

10

Threat Assessment in Schools: Empirical Support and Comparison With Other Approaches

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The vast majority of the nation's students will complete their schooling without ever being touched by school shootings. Nevertheless, some high-profile school attacks carried out by students have shaken the image of schools as reliably safe and secure environments (Fein et al., 2002). A recent study released by the Centers for Disease Control and Prevention (2004) notes that between 1991 and 2003 there was a significant increase in the number of students who reported not going to school because they felt too unsafe to attend. Although the U.S. Department of Education (2000) reports that approximately 53 million children attend the nation's 119,000 schools, available statistics indicate that few of these students will fall prey to serious violence in school settings. With respect to school shootings in particular, recent research by the U.S. Secret Service and U.S. Department of Education found that incidents of such school-based attacks, which we refer to as *targeted violence* in school, occurred in only 37 schools across the United States between December 1974 and May 2000 (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). We have conceptualized targeted violence as violent incidents where both the perpetrator and target(s) are identified or identifiable prior to the incident (Borum, Fein, Vossekuil, & Berglund, 1999; Fein & Vossekuil, 1998; Fein, Vossekuil, & Holden, 1995). The defining element of targeted violence is that the perpetrator

selects a target prior to engaging in the violent incident. In this chapter, we focus specifically on approaches for preventing targeted violence in school—school shootings and other school-based attacks—rather than on other more common and recurring forms of school violence.

Compared with the other types of violence and crime that children face both in and outside of school, school-based attacks are extremely rare (Fein et al., 2002; Vossekuil et al., 2002). Nevertheless, to incorporate the necessary lessons from past attacks and ensure a safe environment, it is useful to reflect on two central questions: “Could we have known that these attacks were being planned?” and, if so, “What could we have done to prevent these attacks from occurring?” (Brooks, Schiraldi, & Ziedenberg, 2000; Fein et al., 2002; Lawrence, 2000; Sugai, Sprague, Horner, & Walker, 2000). This chapter addresses these questions by reviewing available options for evaluating risk of targeted violence in schools. The following sections examine the three assessment approaches currently advocated and used in some jurisdictions for evaluating risk of targeted violence in schools. These are profiling; mental health assessments; and automated decision making, which includes the use of actuarial formulas and expert systems (see Reddy et al., 2001, for a detailed description of each approach). It is not currently known how many schools use which type of assessment and no data yet exist that describe the prevalence of any of these three approaches (or others) schools may currently use, nor of their effectiveness—perceived or actual. An alternative fact-based threat assessment approach, for identifying, evaluating, and managing threats and other inappropriate behaviors is also described (Borum et al., 1999; Fein & Vossekuil, 1998; Fein et al., 1995). After describing the principles of threat assessment, empirical support is presented for its utility among school administrators, law enforcement professionals, mental health professionals, and others to determine the risk of targeted school violence posed by a student who has engaged in threatening or otherwise concerning behavior.

CURRENT APPROACHES TO TARGETED VIOLENCE ASSESSMENT

Profiling

The term *profiling* carries a number of different meanings, and has been used to characterize a range of identification techniques or assessment strategies used in both law enforcement and non-law enforcement settings (Homant & Kennedy, 1998; Turvey, 1999a). For purposes of this discussion, it is useful to distinguish profiling from criminal investigative analysis (CIA), an investigative technique developed by the FBI’s Behavioral Science Unit. CIA uses information gathered from a crime scene to generate a set of hypotheses about the characteristics—physical, demographic, personality, and others—of the person most likely to have committed the crime (Douglas, Ressler, Burgess, & Hartman, 1986; Holmes & Holmes, 1996; Homant & Kennedy, 1998). CIA works retrospectively from a behavior (i.e., the crime and crime scene evidence) backward to infer the type of person who committed the crime.

