeks, with each week having two, one-hour meetings. After signing appropriate



contracts for confidentiality, coders practiced the project specific coding scheme, the Topic Rating Scale (TRS, see manual in appendix D), on PIT tapes generated from previous research projects. Coders watched and scored an average of six hours of these tapes (12 PITs) before becoming reliable at .85 or better.

Training for the scoring of the paper and pencil pretest and posttest assessment batteries was also done at these meetings. Training for the paper and pencil scoring took on average two hours to reach acceptable levels of accuracy and reliability. Once trained, supervision meetings took one-hour per week for the first two months, then tapered down to every other week for the duration of the study. These supervision meetings were used to reach consensus on the correct coding scheme for difficult or ambiguous tape segments, to receive corrective feedback on the previous week's coding, and to cover corrections and inconsistencies in the scoring of the assessment batteries.

#### *Accuracy and Reliability in Coding and Scoring*

15 pretest and posttest PIT videotapes (19% of the total tapes) were randomly selected for reliability checks. Selected PIT tapes were first re-coded by the project's lead coder. This resulting code was then compared to the original code reported by the coding staff. If the reliability check was less than .80, the tape was brought to the weekly coding meeting and discussed with all coding staff. A consensus on the correct code was then reached and this process was used as an ongoing training tool for the coding process of future PIT tapes. Using this method, the overall reliability for the project's PIT video coding scheme was 87.9%.

Reliability and accuracy in scoring the paper and pencil pretest and posttest assessment batteries was achieved through a double scoring process. All paper and pencil assessment measures were first scored and then re-scored for accuracy by a second, different scorer. As discrepant scores were found, they were referred to the lead coder who made the final decision on the correct score. This process was applied to all assessment measures with the exception of the teen self-report CFCQCs, the parent CBCLs, and the teacher CBCLs that were on computer scannable forms and required no such redundant scoring.

#### *Independent Variable*

*Motivational Interviewing (MI)*. As the independent variable, measures of fidelity of implementation for the video-based MI feedback and the control feedback were essential. Ten of the recorded feedback interviews (25% of total sample) were randomly selected and qualitatively analyzed by the student investigator for reliability and fidelity in line with criteria set forth in the interventionist manual (see appendix C). The focus of this qualitative analysis was the specific focus questions that were assigned to each of the five segments of the PITs or the general questioning scheme for the control condition.

As detailed in the procedure and training sections, specific questions and prompts were memorized by the project counselors. These questions served as the content for a qualitative analysis for fidelity of treatment, and each counselor's performance was rated on the presence of these questions, if they were asked, and if they were asked in such a way as to maximize the flow and investment in the segments reviewed.

For the review of each of the five segments that constituted a PIT, one point was given for the use of each specific question and prompt as designated in the interventionists manual. For example, the specific interventionist questions for the first segment were the following: (a) Have you ever seen yourself on TV?, (b) As you watch yourself, do you see anything surprising? Why or Why not?, (c) Is there anything you've never noticed before?, (d) Examples other adolescents have noticed are hand motions, posture, certain words they use. What do you see?, (e) Does it feel funny to watch?, (f) How do you feel about what you see?, and (g) Is this hard to watch with an adult in the room? A maximum question score for this segment was therefore seven, one point for each question. The review of a particular segment scored for the presence of these questions, one point each, with one additional point being given for "flow" and another for "rapport." A segment was judged to be an acceptably reliable application of the intervention at the .70 level. If fidelity of feedback fell below this standard, intervention staff were retrained to acceptable levels or were removed from the study. One interventionist required specific retraining lasting 3 hours and no interventionists were removed from the study.

Like the MI condition, project interventionists were trained to apply specific process questions that were used to structure the control feedback session. Again, like the MI condition, these questions served as the content for a qualitative analysis for fidelity of treatment, and each counselor's strength focused feedback session's performance was scored on the presence of these questions, if they were asked, and if they were asked in such a way as to maximize the flow of the session and a rapport with the target

adolescent. A strength focused segment was judged to be acceptable if more than half the manualized cues were used.

#### *Dependent Variables & Measures*

*MI stages of change.* The University of Rhode Island Change Assessment Questionnaire (URICA, a.k.a., Statements About Problems and Goals) (McConaughy, Prochaska, & Velicer, 1983; McConaughy, DiClemente, Prochaska, & Velicer, 1989) is 32-item questionnaire that operationalizes four of MI's theoretical stages of change: (a) Precontemplation, (b) Contemplation, (c) Action, and (d) Maintenance. Eight items measured each of the four stages. Cronbach's alpha coefficients for the subscales are: Precontemplation, .79; Contemplation, .84; Action, .84; and Maintenance, .82. This measure had been altered for use with adolescent populations and was standardized and subjected to reliability, descriptive, correlational, and cluster analyses. Cluster analyses were successful in organizing subjects in meaningful groups that were consistent with the Stages of Change Model. TAs were instructed to use the content of the second PIT conversational task, Problem at School, for answering the URICA items. This measure was used to quantify cognitive, non-behavioral changes in motivation that may result from this intervention.

*Parent and teacher reported behavior.* The Child Behavior Checklist (CBCL) provided a highly standardized procedure for assessing behavioral and emotional problems across multiple settings and quantifying a broad range of behaviors that correlate with the later onset of serious delinquency. The CBCL currently exists in multiple formats including both parent and teacher reports, both of which were utilized in

the pre and post-intervention assessment batteries. The CBCL possess subscales for internalizing/externalizing behavior, psychopathology, and social problems that were calculated and used in the analysis of results. This measure has been normed against a national sample and is inclusive of gender and ethnic subsets. This measure has been found to possess high inter-rater reliability (.93), test-retest reliability (.87), and reasonable construct validity when compared to other measures of child behavior (.52 to .88) (Achenbach, & Edelbrock, 1983). All items were rated on a 5-point Likert scale and the form was scanable for ease of scoring. Target adolescents' parents and teachers each completed 2 CBCLs, one prior to the intervention and one following it. This tool was used to measure parent and teacher reported behavior change from pre to post intervention.

*Adolescent self-report of behavior.* The CFCQC teen self-report questionnaire was used to measure potential changes in the behavioral, peer and parental social dynamics from pre to post intervention. The CFCQC had 83-items rated on a 5-point Likert scale and was scanable for ease of scoring. Metzler, Biglan, Ary, and Li (1998) developed this measure using hierarchical confirmatory factor analysis (CFA) on data collected from 5th-7th grade youth ( $n=174$ ) on three assessment occasions. Metzler and colleagues reported that the CFA approach demonstrated both stability of behavior and parenting constructs over time and convergent and discriminant validity for each of the subscales. Furthermore, each parenting construct was reported as significantly correlated with youths' reports of deviant peer associations, antisocial behavior, and substance use, providing evidence of criterion validity (Metzler, et al., 1998). Target adolescents each

completed 2 CFCQCs, one prior to the intervention and one following it. This tool was used to measure adolescent self-reported behavior from pre to post intervention.

*Locus of control.* The Nowicki-Strickland Locus of Control Scale (N-SLCS) is a 40-item self-report instrument designed to measure whether or not an adolescent believes that reinforcement comes to him by chance or fate (external locus of control) or because of his own behavior (internal locus of control) (Nowicki & Strickland, 1973). The N-SLCS was normed with a sample of over 1000 students from the third to twelfth to grade. Reliability ranged from .74 to .81. Concurrent validity was reported by the developers to be high, ranging from .70 to .87. Participants each completed 2 N-SLCSs, one in the pretest battery and one in the posttest. This measure is used to quantify the potential impact of video-based MI feedback on at-risk and ED adolescents' perception of personal control for their behavior.

*Coping Style.* The Adolescent Coping Scale – Short Form (ACS - S) is a self-report measure assessing three possible coping strategies used by adolescents in dealing with stress (Frydenberg & Lewis, 1993). Factor one, reference to others, measures the tendency to apply to important others, such as peers, professional, or deities in a bid to deal with concerns. Factor two, non-productive coping, measures avoidant strategies that are empirically associated with an inability to cope. Factor three, solving the problem, measures the tendency to remain solution focused, optimistic, fit, relaxed and socially connected. The ACS was normed with a sample of 150 “culturally diverse” students between the ages of 12 and 18. Internal consistency, Cronbach's alpha, was reported at .78. Concurrent validity, as compared to the long form, was found to be high, 0.89 for the

solution-focused sub-scale, 0.88 for reference others, and 0.90 for non-productive coping. TAs each completed two ACSs, one in the pretest battery and one in the posttest. This measure was used to quantify any potential changes in adolescent self-reported coping styles from pre to post intervention.

*The Topic Rating Scale (TRS).* The Topic Rating Scale was developed specifically for use in this research project. Each videotaped pretest and posttest Peer Interaction Task was coded using the TRS. This new behavioral coding scheme was used to quantify the videotaped adolescent verbal communication dynamics, producing data suitable for statistical analysis.

The Topic Rating Scale was developed from the more elaborate and extensive Peer Process Code (PPC). The PPC was used to assess the function of Deviant and Normative talk in friendships in Project Alliance (Poe, Dishion, Griesler, & Andrews, 1990). The PCC consisted of four categories: “following the rules”, “breaking the rules”, “reinforcing responses”, and “pauses.” This code assessed behavior in real time, where research staff coded behaviors into a computer continuously, at the moment they were observed. This coding scheme produced a string of codes that were time sequenced and highly sensitive to the patterns of behavior and reinforcement demonstrated by the sets of peers. The PPC was found to have excellent mean coder agreement, 94% and a kappa of .67.

For the purposes of this study, the complexity and training requirements of the PPC made the use of this code unfeasible. Instead, the TRS was developed to be an easier to learn, streamlined version of the PPC. The TRS was based on the same distinction of



behavior, consisting of two topic codes and three reaction codes: Normative vs. Rule Breaking and Laugh vs. Neutral vs. Pause. The TRS was similar to the PPC in that it tracked the introduction of delinquent topics versus normative topics and the affective reaction of the adolescents. The major difference, however, was that the TRS measured behavior in 15 second blocks of time on a scanable paper scoring sheet versus the continuous, computer entered coding of the PPC.

Issues of the TRS's validity were addressed by comparing the coded content generated by the established Peer Process Code against the behavior code generated by the TRS. Nine previously coded tapes from Project Alliance PITs were selected at random. Coding staff, blind to the original PPC results, first watched each tape and re-coded it using the new TRS. The resulting TRS code was then compared to the continuous time code generated by the PPC.

