A Research Review and Alternative Hypothesis Explaining the Link Between Learning Disability and Delinquency

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Current hypotheses explaining the link between learning disability and delinquency are reviewed and evaluated. Research from diverse fields is integrated and an alternative hypothesis is proposed to explain the link between learning disability and delinquency. The alternative hypothesis postulates that ineffective social cognitive problem-solving skills increase risk for delinquency in learning disabled youth. Future research is suggested.

Delinquency is of serious concern to contemporary society (Larson, in press). Frequency and length of commitment (California Youth Authority, 1983) as well as cost for incarceration of delinquents has increased in recent years. Moreover, adjudicated juveniles continue to be at great risk for becoming adult criminals (California Youth Authority, 1983). It is quite clear, despite disparity in prevalence rates, that incidence of learning disability in the delinquent population is much higher than in the general population. The number of students being served in LD programs is 4.3% of the K-12 school population according to 1982-1983 child count data (Gerber, 1984). Estimates of prevalence of learning disability among delinquents range from 26% (Controller General of the United States, 1977) to 73% (Swanstrom et al., 1977). Learning disabled (LD) youth are adjudicated at about twice the rate as non-learning-disabled (NLD) youth (Broder, Dunivant, Smith, & Sutton, 1981), and LD youth have greater recidivism and parole failure (California Youth Authority, 1982; Larson, 1986).

Consequently, development of effective delinquency prevention and treatment methods for learning disabled youth is critically important. In turn, development of effective prevention and treatment programs is related to knowledge of why LD youth are at increased risk for delinquency. Thus, there is a compelling and urgent need for empirical investigations examining potential causal links between learning disability and delinquency.

Prior to such research efforts, there is an immediate need to synthesize historical and current data and evaluate empirical support of existing causal hypotheses. This paper will review and evaluate previously proposed hypotheses as well as interpret research that suggests an alternative hypothesis.

CAUSAL EXPLANATIONS OF THE LINK BETWEEN LD AND DELINQUENCY

Factors such as anomie, social disorganization, poverty, and racism undoubtedly increase risk for delinquency (Shoemaker, 1984). Yet data indicate that LD youth and youth with attention deficits are at greater risk for delinquency than NLD peers when factors of age, race, and socioeconomic status are held constant (Broder et al., 1981; Keilitz & Dunivant, 1986; Satterfield, Hoppe, & Schell, 1982). Accordingly, professionals have looked beyond demographic variables to explain the link between learning disability and delinquency. Currently, there are three hypotheses that attempt to explain the link between learning disability and delinquency.

The School Failure Hypothesis

This view postulates that learning disability leads to school failure, which leads to a negative self-image, which in turn results in school dropout and delinquency. This hypothesis is an extrapolation of Cohen’s (1955) sociologically based “middle-class measuring rod” explanation of delinquency, proposing that need to achieve in school is adopted and aspired to by all social classes. Accordingly, it is hypothesized that youth with learning disabilities seek out delinquent-prone peer groups to satisfy increased needs for recognition and achievement. The school failure hypothesis implies that school suspension and dropout increase an LD youth’s opportunity for delinquent behavior.

Evaluation of the School Failure Hypothesis. Support for the school failure hypothesis comes from clinical observation, school records, and tests of basic academic skills. These studies consistently report school failure and dropout to be a strong and persistent correlate of official delinquency, school misbehavior, and self-reported delinquent behavior (e.g., West, 1984). Further support for this hypothesis comes from research by Levin, Zimmond, and Birch (1985), who found that LD youth have greater rates of school dropout than NLD peers.