In the context of school-based threat assessments, the strategy of profiling is prospective. A profile or description of the typical “school shooter” is compiled from characteristics shared by known previous perpetrators (Homant & Kennedy, 1998; McGee & DeBernardo, 1999; Pinizzotto, 1984). This prospective profile is then sometimes used both to identify types of individuals likely to become perpetrators (even absent a behavior or communication that brings someone to official attention) and to assess the degree of risk posed by a given individual who has come to someone’s attention for some troubling communication or behavior. The threat is assessed by determining the degree of “fit” or similarity between the characteristics of prior perpetrators and those of the person under consideration. No data exist demonstrating the

validity or effectiveness of prospective profiling to identify potential perpetrators for any type of crime (Reddy et al., 2001).

Numerous concerns have arisen over the use of demographic or behavioral profiles to identify types of students likely to become school shooters (Cooper, 2000; Morse, 2000; Reddy et al., 2001). First, the use of static profiles for threat assessment will cause errors of overidentifying students who will not engage in targeted violence and underidentifying students who may pose a serious risk. Because targeted violence in school is such a rare event, most youth who “fit” a profile or share some set of common characteristics (e.g., wearing dark clothing or listening to certain kinds of music) will not engage in acts of targeted school violence (Reddy et al., 2001; Sewell & Mendelsohn, 2000). Conversely, the profile may inappropriately exclude students who do not have the designated characteristics, but who may, in fact, pose a risk of targeted violence. For example the profile of a male attending public school would have failed to identify Elizabeth Bush prior to her school shooting at a parochial school in Williamsport, Pennsylvania in 2001. Richard W. Riley, while serving as the U.S. secretary of education, publicly opposed the use of profiling in schools to identify potentially violent students, saying that we “simply cannot put student behaviors into a formula to come up with the appropriate response” (Cooper, 2000, p. A11).

Mental Health Assessment

The second approach used in schools to evaluate the risk of violence posed by a student is to refer them to mental health professionals. Although most mental health professionals are competent and compassionate, many have no formal training in violence risk assessment (Borum, 1996). Even those that do, often fail to understand the distinction between assessing risk for general violence and assessing risk for targeted violence, and the implications for threat assessment.

A conscientious mental health practitioner, faced with such a referral from the school, might seek to examine the research literature for information on known risk factors for violence among young people. After determining the base rate for the type of violence in question, among individuals with similar demographic or clinical characteristics, the evaluator would assess whether and which risk factors apply to the instant case and potentially adjust the probability estimate (base rate) accordingly. Although this approach may be reasonable for assessing risk of general aggression, in school as well as in other settings, it has limited value for determining the risk that a student poses for targeted violence in school (Borum, 2000; Borum et al., 1999; Reddy et al., 2001).

It is unclear whether or how aggregate data from research studies on other types of youth-perpetrated violence will generalize to specific targeted violence fact patterns (Borum, 2000). Most of the research on risk factors for youth violence has examined only general violence recidivism as a criterion. Moreover, most of this research has been conducted on criminal offenders and psychiatric patients, populations to which the perpetrators of targeted school violence may not belong (Vossekuil et al., 2002). Moreover, because the incidence of targeted school violence is so small, an evaluation of its risk or probability cannot be driven primarily by the base rate (Sewell & Mendelsohn, 2000; Reddy et al., 2001; Vossekuil et al., 2002). The baseline probability would be so low that it would be nearly impossible—even adding relevant risk factors—ever to approach a threshold of statistical likelihood.

Similarly, standard psychological tests and other instruments traditionally used in guided professional judgments are of questionable utility to school-based targeted violence risk assessments. Many clinical psychological tests are designed primarily to assess mental disorders; yet, initial evidence on the prevalence of mental disorders among perpetrators of targeted violence

suggests that few school attackers had any history of mental disorders prior to their attack (Vossekuil et al., 2002). Nor has research demonstrated any useful relationship between the results of standard psychological tests and instruments and the risk of targeted violence in schools (Borum, 2000).