For an interpretable comparison to be made, the continuous time sequenced code of the PPC was first divided into 15-second segments. The PPC code for each 15-second segments was then translated into the TRS code; rule break versus non-rule break, and positive affect versus negative/neutral affect versus pause. Using this process, a percent agreement analysis comparing the two codes was calculated. Results indicated that the PPC and the TRS had an average topic and affect agreement of 74.4% across the nine tapes compared. This comparison is particularly good given that TRS coders had to train only six hours before achieving reliability at .87 or better. This compares favorable to the PPC that required two weeks training at 10 hours per week (Poe et al., 1990).



the TA self-report of locus of control from the NSLC-S, and the Solving the Problem, Reference to Others, and Non-Productive Coping subscales from the ACS. Respective pretest scores were used as covariates to control for pretest differences on these measures (Cook & Campbell, 1979).

The second and third planned MANCOVA examined questions (b) Does this format of intervention reduce reported problem behavior at home, and (c) in the classroom? Dependent variables for the MANCOVA examining classroom behavior included difference scores for teacher reports of delinquent behavior, social problems and withdrawn behavior from the teacher CBCL. Dependent variables for the MANCOVA examining home behavior included difference scores of TA reports of family conflict and parental monitoring combined with parent reports of delinquent and internalizing behavior from the parent CBCL. Respective pretest scores were again used as covariates to control for pretest differences on these measures.

The fifth planned analysis examined question (d) Will a brief video-based MI intervention impact an at-risk adolescent's readiness to change? Dependent variables for this MANCOVA analysis included the difference scores from the URICA subscales of Precontemplation, Contemplation, Action, and Maintenance. Pretest scores were used as covariates.

The sixth planned MANCOVA examined question (e) Does this format of intervention reduce adolescent self-reported problem behavior? Dependent variables for this MANCOVA analysis included the difference scores of TA self-reports of antisocial behavior, peer antisocial behavior, deviant peer association, and peer criticism from the

teen CFCQC with pretest scores used as covariates. A follow-up analysis further tested the hypothesis of delinquent behavior change via a MANCOVA with orthogonal contrast coefficients using pretest scores as covariates. This planned comparison compared behavior self-reports from the boys in the MI condition to the self-reports from all other boys (i.e., both the boys in the strength focused group and the peers of both groups who received no treatment contact). Dependent variables for this planned comparison again included teen self-reports of antisocial behavior, peer antisocial behavior, deviant peer association, and peer criticism from the teen CFCQCs.

The final planned analysis addressed question (f) Does video-based MI counseling impact an at-risk adolescent's use of antisocial talk? Dyadic interactions (PIT data) were measured with the TRS coding system. The TRS compiled a list of 12 dyad codes, with each code indicating both the TA and peer's talk content and affect during 15-second segments. For each occurrence of a specific affect/content combination, a score of 1 was given. To assess the overall dyadic interaction, sums for all possible combinations were obtained by counting the total occurrence of individual codes across the entire 10-minute observation. A larger score on a code thus indicated a higher frequency of that particular dyadic interaction occurring throughout the Peer Interaction Task. The resulting data, 12 variables indicating the 12 possible combinations of content/affect interactions of the PIT, were then analyzed with a two-way, between groups repeated measures MANCOVA, comparing the TRS code generated from the pretest and posttest PITs across groups. Respective pretest scores on dyadic verbal

dynamics were used as covariates to control for pretest differences between groups on these behaviors.

Those forms of dyadic interaction that were found to be significant were further explored using the techniques of multiple regression. The literature review highlighted two important predictors of delinquency in adolescence, parenting behaviors and delinquent peer association. As stated in the literature review, both direct intervention studies and meta-analytic research have detailed a significant, predictive relationship between delinquent peer association and the onset, intensity and duration of delinquency in adolescence (Gold, 1979; Herrenkohl et al., 1998; Vissing et al., 1991). As the verbal dynamics of deviancy training have also been identified as an important risk factor for this later problem behavior, it remains theoretically important to investigate if deviant peer association predicts an increase in the verbal dynamics of deviancy training, independent of delinquent behavior itself. Similarly, parenting behaviors have been linked to the onset of delinquency (Patterson et al., 1992; Patterson, 1982; Webster-Stratton, 1998). This current application of multiple regression allowed for the exploration of the relationship between parenting constructs and the adolescent verbal dynamics observed in this experiment. It is important to note that this intervention's limited sample size suggests that the R square value generated in standard multiple regression may provide an overestimation of explained variance. The Adjusted R square statistic 'corrects' this value to provide a better estimate of the true population value (Tabachnick & Fidell, 1996). Both R square and Adjusted R square statistics are reported in the Results section.

## CHAPTER IV

## Results

Exploratory data analysis revealed that all levels of condition showed a relatively normal distribution, with no problems of kurtosis or skewness in pretest, posttest, or difference scores. There were no extreme outliers that would have affected the data. Correlations between dependent variables were examined with Mauchly's test of Sphericity and found to be non-significant for the purposes of statistical analyses. Means, standard deviations, and constructs are presented in Table 2.

Table 2. Means and Standard Deviations of Dependent Measures

	<i>Control Group</i>				<i>Experimental Group</i>			
	<i>Pretest</i>		<i>Posttest</i>		<i>Pretest</i>		<i>Posttest</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Adolescent Coping</i>								
Locus of control	13.55	4.24	15.63	5.82	15.86	4.32	14.22	4.51
Solving the problem	66.55	11.99	66.27	9.02	61.35	14.25	61.17	12.86
Reference to others	58.41	15.31	54.77	16.72	53.25	18.59	53.61	14.53
Non-productive coping	55.82	10.87	55.82	9.84	50.10	7.30	50.22	10.56
<i>Home Behavior</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Family conflict	1.04	1.09	.81	0.67	1.00	0.92	1.01	1.08
Parental monitoring	2.70	1.20	2.50	1.03	2.63	1.04	0.97	1.09
Delinquent behavior	3.54	3.78	4.36	4.37	3.86	3.99	5.00	4.22
Internalizing behavior	9.18	9.20	10.73	10.97	11.86	7.91	10.71	8.46
<i>School Behavior</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Delinquent behavior	6.05	4.50	5.71	3.29	5.16	4.60	5.24	5.27
Social problems	3.68	2.73	5.43	4.82	4.37	4.18	4.82	4.94
Withdrawn behavior	3.37	2.70	3.00	2.29	4.00	3.17	4.59	3.45
<i>Readiness to Change</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Precontemplation	33.73	2.69	31.95	3.51	32.52	2.68	32.06	4.98
Contemplation	27.45	5.61	26.68	7.40	26.76	7.21	26.28	7.33
Action	27.64	7.07	27.73	7.54	27.29	6.05	25.44	6.41
Maintenance	21.59	8.42	21.73	8.83	21.14	6.61	22.00	7.06
<i>Delinquent Behavior</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Antisocial behavior	.93	.97	.72	.89	.63	.60	.82	.95
Deviant peer association	1.24	1.21	1.28	1.34	1.00	1.07	1.30	1.31
Peer antisocial behavior	1.16	.92	1.09	.85	1.06	.70	1.07	.99
Peer criticism	1.36	1.73	1.62	1.77	2.75	1.77	1.94	1.89

*Behavioral Equivalence of Groups*

Chi Square analysis was utilized to examine group pretest differences for the categorical variables of presence of ED label and previous arrest status (see table 1). There were no significant differences between the groups for either ED label ( $\chi^2 = .11, p = .75$ ) or previous arrest status ( $\chi^2 = .13, p = .72$ ). One-way ANOVAs were used to compare groups on pretest behavioral ratings on both parent and teacher CBCLs. Pretest differences between groups were non significant for these variables. To better appreciate the behavioral severity of this sample of adolescents, pretest parent and teacher CBCL behavioral ratings were converted to t-scores and compared to a normative sample of adolescent behavior (Achenbach, 1991). Behavior ratings of current sample are presented in Table 3.

Table 3

*Comparison of Pretest Behavioral Equivalence of Groups (t-scores)*

	MI	Strength Focused	F	p
<i>Parent Report</i>				
Withdrawn	55 (11.2)	60 (10.1)	.76	.40
Somatic complaints	58 (9.6)	58 (5.5)	.04	.85
Anxious/depressed	60 (10.6)	57 (13.9)	.16	.69
Social problems	57 (9.2)	53 (6.1)	.92	.35
Thought problems	58 (8.9)	55 (11.6)	.39	.54
Attention problems	62 (10.7)*	55 (13.9)	.89	.36
Delinquent behavior	60 (10.3)	55 (7.7)	.19	.67
Aggressive behavior	59 (11.5)	56.6 (9.6)	.19	.67
Internalizing Behavior	58 (11.2)	52 (15.2)	.122	.28
Externalizing Behavior	57 (13.1)	52 (12.5)	.51	.49
<i>Teacher Report</i>				
Withdrawn	60 (7.7)	58 (6.7)	.34	.57
Somatic complaints	59 (10.2)	57 (7.0)	.93	.34
Anxious/depressed	59 (9.0)	57 (6.3)	.50	.48
Social problems	60 (8.7)	59 (6.4)	.22	.64
Thought problems	56 (9.5)	57 (6.7)	.04	.84
Attention problems	59 (7.4)	57 (6.7)	.47	.50
Delinquent behavior	65 (12.5)*	68 (12.1)*	.38	.54
Aggressive behavior	63 (9.5)*	62 (7.9)*	.27	.61
Internalizing Behavior	59 (11.8)	56 (9.2)	.46	.50
Externalizing Behavior	63 (9.1)*	64 (9.1)*	.02	.88

*Note.*  $M=50$ ,  $SD=10$ . \* indicates clinical significance,  $t$ -score > 62.

Although groups were not significantly different on any of these CBCL pretest measures, it is important to note the behavioral severity of this sample of adolescents.

Both groups were at clinically significant levels on teacher reported delinquent, aggressive, and externalizing behaviors compared to age based norms (Achenbach, 1991). The parent report of attention problems was also clinically significant for the MI group, but group differences on this measure were not significant. This importance of this baseline severity of delinquent and externalizing behavior and its implications for other results is addressed below in the Discussion section.