Nevertheless, evidence from academic remediation studies does not support a direct causal relationship between academic achievement and delinquency in LD youth. Keilitz and Dunivant (1986) evaluated an intensive academic intervention program for LD delinquents and found that delinquency was reduced in some subjects; however, changes in delinquent behavior were not related to improvement in academic achievement. The authors suggest that interpersonal rapport between tutor and delinquent accounted for reduction in delinquency. Larson (1986) also found academic intervention unrelated to delinquent behavior. From a population of youth
from three correctional institutions, 60 youth categorized as either learning disabled, low achieving, or average achieving, were matched on demographic, neighborhood, and criminal history variables. Larson found that 23% of the learning disabled, 14% of the low achieving, and 19% of the average achieving delinquents earned a high school diploma while incarcerated. Yet, recidivism rates for the three groups were 52%, 42%, and 27%, respectively. Furthermore, during parole, 91% of new criminal convictions for the LD delinquents were for very serious crimes (i.e., a 2-year confinement time for the first offense) compared to 71% of the low-achieving delinquents’ new convictions.

Finally, research does not support a causal relationship between dropping out of school and delinquency. Elliott and Voss (1974) examined the correlation between school dropout and delinquency in 2,000 California students and found that students who dropped out of school did indeed have higher rates of delinquency than those who graduated; however, the relationship between dropout and delinquency was reversed. That is, delinquency rates for school dropouts peaked before dropping out and declined after quitting school. Evidence from this study in conjunction with the Levin et al. (1985) data suggest that poor social adjustment, including delinquency, may account for school dropout in LD youth. If this is the case, school failure would be an effect and not a cause of social misbehavior and delinquency for learning disabled youth.

The Differential Treatment Hypothesis

According to the differential treatment position, youth with learning disabilities and nonhandicapped peers engage in the same rate and kind of delinquent behaviors; however, police, social workers, and other officials treat LD youth differently so as to increase incidence of arrest and/or adjudication. Support for this hypothesis comes primarily from research by Broder and colleagues (Broder et al., 1981; Zimmerman, Rich, Keilitz, & Broder, 1981). Broder et al. found that LD youth were adjudicated at about twice the rate as NLD peers while both groups self-reported similar delinquent behavior. Consequently, the researchers postulated differential treatment to account for the higher incidence of adjudication in LD youth.

Evaluation of the Differential Treatment Hypothesis.

There are several limitations of Broder et al. data. First, the self-report instrument and scoring in the Broder research failed to measure chronicity and seriousness of delinquent behavior. That is, Broder et al. (1981) asked LD and NLD youth to confirm if they had ever engaged in a specific delinquent act. These data showed the two groups to be similar in terms of self-reported delinquent behavior. A problem with this method is that the two groups could appear equally delinquent even though one group engaged in delinquent behavior at a much greater rate than the other group. Additionally, as is the difficulty with most self-report instruments, the item content of the scale primarily measured less serious criminal behaviors. Such instruments are less capable of differentiating populations on the basis of incarcerable delinquent behavior (e.g., Hindelang, Hirschi, & Weis, 1979), and when items are aggregated into a single global score, as was the case in Broder et al., the trivial items further outweigh the more serious items as an assessment of delinquency. Thus, the two groups were not differentiated on seriousness of delinquent behavior. Indeed, the definition of delinquency in this study was confounded because no distinction was made between status offenders and criminal offenders.

Recognizing the need for measuring chronicity, Zimmerman et al. (1981) examined the same subjects by asking them to estimate how many times in their entire life they had engaged in a specific delinquent act. Criticisms of the aforementioned Broder et al. study regarding severity apply to the Zimmerman data. Additionally, Zimmerman et al.’s self-report data are further suspect because thinking and memory problems in subjects with learning disabilities are likely to interfere with ability to make accurate estimates of lifetime-frequency behavior. Zimmerman et al. argued that the self-report instrument had adequate reliability and validity; however, reliability figures appear not to be derived from a learning disabled population. The fact that Zimmerman et al. found that LD youth reported significantly fewer delinquent acts than NLD peers, tends to increase skepticism in the reliability of this LD self-report data. It seems unreasonable that a population of youth consistently found to be less socially effective, more impulsive, and frequently more aggressive should commit fewer delinquent acts than nonhandicapped peers.

Broder et al. (1981) and Zimmerman et al. (1981) proposed the differential treatment hypothesis to explain the apparent conflict between high LD official adjudication rates and low LD self-report rates of delinquent behavior. Such disparate findings may more appropriately be explained as a function of the self-report instrument and scoring.