Automated Decision Making

The two final approaches to assessing risk of targeted violence in schools fall under the heading of what we term *automated decision making*. They are actuarial formulas and expert systems and other artificial intelligence/artificial intuition approaches. These are reviewed together because both procedures produce a decision (although one that can be framed in more or less definitive terms), rather than leaving the decision to the person conducting the assessment (Reddy et al., 2001).

Actuarial tools are equations or formulae consisting of risk and or protective factors that are statistically or mechanically combined (and may or may not be weighted) to yield a decision about the likelihood of a condition or outcome (see, e.g., Dawes, Faust, & Meehl, 1989). Where such actuarial equations can be standardized and validated, they have been shown generally to perform as well or better than human judgments in a range of decision tasks (Borum, 2000; Borum, Otto, & Golding, 1993; Dawes et al., 1989; Grove & Meehl, 1996; Grove, Zald, Lebow, Snitz, & Nelson, 2000). Expert systems and artificial intelligence/intuition are defined here as computer-based or automated applications of expert knowledge on a particular issue to solve a problem or render a decision in an instant case. Through various methods and structures, expertise that has been compiled on a particular topic or issue is represented in a computer program through the use of algorithms or other computer-based rules (see Beaumont, 1991; Fox, 1996). The computer then applies the input of information about the instant case to its programmed rules and arrives at a decision or predicted outcome.

At present, the application of actuarial formulae to questions of school violence is essentially hypothetical. Actuarial equations purported to determine risk of targeted violence, particularly school-based targeted violence have not been developed. Additionally, the base rate of targeted school violence is likely too low for any statistically derived equation ever to attain any reasonable degree of discriminative accuracy (Sewell & Mendelsohn, 2000). Expert systems and artificial intuition programs that claim to compare the case in question with thousands of known cases (e.g., Morse, 2000; Steinberg, 2000) are not making comparisons only against other cases of targeted school violence, because the incidence of such cases is far lower (see Henry, 2000; Reddy et al., 2001; Vossekuil et al., 2002).

Regarding expert systems, it is unclear that expert consensus on evaluating risk of targeted violence generally, and targeted school violence in particular, has yet been reached, particularly at a level of specificity that would allow the creation of decision rules. This area of research is clearly in its infancy, with the first known empirical study of targeted violence in schools published in 2002 (Vossekuil et al., 2002). Research on the use of expert systems in other contexts has raised concerns regarding the creation of expectations that exceed what expert systems can reasonably accomplish (Winegrad & Flores, 1987). To the extent that existing actuarial formulas and expert systems are not yet informed by empirical research on targeted violence in schools, they may fail to gather information on the student or situation that may be most relevant to appraising risk and thus produce a flawed assessment. Still other research has documented that users of expert systems may rely inappropriately on the decisions produced by a computer (Will, 1991). In one study, users of an expert system (both experts and novices for the task in question) reported considerable satisfaction with what were, in fact, flawed decisions the system produced (only one participant figured out the decision was fundamentally flawed; Will, 1991). By extension, when an expert systems approach is used to determine risk of

targeted school violence, there is a risk the user may discount their own knowledge of the situation and student in question and rely primarily, if not solely, on the computer-generated decision instead (Reddy et al., 2001).

THREAT ASSESSMENT APPROACH

The common conceptual element in each of these approaches is that they focus exclusively or nearly exclusively on information about the student, with the assumption that certain traits or characteristics will indicate which students or “type” of students are most likely to engage in targeted violence at the school. In our view, what is needed instead to evaluate the risk of school-based targeted violence is an approach that focuses primarily on the facts of the particular case and on the student’s behavior (rather than shared traits) to guide inferences and conclusions; that examines closely the progression of ideas and planning behaviors over time; and that corroborates key information gathered in the case from multiple sources (see Fein et al., 2002).

Based on their empirical research on assassinations and attacks of public officials and public figures, Fein and Vossekuil (1998, 1999) and Fein et al. (1995) developed the Threat Assessment Approach, a framework for identifying, assessing, and managing persons who pose a risk for targeted violence. This fact-based Threat Assessment Approach is guided by certain operational principles and relies on key questions that this research suggests are important to ask when evaluating the risk of targeted violence (Borum et al., 1999; Fein & Vossekuil, 1998, 1999; Fein et al., 1995).