### *Adolescent Coping*

The first planned analysis addressed research question (a) Will a brief video-based MI intervention improve an at-risk adolescent's methods of coping with social stress? A one-way between groups multivariate analysis of variance was performed to investigate group differences on amount of change in style of coping. Four dependent variables were used: Locus of Control, Solving the Problem, Reference to Others, and Non-Productive Coping with corresponding pretest scores used as covariates. The independent variable was group. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. Standards for acceptable correlations among dependent measures were set at .90 and below (Tabachnick & Fidell, 1996). Using this level, correlations between dependent measures were found to be acceptable for use with the MANCOVA statistical technique and are presented in Table 4.

Table 4.  
Correlations Among Dependent Measures for Adolescent Coping Analysis

Measure	LC	SP	RO	NP
Locus of Control (LC)	--	-.15	-.33*	.28
Solving the Problem (SP)		--	.40*	.24
Reference to Others (RO)			--	.02
Non-Productive Coping (NP)				--

Note. \* Correlation is significant at the 0.05 level.

There was a statistically significant difference between groups on the combined dependent variables:  $F(1, 38)=2.40, p<.05$ ; Wilk's Lambda=.76;  $\eta^2=.24$  with an observed power of .62. When results for the dependent variables were considered with separate ANCOVAs, only Locus of Control reached statistical significance using a Bonferroni adjusted alpha level of .01. Main effects of both group and time were non-significant. However, a significant group X time interaction was found,  $F(1, 38)=9.32, p=.004$ ;  $\eta^2=.20$  with an observed power of .84. An inspection of the mean scores for change on the Locus of Control measure indicated that adolescents in the strength focused group reported increasing level of locus of control from pretest to posttest, moving from average to high average compared to age based norms (difference score  $M=2.09, SD=3.74$ ) (Nowiciki & Strickland, 1973). This change differentiated them from adolescents in the MI group who reported decreasing levels of locus of control from pretest to posttest (difference score  $M=-1.5, SD=4.08$ ).



### *Home Behavior*

The second planned analysis examined questions (b) Does this format of intervention reduce reported problem behavior at home? A one-way between groups multivariate analysis of covariance was performed to investigate group differences on amount of change in home behavior. Four dependent variables were used: TA reports of family conflict and parental monitoring combined with parent reports of delinquent and internalizing behavior from the parent CBCL. Corresponding pretest scores were used as covariates. The independent variable was group. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. Standards for acceptable correlations between dependent measures were set at .90 and below (Tabachnick & Fidell, 1996). Using this level, correlations among dependent measures were found to be acceptable and are presented in Table 5.

Table 5.  
*Correlations Among Dependent Measures for Home Behavior Analysis*

Measure	FC	PM	IB	DB
Family Conflict (FC)	--	.32*	.06	.09
Parental Monitoring (PM)		--	.54*	.33*
Internalizing Behavior (IB)			--	.47*
Delinquent Behavior (DP)				--

*Note.* \* Correlation is significant at the 0.05 level.

There was no statistically significant difference between groups on the combined dependent variables:  $F(1, 36) = .52, p = .72$ ; Wilk's Lambda = .88;  $\eta^2 = .12$ . Following conventional multivariate logic, individual dependent variables were not considered separately.

### *School Behavior*

The third planned analysis examined questions (c) Does this format of intervention reduce reported problem behavior at school? A one-way between groups multivariate analysis of covariance was performed to investigate group differences on amount of change in school behavior. Three dependent variables were used: teacher reports of delinquent behavior, social problems and withdrawn behavior. Corresponding pretest scores were used as covariates. The independent variable was group. Preliminary assumption testing was again conducted with no serious violations noted. Standards for acceptable correlations between dependent measures were set at .90 and below (Tabachnick & Fidell, 1996). Using this level, correlations between dependent measures were found to be acceptable and are presented in Table 6.

Measure	DB	SP	WB
Delinquent Behavior (DP)	--	.37*	.27
Social Problems (SP)		--	.05
Withdrawn Behavior (WB)			--

*Note.* \* Correlation is significant at the 0.05 level.

There was no statistically significant difference between groups on the combined dependent variables:  $F(1, 30)=1.78, p=.18$ ; Wilk's Lambda=.81;  $\eta^2=.19$ . Following conventional multivariate logic, individual dependent variables were not considered separately.

### *Readiness to Change*

The fifth planned analysis examined question (d) Will a brief video-based MI intervention impact an at-risk adolescent's readiness to change? A one-way between groups multivariate analysis of covariance was performed to investigate group differences on amount of change among four dependent constructs: Precontemplation, Contemplation, Action, and Maintenance. Corresponding pretest scores were used as covariates. The independent variable was group. Preliminary assumption testing was again conducted with no serious violations noted. Standards for acceptable correlations between dependent measures were set at .90 and below (Tabachnick & Fidell, 1996). Using this level, correlations among dependent measures were found to be acceptable and are presented in Table 7.

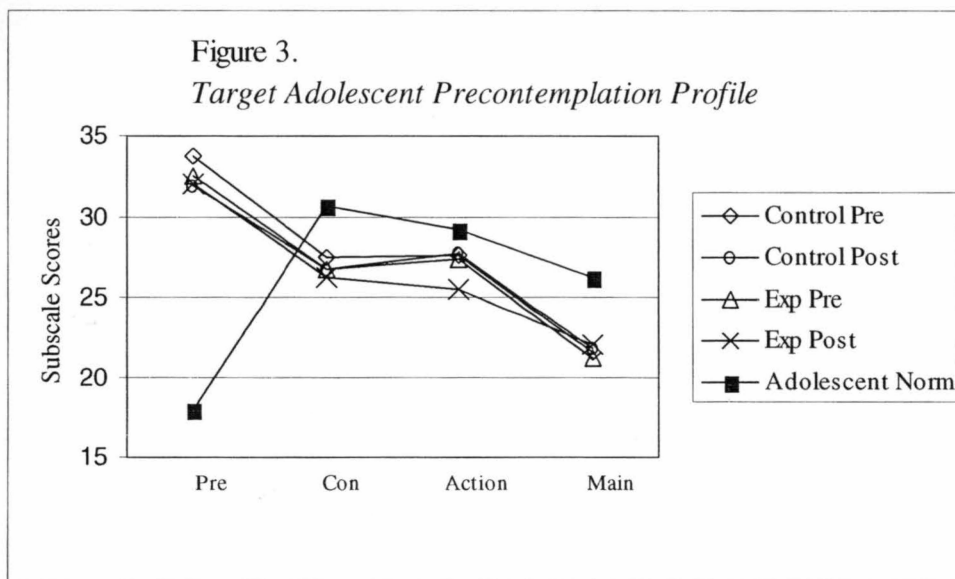
Table 7.  
*Correlations Among Dependent Measures for Readiness to Change Analysis*

Measure	PC	C	A	M
Precontemplation (PC)	--	.09	.06	.18
Contemplation (C)		--	-.13	-.08
Action (A)			--	.43*
Maintenance (M)				--

*Note.* \* Correlation is significant at the 0.05 level.

There was no statistically significant difference between groups on the combined dependent variables:  $F(1, 38)=.65, p=.63$ ; Wilk's Lambda=.92;  $\eta^2=.08$ . Following conventional multivariate logic, individual dependent variables were not considered separately.

Although no effects were measured on any individual subscale, analysis of the overall pattern of combined subscales provided its own important information. Group means for each URICA subscale, at both pretest and posttest are presented in Figure 3 and are plotted against adolescent norms for "action cluster," i.e., the motivation profile consistent with current investment in the cognitions and behaviors related to change (Greenstein, McGuffin, & Franklin, 1997).



Researchers have defined this pattern of responses on the URICA subscales as the "precontemplation cluster" (Greenstein et al., 1997). This pattern is distinguished by higher than average Precontemplation scores combined with lower than average Action

and Maintenance scores. As can be observed, adolescents in both the control and experimental conditions reported nearly identical motivational profiles, both at pre and posttest. These current profiles differed significantly from adolescent norms for "action cluster," the motivational profile reported by adolescents who successfully completed an out-patient substance abuse treatment program ( $n=20$ ) (Greenstein et al.,1997). The meaning of this consistency in precontemplative motivation and the importance of the current sample's deviation from the more treatment-invested action cluster will be considered in the discussion section.

#### *Delinquent Behavior*

The sixth planned MANCOVA examined question (e) Does this format of intervention reduce reported externalizing and delinquent behavior? A one-way between groups multivariate analysis of covariance was performed to investigate group differences on amount of change across four measures of delinquent peer behavior: TA self-reports of antisocial behavior, deviant peer association, peer antisocial behavior, and peer criticism. Corresponding pretest scores were used as covariates. The independent variable was group. Preliminary assumption testing was again conducted with no serious violations noted. Standards for acceptable correlations between dependent measures were set at .90 and below (Tabachnick & Fidell, 1996). Using this level, correlations between dependent measures were found to be acceptable and are presented in Table 8.

Table 8.  
*Correlations Among Dependent Measures for Delinquent Behavior Analysis*

Measure	PA	AB	PAB	PC
Deviant Peer Association (PA)	--	.48*	.42*	.17
Antisocial Behavior (AB)		--	.57*	.30
Peer Antisocial Behavior (PAB)			--	.30
Peer Criticism (PC)				--

*Note.* \* Correlation is significant at the 0.05 level.

There was no statistically significant difference between groups on the combined dependent variables:  $F(1,38)=.85, p=.51$ ; Wilk's Lambda=.90;  $\eta^2=.11$ . Following conventional multivariate logic, individual dependent variables were not considered separately.

A follow-up analysis examined the hypothesis of delinquent behavior change in a slightly different manner by comparing the boys who received that experimental intervention against those who did not (i.e., both the control group and the peers of both experimental and control conditions). A one-way between groups MANCOVA with planned contrasts was performed to investigate group differences on amount of change across the same construct of delinquent peer behavior. Again, dependent variables were the difference scores for adolescent self-reports of deviant peer association, antisocial behavior, peer antisocial behavior, and peer criticism with pretest scores used as covariates. The independent variable was again group with two levels, those who

received the experimental intervention and those who did not. Preliminary assumption testing was conducted with no serious violations noted.

Only one measure reached statistical significance in this planned contrast: Peer Criticism,  $F(2, 73)=2.75, p<.05; \eta^2=.07$ . An inspection of the mean scores for change on the Peer Criticism measure indicated that adolescents in the MI group reported decreasing levels of peer criticism from pretest to posttest (difference score  $M=-.76, SD=1.95$ ) and that this change differentiated them from adolescents in the peer and strength focused groups who reported increasing levels of peer criticism from pre to posttest (difference score  $M=.19, SD=1.60$ ).