Other evidence suggests that LD youth behave differently from nonhandicapped peers in terms of delinquent behavior. Keilitz and Dunivant (1986), in a study of 1,900 youths, found that LD youth self-reported significantly greater rates of delinquency and violent acts than matched NLD peers. Official arrest and adjudication rates were also higher for the LD adolescents. An 11-year follow-up study of 2,700 paroled delinquents (California Youth Authority, 1982) found that characteristics associated with a learning disability, such as severe low achievement in reading and math, and reduced mental aptitude and evidence of neurological abnormality, significantly differentiated young parolees on chronicity and degree of violent behavior.

Furthermore, the differential treat-
ment hypothesis is contradicted by Zimmerman et al.'s (1981) own research, which found that, after adjudication, LD and NLD delinquents had equal probability of incarceration. Similarly, Keilitz and Dunivant (1986) found that youth with learning disability were no more likely than nonhandicapped peers to receive severe disposition from the court. Larson (1985) also found no significant differences between age of first confinement and duration of confinement in LD and low-achieving delinquents.

Some have proposed that differential treatment takes place at the arrest phase prior to adjudication or disposition procedures (Keilitz & Dunivant, 1986). This may be the case; however, other research finds that arrest is significantly correlated with frequency and severity of delinquent behavior (e.g., Blumstein & Cohen, 1976). Thus, higher rates of arrest and adjudication for youth with learning disabilities may more directly reflect frequent and serious delinquent behavior. In support of this conclusion, Keilitz and Dunivant (1986) found a positive correlation between LD self-report, adjudication, and arrest; this corroborates other juvenile criminology research demonstrating that self-report rates and seriousness of delinquent behavior strongly correlate with getting caught and being known by the police (e.g., Friday & Stewart, 1977). Refutation of the differential treatment hypothesis is further presented by Keilitz and Dunivant (1986), who found in a longitudinal study that LD boys were more likely than NLD peers to become delinquent as they grow older.

The Susceptibility Hypothesis

This position contends that learning disabilities are frequently accompanied by "a variety of socially troublesome personality characteristics" (Murray, 1976, p. 26). This hypothesis can be interpreted from two distinct perspectives.

Evaluation of the Susceptibility Hypothesis. One interpretation takes the position that social skill is a response predisposition or underlying personality trait. Thus, observable behavior is only a reflection of "amount" of social skillfulness. Youth with learning disabilities are seen as at increased risk for delinquency because they are "low" in social skillfulness.

This approach is a tautological use of the concept of social skill. That is, if a learning disabled youth does not become delinquent it is inferred that the youth was in possession of a satisfactory level of social skill; simultaneously it is explained that the youth's nondelinquent behavior occurred because the youth had a satisfactory level of social skill. McFall (1982) has pointed out that an individual's "inferred level of social skill cannot be used in this way to account for the quality of the very behavior from which the skills were inferred" (p. 3).

The alternative interpretation of the susceptibility hypothesis takes the position that negative social-personality characteristics (e.g., impulsivity, poor reception to social cues) are specific social characteristics that increase the likelihood of delinquent behavior. This perspective avoids the problems of an underlying trait concept of social skill; however, an important criticism of this hypothesis is that it fails to address the issue of what caused the inappropriate social characteristics in the first place. That is, sources other than learning disabilities produce negative social characteristics that might increase susceptibility to delinquency. Additionally, and significantly, this interpretation of the susceptibility hypothesis lacks a unified framework for explaining how a variety of socially ineffective behaviors can be accounted for by an underlying learning disability.

An Alternative Hypothesis

As reviewed, a number of professionals have speculated that learning disability contributes to increased risk for delinquent behavior, and while it seems clear that a correlational association between learning disability and delinquency has been demonstrated, data supporting a causal relationship have not been generated by research. The school failure and differential treatment hypotheses are not supported by empirical evidence. The susceptibility hypothesis lacks empirical testing, and the concept of susceptibility appears to be too global to be systematically testable. Clearly, an alternative hypothesis is warranted to explain the link between learning disability and delinquency.