#### *Peer Interaction Task Results*

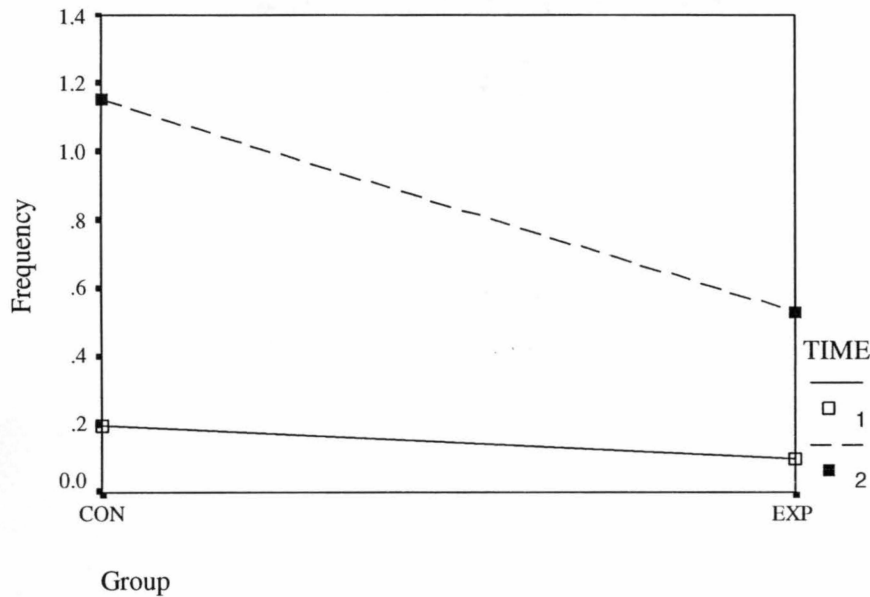
The final series of analyses examined question (f) Does video-based MI counseling reduce an at-risk adolescent's use of antisocial talk? A two-way repeated measures MANCOVA was used with one between subject factors: condition (2 levels), and one within subject factor: time (2 levels). Exploratory data analysis revealed that all levels of condition showed a relatively normal distribution, with no problems of kurtosis or skewness. There were no extreme outliers that would have affected the data. There was also no significant correlation between variables, which was tested by the non-significance of Mauchly's test of Sphericity.

Dyadic interaction consisting of rule break and laughter for both TA and his peer showed a significant linear trend of time,  $F(1,40)=4.31, p<.05, \eta^2=.16$ . Thus as time increased, there was an increase in the frequency of dyadic interaction of rule break talk and laughter for both TA and peer, in both the MI and strength focused groups. The main

effect of time is illustrated in Figure 4. There was no significant effect of group, nor an interaction between time X group.

Figure 4. Rule Break Talk/Laughter

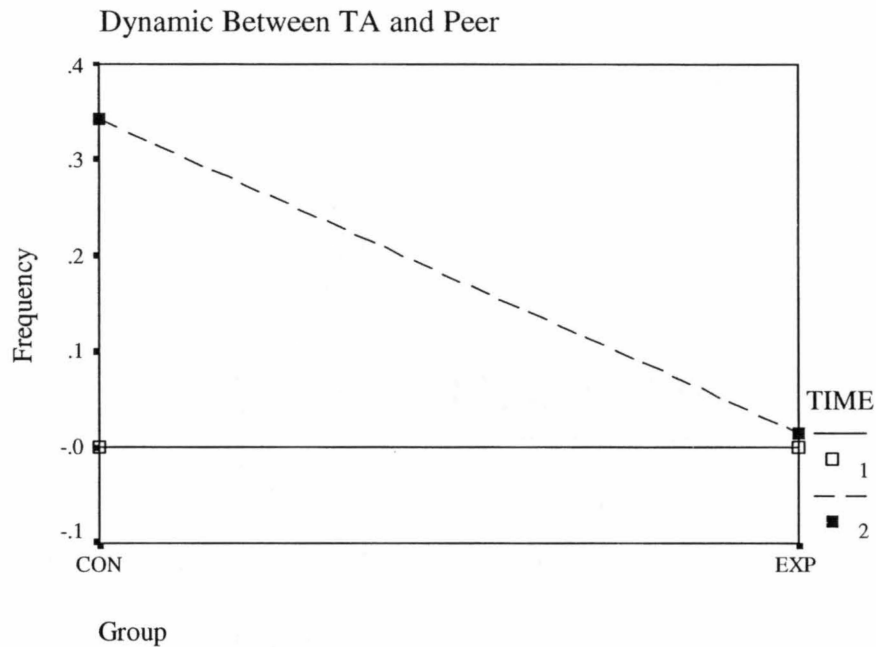
Dynamic Between TA and Peer



Dyadic interactions consisting of rule break and pause for both target child and his peer showed a moderately significant interaction of time X group  $F(1,40) = 3.57$ ,  $p = .06$ ,  $\eta^2 = .09$ . From time 1 to time 2, the strength focused condition increased the number of rule break pause interactions, whereas there was no change in frequency for the MI condition. There was no main effect of group or time. The group X time interaction for rule break talk and pause is illustrated in Figure 5.



Figure 5. Rule Break Talk/Pause



These two different forms of dyadic peer interaction, rule-break/laughter and rule-break/pause, were found to be statistically significant with regard to the main effect of time and interaction of group X time respectively. The nature of this significance was further explored using the techniques of multiple regression. First, pretest posttest difference scores were calculated for the dyadic interactions of both rule-break/laughter and rule-break/pause. These two difference scores were then used as dependent variables in two separate analyses. Exploratory data analysis revealed that for each analysis, all levels of condition showed a relatively normal distribution, with no problems of kurtosis or skewness. With the use of  $p < .001$  criterion for Mahalanobis distance, no extreme outliers that would have affected the data were found.

The first multiple regression used the difference score for dyadic rule-break/laughter as the dependent variable. Utilizing Stevens' (1996) guideline of approximately 15 subjects per predictor, three theoretically related independent variables were selected, TA reports of deviant peer association, parental rules making, and parental monitoring. The use of these measures as independent variables allowed for the examination of how well pretest parental monitoring and adolescent self-report of deviant peer association were able to predict the observed increase in both groups' dyadic rule-break/laughter dynamic. The overall regression model was significant,  $F(1,40) = 4.87$ ,  $p = .01$ . Knowing scores on the combined IVs explained between 22% and 27% of the total variability in change in dyadic rule-break/laughter ( $R^2 = .27$ ; Adjusted  $R^2 = .22$ ). Of the IVs independently, TA report of parental monitoring made the largest unique contribution ( $\beta = .44$ ,  $p = .01$ ), although TA report of deviant peer association ( $\beta = .41$ ,  $p = .01$ ) and parental rule making ( $\beta = -.31$ ,  $p = .05$ ) also made a unique and statistically significant contributions. The summary of these results and correlations between predictor variables are presented in Table 9.

Table 9.

*Summary of Standard Regression Analysis for Variables Predicting Increase in Rule-Break/Laughter Dyadic Interaction (N=40).*

	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
Child report Parental Monitoring	.55	.20	.44	2.76	.01*
Child report Deviant Peer Association	.48	.19	.41	2.62	.01*
Child report Parental Rules Making	-.75	.38	-.31	-2.01	.05*

<i>Correlations Among Independent Variables for Break/Laughter Regression Analysis</i>			
Measure	PM	DA	RM
Child report Parental Monitoring (PM)	--	.43*	.02
Child report Deviant Peer Association (DA)		--	.08
Child report Parental Rules Making (RM)			--

*Note.* Dependent Variable: Rule-Break/Laughter difference score. \* is significant at the 0.05 level.

The second application of multiple regression used the amount of change, i.e., difference score, in dyadic rule-break/pause as the dependent variable. Utilizing Stevens' (1996) guideline of approximately 15 subjects per predictor, three theoretically related independent variables were selected. The first two IVs selected were the most significant predictors of rule-break/laughter, TA reports of parental monitoring and deviant peer association. TA self-report of locus of control was chosen as the third IV to explore the relationship between significant group X time effect for dyadic rule-break/pause and the only other significant group X time interaction (locus of control) found in previous

analyses. The use of these measures as independent variables allowed for the examination of how well pretest parental monitoring, deviant peer association, and locus of control were able to predict the introduction of dyadic rule-break/pause at posttest. The overall regression model was significant,  $F(1,40) = 3.75, p = .02$ . Knowing scores on the combined IVs explained between 16% and 22% of the variability in change in dyadic rule-break/pause (R Square=.22; Adjusted R Square=.16). Of the IVs independently, TA report of locus of control made the largest unique contribution (beta= -.35,  $p = .03$ ), although TA report of deviant peer association (Beta=.35,  $p = .04$ ) also made a unique and statistically significant contribution. Parental rule making (Beta=-.30,  $p = .08$ ) did not provide a unique contribution to explained variance. The summary of these results and correlations between predictor variables is presented in Table 10.

Table 10.

*Summary of Standard Regression Analysis for Variables Predicting Increase in Rule-Break/Pause Dyadic Interaction (N=40).*

	Unstandardized Coefficients		Standardized Coefficient		Sig.
	B	Std. Error	Beta	t	
Locus of Control	-.05	.02	-.35	-2.24	.03*
Child report Deviant Peer Association	.19	.09	.35	2.10	.04*
Child report Parental Monitoring	.18	.10	.30	1.78	.08

*Correlations Between Independent Variables for Break/Pause Regression Analysis*

Measure	LC	DA	PM
Locus of Control (LC)	--	.26	-.31
Child report Deviant Peer Association (DA)		--	-.45*
Child report Parental Monitoring (PM)			--

*Note.* Dependent Variable: Rule-Break/Pause difference score. \* significant at the 0.05 level.

## CHAPTER V

### Discussion

This application of MI as an intervention for antisocial verbal behavior was guided by six questions: (a) Will this brief, video-based MI intervention improve behaviorally at-risk adolescents' methods of coping with social stress?, (b) Does this format of intervention reduce reported problem behavior at home?, (c) Does this format of intervention reduce reported problem behavior at school?, (d) Will a brief video-based MI intervention impact an at-risk adolescent's motivation to change?, (e) Does this format of intervention reduce adolescent self-reported externalizing and delinquent behavior?, and (f) Does video-based MI counseling reduce an at-risk adolescent's participation in the deviancy training process?