One approach to developing an alternative causal hypothesis would be to identify a specific skill related to social adjustment for which evidence exists that (a) differences or deficits in the skill are empirically associated with delinquent behavior, (b) socially maladjusted LD youth are highly likely to be ineffective in the skill, and (c) the skill identified must be shown to mediate various behavioral responses across different social situations (to account for a variety of socially ineffective behaviors, any of which might be a delinquent act or related to a delinquent episode).

One skill that may fulfill these requirements is social cognitive problem solving. D’Zurilla and Goldfried (1969) conceptualized problem solving as both a self-control procedure and a learning process involving cognitive strategies. Social cognitive problem-solving skills are hypothesized as general skills applicable to a variety of situations and potentially useful for increasing generalization of socially competent responses.

The following three sections will review relevant problem-solving research suggesting that difficulties in social cognitive problem-solving skills are associated with social maladjustment, that they mediate social competence, and that learning disabled youth and delinquent youth are more likely to have difficulties with these skills than are nonhandicapped and nondelinquent peers.

SOCIAL COGNITIVE INEFFECTIVENESS AND SOCIAL MALADJUSTMENT

There has been considerable support for the hypothesis that ineffective social cognitive problem-solving skills
lead to emotional and behavioral disorders (e.g., D'Zurilla & Goldfried, 1969). Individuals whose social problem-solving processes are characteristically ineffective are more likely to be viewed as maladjusted, socially incompetent, or abnormal.

Spivack, Platt, and Shure (1976) found drug addict, psychiatric, and "poorly self-regulated" adolescent populations to be less effective than a comparison group of socially competent peers on cognitive social problem-solving skills such as weighing pros and cons, generating options, conceptualizing a step-by-step process to a goal, and perceiving the situation from another's perspective. Furthermore, Spivack et al. found that ineffective cognitive social problem-solving skills were consistently manifested in socially incompetent populations of all ages when IQ and verbal fluency were held constant.

**NONSOCIAL COGNITIVE PROBLEM-SOLVING DIFFICULTIES AND LEARNING DISABILITIES**

It has been consistently reported that, when faced with nonsocial tasks, youth with learning disabilities frequently exhibit profound difficulties in many cognitive problem-solving functions. Learning disabled individuals are thought to fail many tasks not only because of basic knowledge deficits but also because they fail to spontaneously employ appropriate problem-solving skills (e.g., Reid & Hresko, 1981; Torgesen, 1982). Indeed, some believe that ineffective problem-solving abilities underlie learning disabilities. Difficulties in such skills include identifying relevant variables, impulse control, evaluation of possible strategies, persistence, and self-monitoring (e.g., Forness & Esvardt, 1975; Hagen, Barclay, & Newman, 1982).

**SOCIAL COGNITIVE PROBLEM-SOLVING DIFFICULTIES AND DELINQUENCY**

Delinquent youth, a heterogeneous population including many youth who fit clinical descriptions of learning disability (Prout, 1981), are consistently found to be less skillful in a variety of social cognitive problem-solving skills when compared to non-delinquents. Poor perspective taking (e.g., Chandler, 1973; Little, 1979), poor impulse control (e.g., White, 1965), and inability to generate multiple and effective solutions (e.g., Larson, 1985; Freedman, Rosenthal, Donahoe, & Schludt, 1978) are three specific problem-solving difficulties historically demonstrated in delinquent populations.
for increasing delinquent behavior, it is necessary to demonstrate the mediational capacity of that skill on overt social behavior and ultimately on delinquent behavior. Currently, there is a paucity of research testing the mediational capacity of social problem-solving skills on overt social behavior as directly measured in samples of learning disabled or delinquent youth.