This intervention was designed to study of the impact of MI and video feedback on the motivation and verbal social behavior of adolescents who are highly at-risk for delinquency. The research hypothesis stated that the experimental counseling intervention would significantly reduce these boys' initiation and reinforcement of antisocial verbal behavior, i.e., deviancy training. I further hypothesized that this change in verbal behavior would be congruent with reductions in overt adolescent problem behavior as reported by parents and teachers. This intervention was also hypothesized to have positive effects on the target adolescents' adaptive coping and internal locus of control.

*Coping and Locus of Control*

The hypothesis that this brief, video-based MI intervention would improve an at-risk adolescent's methods of coping with social stress had unanticipated results. The construct of social coping included measures of Locus of Control, Solving the Problem, Reference to Others, and Non-Productive Coping. Although the groups varied significantly on the combination of dependent measures, only one measure reached individual statistical significance, Locus of Control. With a large effect size ( $\eta^2=.22$ ), adolescents in the strength focused group reported a statistically significant increase in internal locus of control. This change differentiated them from adolescents in the MI group who, on average, reported decreasing levels of internal locus of control, moving from high average to average.

This result may suggest an efficacy for the strength focused counseling intervention for increasing locus of control. Positive adult interest in the adolescent's self-developed goals, (e.g., the content of the control feedback session) could contribute to a minor rise in locus of control one week later. By the same reasoning, having participated in a more intensive, intervention-focused look at his own behavior, (e.g., the content of the MI session) could shift a higher than average level of locus of control back toward more average levels one week later. This shift from high average to average could be a measurement of a preliminary cognitive shift, acknowledging new factors that influence behavior, an appreciation not yet carried out in other forms of behavior or cognitive perspectives. Limitations of this finding and its relation to other results are discussed below.

*Home and School Behavior*

Adolescent self-reports of family conflict and parental monitoring were combined with parent reported delinquent and internalizing behavior and were used as dependent variables to test the home behavior hypothesis. There was no statistically significant difference between groups on the combined dependent variables. To test the hypothesis of reduced problem behavior at school, three dependent variables were used: Teacher reports of social problems and delinquent and withdrawn behavior. Again, there was no statistically significant difference between groups on the combined dependent variables.

Results from these two adult sources of reporting showed no significant change in reported behavior that could be attributed to this intervention, offering no support for the effectiveness of either the MI or strength focused interventions in decreasing reported problem behavior at home or school. Although somewhat disappointing, the lack of significance for these results was not entirely unexpected. Given the brevity of this intervention, having only one, one-hour intervention contact, the intervention content would need to be especially powerful if it were significantly related to a reduction in problem behavior across multiple sources and settings.

The lack of change on these behavior measures may also be partially due to the fact that the intervention did not directly include teachers or parents as intervention targets. Including invested adults has been shown by other researchers to be an important element in delinquency intervention efforts (Lipsey & Derzon, 1998; McLoyd, 1990; Patterson, 1993; Patterson et al., 1992). A more central role for invested adults may increase the adults' sense of personal investment in positive outcomes for the adolescent,



and may add to the sensitivity and accuracy of behavioral reporting by educating parents and teachers on what behaviors to observe and note. This study's brevity limited the role for teachers and parents and this may contribute to an explanation of the lack of effects on reported behavior from these sources. This partial interpretation of the lack of significant results may offer an example of how delinquency intervention efforts conducted without ecological consideration may be at a disadvantage for attaining statistical and/or clinical significance (Bronfenbrenner, 1979).

#### *Adolescent Behavior*

Analysis of the target adolescents' self-reports of delinquent behavior found no statistically significant differences between the two groups on the combined dependent measures of antisocial behavior, deviant peer association, peer antisocial behavior, and peer criticism. This lack of significance suggested no support for the MI intervention reducing adolescent-reported problem behavior. The lack of main effects for either time or group further suggested that behavior self-reporting was highly consistent both between groups and over time.

Further statistical exploration of adolescent self-reported behavior used planned contrasts to compare the MI intervention group to the combined non-MI groups, i.e., the strength focused group combined with the peers of both conditions who received no treatment contact. This procedure investigated group differences on amount of change across the same behavior construct. Results of the test for the behavior construct showed only Peer Criticism reaching statistical significance with a large effect size,  $\eta^2=.18$ .

This result indicated that adolescents in the MI group reported mildly decreased level of peer criticism from pretest to posttest and that this change differentiated them from adolescents who did not received the MI video feedback who instead reported a mildly increased level of peer criticism over the same time. One interpretation of these results may suggest that the nature of the experimental intervention may mildly decrease sensitivity to peer criticism. The theory behind this intervention states that direct self-observation encourages ownership for the specific sample of videotaped behavior (i.e., it is very difficult to deny the use of profanity, slurs, or other misconduct when you can rewind and watch it again and again). The boys in the experimental group who experienced this direct self-observation and MI feedback may have experienced this form of feedback as being more intense and direct than other forms of peer criticism to which they may have been accustomed. Having this experience to contrast to their peer interactions in the intervening week, the boys in the MI group may have developed a somewhat thicker skin to the criticisms issued by peers, finding the impact of peer criticisms about clothing and school work temporarily diminished by their recent reflections on their own problem behavior and the motivations behind it.

The increased level of peer criticism reported by the non-MI groups (the combined control and peer groups) may have at least two mechanisms. First, having experienced the MI feedback, the boys in the experimental group may have modeled this behavior themselves, asking new questions about their peer's behavior, offering feedback that is potentially unsolicited and received as critical by peers. This potential increase in seemingly critical feedback from the boys in the experimental group may have

contributed to elevated reports of criticism from the boys in the peer group. Second, the focused and positive contact of the strength focused feedback session, (i.e., strength-focused review of self-made goals) may have highlighted less flattering comments and critiques by friends, possibly highlighting a discrepancy between the interpersonal behavior of the adolescent and his project counselor versus the coercive content common to delinquent peer interactions (Cairns et al., 1988; Dishion et al., 1995; Elder, 1980). This dual process, where (a) boys in the strength focused group have a positive adult interaction to contrast against potentially coercive peer interactions and (b) the boys in the MI group modeling the feedback and motivational counseling they received, may meaningfully account for the combined control and peer groups reported increase in peer criticism. One interpretation of this result may suggest that adolescent counseling interventions (in at least the two forms demonstrated in this study, MI video-feedback and goal review) may impact the perceived quality of peer relationships via sensitivity to peer criticism. Limitations of this finding and its relation to other results are discussed below.

#### *Motivation for Change*

Like home and school behavior, statistical analysis of the URICA subscales did not support the hypothesis that the brief video-based MI intervention increased the target adolescents' motivation to change. The result of interest was not the lack of change on any individual motivation subscale or the combination of subscales. Instead, analysis of the overall pattern of combined subscales consistently demonstrated the "Precontemplation cluster." This motivation profile is defined by higher than average

Precontemplation scores combined with lower than average Action and Maintenance scores. Boys in both groups reported nearly identical motivational profiles at pretest and, importantly, these profiles were stable at posttest. Researchers have identified these motivational patterns in multiple studies, but have not as of yet, tested their predictive validity for treatment outcomes with an adolescent sample (Greenstein et al., 1997; McConaughy, DiClementa, Prochaska, & Velicer, 1989). Current results may suggest some support for the predictive validity of the Precontemplation cluster, namely that adolescents with this profile were highly consistent with their behavior and motivational self-reports in spite of participation in either MI or strength focused intervention. This result may offer further support for the use of the URICA for motivational assessment with adolescents. In the current case, having a temporally stable Precontemplation stage of motivation was consistent with stable ratings of above average externalizing and delinquent behavior, an observed increase in the rate of deviancy training, and only minor variability on measures of locus of control and peer criticism. Stage of motivation may have an important and demonstrable relationship with treatment investment and outcome, especially concerning willingness to experiment with changes in overt behavior. The relation of this finding to other significant results is discussed below.

#### *Deviancy Training*

*Rule-break/laughter.* The primary focus of this project was to examine a new counseling method for reducing a known risk factor for later delinquency, i.e., the verbal reinforcement of deviancy training. Of the pre/post PIT data, one main effect of interest was the observed increase in rule-break/laughter in both groups from pretest to posttest.

This temporal increase in rule-break/laughter is interpreted as more than the practice effects of increasing comfort and familiarity on unsupervised, semi-structured tasks. Although the MI group did demonstrate a less sizable increase from pre to post, this difference was not statistically significant. Video-self-observation presented in the context of MI did not reduce the incidence of deviancy training. The rate of deviancy training reinforcement following video self-observation was no different than rates for the strength focused intervention group. These findings support the idea that the reinforcement dynamics of deviancy training are stable, difficult to disrupt, and prone to escalation.

This temporal increase in dyadic rule-break/laughter was further examined with the techniques of multiple regression. Pretest adolescent self-reports of deviant peer association, parental monitoring, and parental rule making combined to explain 22 to 27% of the variability in the increase in dyadic rule-break/laughter. For both intervention groups, having higher levels of parental monitoring and higher reported deviant peer association increased the likelihood of participating in an increase in dyadic rule-break/laughter.

The fact that deviant peer association is correlated with this verbal increase in dyadic rule-break/laughter is not surprising. The association of these two constructs is well established in the deviancy training literature (Dishion et al., 1999; Dishion, French, & Patterson, 1995; Gold, 1979). The positive relation of adolescent report of parental monitoring to escalation of dyadic rule-break/laughter is also not surprising when the items constituting this measure are considered. The items include TA reports' of parent's

knowledge of plans, whereabouts, and interests. This scale measures a construct of parental involvement/monitoring but in methods less structured and rule based than the measure of parental rule making. Parental rule making, measuring adolescent report of parent rules about drugs, alcohol, and supervision, was also significant but negatively correlated with this dyadic increase in rule-break/laughter. The boys who engaged in increases in rule-break/laughter, in addition to having significant association with deviant peers, were aware of parental supervision, respected it when parents were directly observing, but interacted more deviant ways when not directly observed by parents. In their behavior they seemingly said, "My folks know where I am, but I still do what I want with my friends." To the extent that parental rules (versus monitoring) were reported as being clear, this increase in rule-break/laughter was mitigated. These results offer some support for the idea that adolescents' experience of being monitored may differ from their knowledge and expectations of parents' rules. For this sample of boys who are at risk for delinquency, parental monitoring may be integral to behavior in the home, but clear behavioral rules are suggested to have a different and important role in regulating adolescent behavior with peers and across settings.

*Rule-break/pause.* The second significant result from the direct observation data involved a group X time interaction for dyadic rule-break/pause interactions. In this interaction, the boys in the strength focused condition exhibited a significant increase in dyadic rule-break/pause, going from zero at pretest to 25% of the boys in this group introducing this dynamic at posttest. The introduction of this dynamic differentiated them from the boys in the MI group who did not demonstrate dyadic rule-break/pause at either

pre or posttest. Video self-observation appeared to be socially energizing for the MI boys, potentially providing them with both an opportunity to self-reinforce via video self-observation and at least one new topic to discuss with peers (i.e., the content and experience of their experimental feedback session). Although the strength focused group achieved the same increase in rule-break/laughter as the experimental group, they did so using the significantly different dynamic of rule-break/pause.

Pretest adolescent self-reports of locus of control, deviant peer association, and parental monitoring combined to explain between 16 and 22% of the variability in the increase in dyadic rule-break/pause. For both groups, having lower levels of locus of control and higher reported deviant peer association increased the likelihood of participating in an increase in dyadic rule-break/pause.

Interpreting a possible relationship between locus of control, deviant peer association, and the introduction of dyadic rule-break/pause requires a careful understanding of the limitations in the TRS code. Pause was considered to be an inherently un-reinforcing act and a potential method to change the direction of conversation or affect. The code of pause, three seconds of silence, was given priority over other affect responses in each 15-second segment. The code required a forced choice for each 15-second block of time, one code for content and one for affect. The TRS code does not distinguish linear actions, only temporal correlations based on a priori content and affect priorities. Thus the code of dyadic rule-break/pause equally represents (a) silence used to quell a rule break interaction or (b) a rule break behavior used to end a period of silence.



To more accurately sort out the only significant group X time interaction found in the direct observation data, I went back to the videos containing the rule-break/pause interactions. In a brief qualitative analysis of 5 tapes containing 8 rule-break/pause interactions, 7 of the interactions consisted of a rule break behavior used to end a period of silence. These results suggest that boys in the strength focused group more often than not used deviant talk to bridge socially non-reinforcing moments with delinquent peers. This behavioral pattern is consistent with previous research indicating that delinquent adolescents use delinquent talk as currency for group membership (Rojo, 1994). For the strength focused group, lower levels of locus of control related to a belief of having limited control over life and that good things come by chance or fate rather than by planned behavior. Higher levels of deviant peer association related to the TA having friends that were actively involved in delinquent activity and substance abuse. When the peer interaction hit a pause, boys with lower levels of locus of control and highly delinquent friends reintroduced delinquent content to elicit a positive affective response from peers. When faced with a socially awkward moment, the boys returned to behavior patterns known to be reinforcing within their peer group, i.e., rule-break/laughter.

The introduction of this rule-break/pause dynamic was concurrent with increases in rule-break/laughter and, interestingly, increases in the strength focused group's reported levels of locus of control, moving from average to high average. By using delinquent behavior to take control of non-reinforcing lulls in the conversation, the boys who participated in a positive reflection of goals (i.e., strength focused condition)



reported an increased internal locus of control that may have been demonstrated by being more directive of the course and content of their peer interaction.

### *Limitations of Results*

A primary limitation of this study centers on its small sample size. Cohen (1988) suggests a minimum sample of 64 subjects in a pretest posttest experimental design. Although this factor was heavily considered in the design stages of this project, smaller sample sizes have been argued as adequate for pilot studies such as this one (Bonate, 1999). Although this project was intended as a pilot exploration of a novel counseling intervention technique, improved sample size would have directly improved statistical power and the ability to detect significant findings.

Multiple potential threats to internal and external validity were present in this study. Although random assignment to groups and matching on both age and teacher-reported externalizing behavior assisted in the control of extraneous variability, several issues remain appropriate for consideration. Attrition and experimental mortality were a recurrent problem with project. Six TAs began the project and completed the first meeting but never returned. Four TAs completed the first two meetings but did not return to complete the third. Overall attendance rate for scheduled appointments was 69%, and total rate of attrition was 20%. Attrition is most problematic when it differentially affects groups. Although on-going recruitment provided appropriate replacement participants, the differences between the boys who completed this paid project and those who were unwilling or unable to complete remain unknown.

The structure of the experiment itself may have significantly limited the power and effectiveness of this intervention. Participation in this project required three meetings, once a week for three weeks. This schedule may have contributed to this study's significant attrition, diffusing participation requirements out over nearly a month. Furthermore, given the brevity of this intervention, a tighter schedule of meetings (i.e., all three meetings happening within one week) may have provided more accurate data on the short-term effects of MI video self-observation.

Statistical regression and issues of reliability of measurement can be problematic in any repeated measure design. Although significant effort was put into selecting reliable measures, imperfect reliability necessarily affects validity of measurement and thus this issues remains a potential confound to these results. Regression to the mean, present in all pretest posttest data, was considered as a potential problem. Regression to the mean is most problematic when participants' scores fall at either extreme at pretest. Exploratory analyses showed that, in general, behavior reporting for both intervention groups were normally distributed and average or higher at both pre and posttest. Given the normal distribution and stability of the measures, this potential confound was not considered overly problematic.

Two issues of internal validity concerned the study's clinical intervention staff. First, the problem of instrumentation was visible as the study progressed. The counseling intervention staff were recruited based on previous experience working with adolescents who are at-risk for delinquency and having an interest in learning and applying the techniques of MI. Although training was thorough and resulted in reliable applications of

the manualized intervention techniques, over the course of the project interventionists improved in both their overall application of the intervention and in generating rapport with the boys. A second issue related the counseling intervention staff was the potential of compensatory equalization of treatments. This threat to internal validity considers the possibility that interventionists may have subtly compensated the control group, providing them equal quality and/or content in treatment. The project interventionist staff facilitated both strength-focused and MI sessions. The two groups were differentiated only by the content and focus of the feedback session (i.e., video self-observation or goal review). This design resulted in a comparison group that was not actually a control but instead another, more traditional, counseling application. The measurable results related to the strength-focused counseling intervention may suggest that it is more accurate to consider this project as a comparison of two counseling methods versus simply an experimental/control design.

Threats to external validity consider the issues of population validity and ecological validity. Issues of population validity consider the extent to which results can be generalized from the current sample to the general population of interest. Generalizations from this experimental sample to the general population of adolescent boys who are at-risk for delinquency should be judicious. Personal variables (e.g., SES, intelligence, mental health, etc.) were not assessed and remain unknown factors with regard to their interaction with treatment effects. The recruited sample was largely homogenous with regard to ethnic composition, limiting application of findings to other more ethnically diverse samples. The sample was also diagnostically homogenous with

all boys having either an ED diagnosis or being nominated by teachers due to being at risk for school failure due to disruptive behavior. Although consistent with the focus of this research, caution should also be used when generalizing results to non-delinquent adolescents who do present with these identified risk factors and/or have no serious history of delinquent behavior.

Ecological validity considers the extent to which results can be generalized to other environments. Clear limitations apply to the generalization of these results. First, the experimental tasks all took place in an artificial laboratory setting. The uniqueness of this setting and the disruption to usual patterns of peer interactions (e.g., remaining seated, timed conversations, being videotaped, etc.) may have combined to limit the ecological validity of these results via novelty and disruption effects. Second, the Hawthorne effect suggests that the boys' awareness of their own participation in a videotaped experiment almost certainly affected their performance on the PITs, limiting the applicability of these findings to delinquent peer interactions in more natural settings. Third, the potential effects of pretest sensitization remain a possibility.

Pretest sensitization, or practice effects, refers to the possibility of an interaction between pretest assessment (PIT) and the intervention that affects results. In this study, the participating boys were recruited specifically because of their delinquent and externalizing behavior. Not only did they receive significant monetary compensation for participation, but the very focus of the experimental intervention gave significant clinical attention to their most coercive and antisocial peer interactions. A basic tenet of behavior theory suggests that attention given to a particular behavior can reinforce that

behavior, increasing the probability that it will be repeated (Dishion et al., 1996; Patterson et al., 1992). The potential pretest/intervention interaction, where delinquent behavior is first reinforced by recruitment and then again by focused adult attention, may have contributed to the general increase in rates of deviancy training from pre to post. Thus it is probable that the experimental design of this intervention provided its own artificial reinforcement for deviancy training by recruiting boys who are highly at-risk for participating in this interaction dynamic, focusing them on this behavior, and then turning them loose in an artificial arena specifically suited for the practice of this delinquency risk factor. Although other factors have contributed to this dyadic increase, results may be partially influenced by this effect, potentially limiting their ecological validity.

#### *Summary and Conclusions*

It was hypothesized that video self-observation presented in the context of MI would demonstrate itself as a useful adjunct to more traditional adolescent counseling methods. The results offered no support for the effectiveness of this experimental intervention in reducing adolescent problem behavior at home or at school as reported by parents and teachers. Adolescent self-reported problem behavior similarly showed little evidence of being reduced by participation in this intervention.

One key explanation for the lack of clinically significant results concerns this intervention's attempt to artificially create a "teachable moment." Teachable moments are instances of high emotional salience. MI methodology seeks to utilize these moments to increase motivation for the consideration, or at least discussion, of new behavioral repertoires. It was hypothesized that adolescent self-observation in the context of MI

might highlight discrepancies between the adolescent's more prosocial goals and the behavior he actually exhibited with peers. Video self-observation was never envisioned to have the same emotional salience as a visit to the emergency room (i.e., the activating event in the original research on brief MI interventions)(Monti et al., 1999). Video self-observation was, however, hypothesized to have sufficient salience to impact the TAs' valuation and use of some of their most blatantly delinquent peer dynamics. This was not the case. If video-self-observation was emotionally activating, it did not provide the necessary stimulus for changes in either self-reported motivation or in other areas of overt behavior assessed in by this project.

Motivation was nonetheless observed to have an important relationship with intervention outcomes, especially concerning the willingness to experiment with changes in peer social behavior. Boys in both groups reported a highly stable Precontemplation motivation profile. As this current sample of adolescents reported high levels of Precontemplation-stage motivation, they denied having a problem and denied being involved in change efforts. Having a temporally stable Precontemplation stage of motivation was consistent with stable ratings of above average externalizing and delinquent behavior and a significant increase in the rate of deviancy training.

Precontemplation signified that the boys in this intervention did not recognize their own behavior as problematic despite direct self-observation of peer interactions that were at times alarmingly coercive, hypersexual, and/or delinquent. As stated in the literature review, it is not the objective content of the behavior displayed on the TV, but the meaning the boys attributed to their self-observation. The motivational profile of the



adolescent sample sheds much light on the meaning these boys took from self-observation. It appears that the lack of behavior change resulting from this intervention may be in part due to the fact that it is indeed difficult to change a behavior problem if you do not see the behavior as problematic, deny its existence, or blame others.