Nevertheless, existing studies suggest a mediational function of social cognitive problem-solving skill on overt social behavior as measured directly. For example, Feinler, Marriott, and Iverson (1984) trained 36 acting-out adjudicated youth in self-regulation and cognitive problem solving. Daily disruptive behavior and aggressive incidents in school were significantly reduced compared to no treatment control. Snyder and White (1979) found cognitive self-instruction training, compared to contingency awareness and no treatment control, resulted in significant improvement in daily living social skills of incarcerated delinquents. Larson and Gerber (1987) found that social cognitive training significantly enhanced socially relevant overt social behavior in LD and low-achieving incarcerated youth compared to matched controls. Moreover, in this study, overt behavior changes were positively correlated with changes in cognitive problem-solving skill.

**Evaluation of the Alternative Hypothesis.** Evidence indicates that social cognitive problem-solving difficulties are associated with social maladjustment and specifically with delinquency. Youth with learning disabilities appear to be at greater risk than nonhandicapped peers for cognitive difficulties when faced with both social and nonsocial problems. Moreover, delinquent youth and youth with learning disabilities are found to exhibit similar difficulties with social problem-solving skills. Both groups are reported to be ineffective in skills such as perspective taking, impulse control, defining the problem, generating multiple and effective solutions, predicting consequences, and understanding and using relevant social cues. Lastly, and importantly, social cognitive problem-solving skills appear to mediate overt social behavior.

Given this evidence, an alternative explanation of the link between learning disability and delinquency appears reasonable although in need of clear empirical support. Specifically, youth with learning disabilities may be at increased risk for delinquency because they are more likely to be ineffective in social cognitive problem-solving skills.

It is not clear from the current research how deficits in social problem solving might increase risk for delinquent responses. One explanation is that deficiencies in social problem-solving impair ability to control impulsive responses, assess social problem variables, generate effective social strategies, and regulate, through self-monitoring, ongoing social interaction. Many researchers (e.g., Koligian & Sternberg, 1987) would label deficits in these skills as a deficiency or inefficiency in metacognition.

The proposal that ineffective metacognition impairs functioning in LD youth is not new. Researchers have hypothesized that academic learning difficulties of LD youth may be the result of ineffective metacognitive skills (e.g., Baker, 1982; Loper, 1980; Wong, 1979). Several researchers (e.g., Brown, Bransford, Ferrara, & Campione, 1983; Caranaugh & Perlmutter, 1982) have pointed out the difficulty of and need for clarifying the concept of metacognition. Nevertheless, recent research by Slife, Weiss, and Bell (1985) upholds the potential utility of the concept for describing learning disabled populations in terms of knowledge about and regulation of cognition.

**SOCIAL METACOGNITION**

Metacognitive skills have been defined as superordinate skills requiring knowledge about how to know and knowledge about one's own cognitive processing (Brown, 1975; Flavell & Wellman, 1977). Researchers such as Flavell, Wellman, and Brown have only alluded to metacognitive skills in terms of social problem solving, although application of metacognitive awareness and metacognitive control concepts to the social domain seems reasonable and useful.

The awareness aspect of metacognition has been defined to include an awareness of person variables (i.e., self-appraisal of personal attributes that affect the task) and awareness of task variables (i.e., knowledge of parameters, expectations, and situation attributes that affect the task). Accordingly, metacognitive social awareness skill can be conceived as the ability to identify and differentiate relevant social cues about oneself and others as well as about the social situation in general. Delinquent youth and youth with learning disabilities appear to have difficulties with this type of social metacognition. As previously reviewed, both groups of youth have been found to be ineffective in comprehending and using relevant social variables, in being aware of another's perspective, and in accurately evaluating their own social problem-solving competence.

The control aspect of metacognition has been defined to include skills that regulate efficient selection and ongoing application of effective behaviors. Accordingly, metacognitive social control skill can be defined as the ability to control impulsive responses, define the problem, generate appropriate solutions, evaluate consequences, and monitor performance. As previously reviewed, researchers have consistently found delinquent youth less effective in these kinds of social cognitive skills compared to nondelinquents.