Appreciation of the importance of adolescent motivation also increased the interpretability of other findings. Results suggested an efficacy for the strength focused counseling intervention in increasing internal locus of control. For the strength focused group, this increase in locus of control coincided with the introduction of a new dynamic in deviancy training, rule-break/pause. As the boys in this intervention received positive, adult support for self-made goals, they reported mild positive gains in internal locus of control and an increase in reported peer criticism. The boys who received the strength focused intervention may have, however, lacked the necessary motivation to apply the mild gain in internal locus of control to the exploration of new social behaviors. Instead, review of their videotaped interactions suggested that this boost was used to take control of socially awkward moments, redirecting them to the proven dynamics of deviancy training to gain peer reinforcement.

This behavior, while far from the goal of this intervention, is supported by delinquency theory. Patterson (1995) asserted that during times of stress, delinquent adolescents revert to proven, albeit maladaptive, behavior patterns to meet their social needs. Although the intervention may have put stress on peer social bonds as measured by increased peer criticism, the boys whose locus of control benefited from the control intervention used this improved sense of personal control to overcome non-reinforcing

lulls and temporary ruptures in peer interaction and drive their peer conversations further towards the social safety of delinquent talk and behavior.

*Directions for Future Research and Clinical Interventions*

Several ideas for the improvement of deviancy training intervention research have developed from this project. First, improved sample size would add significantly to this design's statistical power. Second, the structure and timing of experimental activities may have significantly benefited from shorter wait periods between sessions. A tighter schedule of meetings (e.g., all three meetings happening within one week) may speak more directly to the short-term effects of MI video self-observation and reduce rates of attrition from the study. Third, the observed variance in the instrumentation and application of MI counseling methodology may be an area for improvement. Future research may wish to consider providing counselors with certified MI training in order to minimize these effects and thus reduce variability from this source. Fourth, future studies may wish to re-examine the use and nature of a control condition. Collecting data on a true control group and/or comparing the performances of boys who present with significant risk factors for delinquency against boys who do not present with these same factors may be useful in providing more normative examples of adolescent verbal behavior. Similarly, better assessment of personal variables may further tighten variance in this design. For example, the connection between adolescent depression and delinquency is well established in the literature (Angold, Costello, & Erkanli, 1999; Zoccolillo, 1992). It may be informative to examine how the relationship among



motivation, mood disorders, and delinquency impact interventions for delinquent peer behavior.

Motivation is considered an important backdrop to understanding the findings of this study. The results of this study offer some support for the use of the URICA for motivational assessment with adolescents. In the current case, having a temporally stable Precontemplation stage of motivation was consistent with stable ratings of above average externalizing and delinquent behavior, an observed increase in the rate of deviancy training, and only minor variability on measures of locus of control and peer criticism. It seems that stage of motivation may have an important relationship with intervention outcomes for adolescents who are at-risk for delinquency. Future research may benefit from assessing adolescent motivation and using resulting profiles to potentially match adolescents with a more appropriate time and type of intervention.

Speaking generally of this intervention, targeting one risk factor out of the ecological context of the whole individual has not been shown to be effective. The subtraction method of this intervention, looking to "cut out" or reduce a single potentially important risk factor, resulted in some measurable negative effects. A fundamental focus of the reviewed literature was the adaptive developmental qualities of delinquency (Patterson, 1982; Patterson & Bank, 1989; Webster-Stratten, 1998). Adaptive behavior may be most likely to change only when a better option is assessed. As an adaptive tool, it makes little sense that a behavior (e.g., deviancy training) that efficiently gains short-term social reinforcement would be disregarded without first have an equally or more effective replacement. Targeting a specific behavior, trying to remove or reduce it via

counseling methodology, did not adequately appreciate the wisdom that in order to put down an old behavior, you probably want to pick up a new, better one first. Overall interpretation of these results provides some support for the idea that new social skills may need to be taught first or at least concurrently with efforts for behavior change. Future clinical interventions and research studies may wish to emphasize a structured social skills education component. Social skills instruction might be able to present and model options for more prosocial interactions, options that the boys could potentially experiment with as they navigate their peer ecology.

Future studies and clinical interventions may also wish to better include other ecological considerations such as more directly including teachers and parents in intervention activities. Parental monitoring and rule making were both suggested as having significant but different relationships to adolescent deviancy training. Efforts to involve parents and important adults in future peer intervention studies may wish to target parenting behaviors and educate parents about their differing roles of monitoring and rules for the reduction of delinquency risk factors.

While no increases in overt problem behavior were reported (e.g., delinquency, aggression, etc.), the results of this study may be partially understood as having some measurable iatrogenic effects for the participating boys. The only positive hypothesized effect, an increase in locus of control, was present for the strength focused counseling condition but not the MI. Unfortunately, this improved locus of control was significantly related to the introduction of a new interaction dynamic, rule-break/pause, that added to the general escalation of deviancy training for this group. These results highlight the

possibility that improving locus of control and other coping skills without either providing new social skills training or controlling for the negative influence of delinquent peers may strengthen the processes of deviancy training, making these adolescent relationships more resistant to social strains, criticism, and awkward moments.

In the final analysis, this project provides a specific example of the importance of assessing both timing and motivation in any effort to provide effective treatment for adolescent delinquency. This project was highly successful in recruiting adolescents who presented with clinically elevated levels of delinquent, aggressive, and externalizing behaviors. Three quarters of this sample had been removed from regular education classrooms and placed in either special education classrooms or in secure off-site education centers. Research suggests that adolescents who are at high risk for delinquency have been shown to respond best to active prevention versus later, after-the-fact intervention (Dishion, Capaldi, Spracklen, & Li, 1995). The results of this study suggest that the current sample of boys may have been too far along the path of delinquency, too inured in the reinforcement dynamics of delinquent peers, to have received benefit from this single session, "magic bullet" intervention effort. Indeed, most well validated approaches with conduct disordered adolescents involve a minimum of eight to ten sessions and those boys with more severe risk factors (delinquent peers, learning disabilities, family psychopathology, etc.) have been found to show fewer gains from treatment overall (Kazdin, 2001). Taken together, these results further support the potential importance of assessing both motivation and baseline levels of delinquency before applying peer focused intervention efforts. Improving the understanding of this

connection among timing, motivation, and iatrogenic effects may help both researchers and clinicians distinguish between those boys who may benefit from brief, peer group interventions and those who may be harmed.

## REFERENCES

- Aboud, F. E. & Mendelson, M. J. (1995). Determinants of friendship selection and quality: Developmental perspectives. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendships in childhood and adolescence* (pp. 87-112). New York, NY, USA: Cambridge University Press.
- Achenbach, T., & Edelbrock, C. (1983). *Child behavior checklist*. Burlington: Queen City Printers.
- Alessandri, S. M. (1991). Play and social behavior in maltreated preschoolers. *Development and Psychopathology, 3*, 191-205.
- Angold, A., Costello, E. J., & Erkanli, A. (1999). Comorbidity. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 40*, 57-87.
- Aronson, E. (1995). *The social animal, 7th Edition*. New York, NY, USA: W.H. Freeman and Co.
- Aubrey, L. (1998). *Motivational interviewing with adolescents presenting for outpatient substance abuse treatment*. Doctoral Dissertation, University of New Mexico.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1965). Influence of models' reinforcement contingencies on the acquisition of imitative responses. *Journal of Personality and Social Psychology, 1*, 589-95.
- Bandura, A., Ross, D., & Ross, S. (1961). Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63*, 575-82.
- Berndt, T. J., Hawkins, J. A., & Hoyle, S. G., (1986). Changes in friendship during a school year: Effects on children's and adolescent's impressions of friendship and sharing with friends. *Child Development, 57*, 1284-1297.

- Bonate, P. (1999). *Analysis of pretest-posttest designs*. Boca Raton: Chapman & Hall.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by natural design*. Harvard University Press.
- Buehler, R. E., Patterson, G. R., & Furniss, J. M. (1966). The reinforcement of behavior in institutional settings. *Behavior Research and Therapy*, 4, 157-167.
- Bullis, M., Yovanoff, P., Havel, M. E., & Mueller, G. (2000). *Transition research on adjudicated adolescents in community settings: Final report on the TRACS project*. Eugene, OR: IVDB, University of Oregon.
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Gest, S. D., & Garipey, J. (1988). Social networks and aggressive behavior: Peer support or peer rejection. *Developmental Psychology*, 24, 815-823.
- Chamberlin, P., & Reid, J. B. (1987). Parent observation and report of child symptoms. *Behavioral Assessment*, 9, 97-109.
- Chandler, D. (1992). Children's understanding of what's real on TV: A review of the literature. [On-line]. <http://www.aber.ac.uk/media/sections/tv03.html>
- Charlton, T., & Gunter, B. (1999). TV-violence effects: Exceptionally vulnerable viewers? *Emotional & Behavioural Difficulties*, 4, 36-45.
- Children's Defense Fund. (1998) *The state of America's children yearbook*. Washington, DC: Author.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Assoc.
- Comstock, G., & Lindsey, G., (1975). *Television and human Behavior: The research horizon, future and present*. Santa Monica, CA: Rand.
- Comstock, G., & Rubinstein, E. (1972). *Television and social behaviour*. Washington, DC: US Government Printing Office.
- Condry, J. (1989). *The psychology of television*. Hillsdale, NJ: Lawrence Erlbaum

- Cook, T., & Campbell, D. (1979). *Quasi-experimentation*. Boston: Houghton Mifflin.
- Cronbach, L. J., & Furby, L. (1970). How we should measure "change": Or should we? *Psychological Bulletin*, 74, 68-80.
- Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behavior. *American Psychologist*, 54, 755-764.
- Dishion, T. J., Andrews, D. W., & Crosby, L. (1995). Antisocial boys and their friends in early adolescents: Relationship characteristics, quality, and interactional process. *Child Development*, 66, 139-151.
- Dishion T. D., Capaldi, D., Spracklen, K. M., & Li, F. (1995). Peer ecology of male adolescent drug use. *Development and Psychopathology*, 7, 803-824.
- Dishion, T. J., Eddy, J., M., Haas, E., Li, F., & Spracklen, K. (1997). Friendships and violent behavior during adolescence. *Social Development*, 6, 207-223.
- Dishion, T. J., Spracklen, K. M., Andrews, D. W., & Patterson, G. R. (1996). Deviancy training in male adolescent friendships. *Behavior Therapy*, 27, 373-390.
- DeBaryshe, B. D., & Fryxell, D. (1989). A developmental perspective on anger: family and peer contexts. *Psychology in the Schools*, 35, 205-216.
- Dodge, K. A. (1980). Social cognition and children's aggressive behavior. *Child Development*, 51, 162-170.
- Dodge, K. A., & Crick, N. R. (1990). Social information processing bases of aggressive behavior in children. *Personality and social Psychology Bulletin*, 53, 1146-1158.
- Doren, B., Bullis, M., & Benz, M. (1996). Predicting the arrest status of adolescents with disabilities in transition. *The Journal of Special Education*, 29, 363-380.
- Dorr, A., Kovaric, P., & Doubleday, C. (1990). Age and content influences on children's perceptions of the realism of television families. *Journal of Broadcasting & Electronic Media*, 34, 377-397.
- Dunn, C. (2000). Motivational interviewing for adolescents engaging in risky behaviors. [On-line]. <http://www.motivationalinterview.org/>



- Edgar, E., & Levine, P. (1987). *Special education students in transition: Washington state data 1976-1986*. Seattle: University of Washington, Experimental Education Unit.
- Epstein, J. L. (1983). Examining theories of adolescent friendships. In J. L. Epstein & N. Karweit (Eds.), *Friends in school: Patterns of selection and influence in secondary schools* (pp. 45-87). New York: Academic Press.
- Federal Bureau of Investigations, (1990). *Annual Report*. Washington, DC: Author.
- Frydenberg, E., & Lewis, R. (1993). How adolescents cope with different concerns: The development of the adolescent coping checklist (ACC). *Psychological Test Bulletin*, 3, 63-73.
- Gold, M. (1970). *Delinquent behavior in an American city*. San Francisco: Brooks and Coleman.
- Greenstein, D. K., Franklin, M. E., & McGuffin, P. (1999). Measuring motivation to change: An examination of the University of Rhode Island Change Assessment Questionnaire (URICA) in an adolescent sample. *Psychotherapy: Theory, Research, Practice, Training*, 36, 47-55.
- Henggeler, S. W., & Bordium, C. M. (1990). *Family therapy and beyond: A multisystemic approach to treating behavior problems in children and adolescents*. Pacific Grove, CA: Brooks Cole.
- Herrenkohl, T. I., Maguin, E., Hill, K. G., Hawkins, J. D., Abbott, R. D., & Catalano, R. F. (2000). Developmental risk factors for youth violence. *Journal of Adolescent Health*, 26, 176-186.
- Howes, C., & Espinosa, M. P. (1985). The consequences of child abuse for the formation of relationships with peers. *Child Abuse and Neglect*, 9, 397-404.
- Kaufman, J., & Cicchetti, D. (1989). Effects of maltreatment on school-age children's socioemotional development: Assessments in a day camp setting. *Developmental Psychology*, 25, 516-524.
- Kazdin, A. E. (2001). Treatment of conduct disorders. In J. Hill & B. Maughan (Eds), *Conduct disorders in children and adolescents* (pp. 408-440). New York: Cambridge University Press.



- Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin*, 102, 187-203.
- Kortering, L. J., & Edgar, E. B. (1988). Vocational rehabilitation and special education: A need for cooperation. *Rehabilitation Counseling Bulletin*, 31, 178-184.
- Ladd, G. W., & Kochenderfer, B. J. (1996). Linkages between friendship and adjustment during early school transitions. In W. M. Bukowski, A. F. Newcomb, W. W. Hartup (Eds.), *The company they keep: Friendships in childhood and adolescence* (pp. 322 - 345). New York: Cambridge University Press.
- Laursen, B. (1996). Closeness and conflict in adolescent peer relationships: Interdependence with friends and romantic partners. In W. M. Bukowski, A. F. Newcomb, W. W. Hartup (Eds.), *The company they keep: Friendships in childhood and adolescence* (pp. 186 - 210). New York: Cambridge University Press.
- Laursen, B., Hartup, W. W., & Koplak, A. L. (1996). Towards understanding peer conflict. *Merrill-Palmer Quarterly*.
- Lipsey, M. W., & Derzon, J. H. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile youth offenders: Risk factors and successful interventions* (pp. 8-105). Thousand Oaks, CA: Sage Publications.
- Lipsey, M. W. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In T. D. Cook, H. Cooper, D. S., Corday, H. Hartmann, L. V. Hedges, R. J. Light, T. A. Louis, & F. Musteller (Eds.), *Meta-analysis for explanation: A casebook* (pp. 83-125). New York: Russell Sage.
- Lord, F. M., & Novick, M. R. (1968). *Statistical theories of mental test scores*. Reading, MA: Addison-Wesley.
- Marder, C., Wechsler, M., & Valdes, K. (1992). *Services for youth with disabilities after secondary school*. Menlo Park, CA: SRI International.
- Metzler, C. W., Biglan, A., Ary, D. V., & Li, F. (1998). The stability and validity of early adolescents' reports of parenting constructs. *Journal of Family Psychology*, 4, 600-619.

- McConaughy, E. A., DiClemente, C. C., Prochaska, J. O., & Velicer, W. F. (1989). Stages of change in psychotherapy: A follow-up report. *Psychotherapy, 26*, 494-503.
- McCord, J. (1997). "He did it because he wanted to..." In D. W. Osgood (Ed.), *Nebraska Symposium on Motivation: Volume 44. Motivation and Delinquency* (pp. 1-43). Lincoln: University of Nebraska Press.
- McLoyd, V. C. (1990). The impact of economic hardship on Black families and children: Psychological distress, parenting, and socioemotional development. *Child Development, 61*, 311-346.
- Miller, W. R., Benefield, R. G., & Tonigan, J. S. (1993). Enhancing motivation for change in problem drinking: A controlled comparison of two therapist styles. *Journal of Consulting and Clinical Psychology 61*, 455-461
- Miller, W. R., & Rollnick, S. (1991). *Motivational interviewing: Preparing people to change addictive behavior*. New York, NY: Guilford.
- Miller, W. R., & Marlatt, G. A. (1994). *Manual for the comprehensive drinker profile*. Odessa, FL: Psychological Assessment Resources.
- Miller, B., Zweben, A., DiClemente, C. C., & Rychtarik, R.G. (1992). *Motivational Enhancement Therapy Manual*. Odessa, FL: Psychological Assessment Resources.
- Moffitt, T. E. (1993). Adolescent-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674-701.
- Monti, P. M., Colby, S. M., Barnett, N. P., Spirito, A., Rohsenow, D. J., Myers, M., Woolard, R., & Lewander, W. (1999). Brief interventions for harm reduction with alcohol-positive older adolescents in a hospital emergency department. *Journal of Consulting and Clinical Psychology 67* (6), 989-994.
- Nowiciki, S., & Strickland, B. R. (1973). A locus of control scale for children, *Journal of Consulting and Clinical Psychology, 40*, 148-154.
- Parke, R. D., & Ladd, G. W. (1992). *Family-peer relationships: Modes of linkage*. Hillsdale, NJ: Erlbaum.

- Patterson, G. R. (1976). The aggressive child: Victim and architect of a coercive system. In L. A. Hamerlynck, L. C. Handy, & E. J. Mash (Eds.), *Behavior modification and families. I. Theory and research. II. Applications and developments* (pp. 267-316). New York: Brunner/Mazel.
- Patterson, G. R. (1993). Orderly change in a stable world: The antisocial trait as a chimera. *Journal of Consulting and Clinical Psychology, 61*, 911-919.
- Patterson, G. R. (1982). *Coercive family systems*. Eugene, OR: Castalia.
- Patterson, G. R., & Bank, L. (1989). Bootstrapping your way in the nomological thicket. *Behavioral Assessments, 8*, 49-73.
- Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist, 44*, 329-335.
- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *A social learning approach: IV Antisocial boys*. Eugene, OR: Castalia.
- Poe, J., Dishion, T. J., Griesler, P., & Andrews, D. W. (1990). *PPC Topic code*. Unpublished coding manual. Eugene, OR: Child and Family Center.
- Price, J. M. (1996). Friendships of maltreated children and adolescents: Contexts for expressing and modifying relationship history. In W. M. Bukowski, A. Newcomb, W. W. Hartup (Eds.), *The company they keep: Friendships in childhood and adolescence* (pp. 262 - 285). Cambridge University Press.
- Rojo, L. M. (1994). The jargon of delinquents and the study of conversational dynamics. *Journal of Pragmatics, 21*, 243-289.
- Rutter, M. (1989). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*, 316-331.
- Stevens, J. (1996) *Applied multivariate statistics for the social sciences* (3<sup>rd</sup> ed.). Mahway, New Jersey: Lawrence Erlbaum.
- Surgeon General's Scientific Advisory Committee on Television and Social Behavior (1972). *Television and growing up: The impact of televised violence*, Washington, D.C.: U.S. Government Printing Office.

- Tannenbaum, P. H. & Zillman, D. (1975). Emotional arousal in the facilitation of aggression through communication, In L. Berkowitz (ed.), *Advances in experimental social psychology*, Vol. 8. (pp. 235-255). New York: Academic Press.
- Tinklenberg, J. A., Steiner, H., Huckaby, W. J., & Tinklenberg, J. R. (1996). Criminal recidivism predicted from narratives of violent juvenile delinquents. *Child Psychiatry and Human Development*, 27 (2), 69-79.
- Vissing, Y. M., Straus, M. A., Gelles, R. J., & Harrop, J. W. (1991). Verbal aggression by parents and psychosocial problems of children. *Child Abuse and Neglect*, 15, 223-238.
- Webster-Stratton, C. (1998). *The incredible years: A trouble-shooting guide for parents of children aged 3-8*. Toronto: Umbrella Press.
- Werner, J. S., Minkin, N., Fixsen, D. L., Phillips, E. L., & Wolf, M. M. (1975). Intervention package: Analysis to prepare juvenile delinquents for encounters with police officers. *Criminal Justice and Behavior*, 2, 55-83.
- Williams, R. H. & Zimmerman, D. W. (1996). Statistical power analysis and reliability of measurement. *Journal of General Psychology*, 116, 359-69.
- Zoccolillo, M. (1992). Co-occurrence of conduct disorder and its adult outcomes with depressive and anxiety disorders: A review. *Journal of American Academy of Child and Adolescent Psychiatry*, 31, 547-556.