**CURRENT AND FUTURE RESEARCH TESTING THE ALTERNATIVE HYPOTHESIS**

Research is needed to systematically define and specify social metacognitive and social meta-control skills. Thus far, there has been almost no effort to specifically identify and describe social knowledge and skill that fulfills the meta-awareness function. In a social situation this would
include knowledge of variables about self, about others, about social norms, or about the social environment. Research examining this hypothesis will have to determine if there are social variables consistently relevant to a variety of social situations and if knowledge of these variables enhances general social performance. Preliminary evidence (Larson, 1983) indicates that there may be some social variables that socially competent adolescents perceive as significant for solving a variety of social problems. Larson asked "socially competent" high school students and matched incarcerated delinquents to name factors (i.e., about themselves, about others, and about the situation in general) they felt were important to find out about or know about when trying to solve a social problem. There were statistically significant qualitative as well as quantitative differences between delinquent and socially competent adolescent responses regarding situational, self, and other variables identified as important to social problem solving.

Not only will it be necessary to describe social meta-awareness variables; it will also be essential to understand how social meta-awareness skills interact with social meta-control skills. That is, effective problem solving has been hypothesized (Hagen et al., 1982) as based upon a state of acquired knowledge (i.e., awareness) as well as a process of using that knowledge (i.e., control). Accordingly, it may be that skill in both meta-awareness and meta-control functions is necessary for effective social functioning because of the possible reciprocal nature of these knowledge areas.

In this regard, while working with LD delinquents, Larson found that meta-awareness of a social variable was insufficient for enhancing the meta-control skill of solution generation. The delinquents simply did not know how to "use" the awareness knowledge. For example, "emotional level" was one variable taught as important to recognize and interpret when facing a social problem situation. In previous research this variable had been identified by socially competent adolescents as important for solving social problems. Delinquents with learning disabilities learned to spontaneously recall this as an important problem-solving variable. However, during simulation problem-solving experiences, determination of emotional level as "high" or "low" had no differential affect on cognitive control skills in terms of what delinquents suggested the solution or strategy should be. Delinquents also failed to modify their solutions on the basis of meta-awareness of other variables such as confidence level, expertise, number of people involved, relationship to the other, and so forth. Finding that delinquents had difficulty in using meta-awareness knowledge suggests that researchers need to examine whether delinquent youth and learning disabled youth are merely unaware of relevant social meta-variables or whether they are unable to use the knowledge that awareness of the variable brings in regulating solution generation.

Other lines of research must provide a more direct test of the hypothesis that social metacognitive ineffectiveness increases risk for delinquency in LD youth. Studies are needed to demonstrate that social metacognitive training enhances overt social behavior in delinquent and LD youth. In these studies it will be important to document that enhancement of social behavior is positively correlated with changes in metacognitive skills.

Evidence suggests that cognitive training needs to train both meta-awareness and meta-control skills as well as how to use these skills in a reciprocal way. Previous social problem-solving studies have failed to train meta-awareness skills; instead training has focused exclusively upon meta-control skills. Yet training effects have been weak for changing overt social behavior or enhancing social behavior in novel contexts. Larson and Gerber (1987) trained both meta-awareness and meta-control skills and found significant positive behavior changes.

Demonstrating the mediational capacity of social metacognition in training studies is insufficient, however, for concluding that social metacognitive ineffectiveness increases risk for delinquency. That is, causal influences cannot be inferred solely from successful treatment. In order to fully support the proposed hypothesis, data will be needed that demonstrate that delinquents actually manifest inefficiencies in social metacognition compared to nondelinquents and that socially maladjusted and adjusted youth with learning disabilities differ on social metacognitive problem-solving abilities.

Lastly, there is a need to examine the relationship of specific social metacognitive skills to overt behavior. For example, a components analysis study assessing and comparing the potential effectiveness of training impulse control skills, meta-awareness skills, and meta-control skills would help to elucidate the relative importance of these specific cognitive skills to delinquent behavior.

This paper has attempted to integrate existing research data for the purpose of developing a plausible causal hypothesis elucidating a functional relationship between learning disability and delinquency. Testing relationships within the hypothesis will require extensive and systematic research. It is hoped that issues and research questions discussed in this paper will encourage future research efforts addressing this important issue in contemporary society.

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