Guiding Principles of the Threat Assessment Approach

Certain guiding principles derived from the research on public official violence underlie the threat assessment approach. First among these is that there is no profile or single “type” of perpetrator of targeted violence. Rather, violence is seen as the product of an interaction among the perpetrator, situation, target, and the setting. Vossekuil, Fein, and their colleagues (Fein et al., 1995; Fein & Vossekuil, 1998, 1999; Vossekuil et al., 2002) found the attackers were quite diverse. This is similar to what has been sought—and found—with juvenile delinquents more generally. As Herbert Quay (1987) noted more than a decade ago:

The assumption that all delinquents exhibit some common set of psychological characteristics has been the basis for most of the early research into the psychological characteristics of delinquents . . . and unfortunately, remains so. . . . If, in fact, delinquent youth are behaviorally and psychologically heterogeneous, the search for single psychological variables that can reliably separate delinquents from non-delinquents is not an effective research strategy. (p. 118)

We extend this comment by suggesting that it is also not a useful clinical assumption or an effective assessment strategy.

The second key guiding principle underlying the threat assessment approach is that there is a distinction between making a threat (expressing, to the target or others, an intent to harm the target) and posing a threat (engaging in behaviors that further a plan to harm the target). Many people who make threats do not pose a serious risk of harm to a target. Conversely, many who pose a serious risk of harm will not issue direct threats prior to an attack. The first empirical analysis of school-based attacks, the Safe School Initiative, found very few school attackers ever directed threats to their targets in advance of the incident (Vossekuil et al., 2002). The implication derived from these findings is that although all threats (direct, indirect, conditional,

or otherwise) should be taken seriously, they are not the most reliable indicator of risk and therefore should not be a necessary condition to initiate an inquiry or preliminary evaluation. Indeed, a youth who is committed to mounting an attack may be less inclined to threaten a potential target directly, particularly if he or she does not want to be stopped. The youth may, however, discuss ideas of harm among friends and peers, as most school shooters did prior to their attacks (Vossekuil et al., 2002).

The third principle underlying the approach is that targeted violence is neither random nor spontaneous; it does not occur because someone “just snapped.” Targeted violence, rather, is seen as the result of an understandable, and an often discernible, pattern of thinking and behavior (Borum et al., 1999; Fein & Vossekuil, 1998; Fein et al., 1995; Vossekuil et al., 2002). What this finding suggests is that incidents of targeted violence may be preventable. Conceptually, this principle is very important because assessing risk for events that are considered to be random would seem to be a contradiction. If, however, they are viewed as the result of a behavioral process, then a fact-based assessment makes sense.

Utility of Threat Assessment to Evaluate Risk of Targeted School Violence

The Threat Assessment Approach appears to hold promise for assessing risk of targeted violence in school. Data from the first empirical study of school-based attacks further support its utility (Fein et al., 2002; Vossekuil et al., 2002). In an analysis of 37 incidents of targeted school violence that occurred between December 1974 and May 2000, researchers from the U.S. Secret Service and U.S. Department of Education, collaborating on the Safe School Initiative, found that school-based attacks are rarely impulsive but instead are typically thought out and planned in advance. The researchers further found that prior to most school attacks, other children knew the attack was going to occur. In most cases, these pre-attack planning and communications were observed by others or were potentially detectable. Few attackers, however, ever directed any threats to their targets (Vossekuil et al., 2002).

Empirically validating the concerns about profiling (Fein et al., 2002; Reddy et al., 2001; Vossekuil et al., 2002), the researchers also determined that there was no accurate or useful profile of a school shooter and that one cannot tell simply by looking at a student whether he or she may pose a risk of targeted violence in school (Vossekuil et al., 2002). What the researchers found to be more informative were the behaviors the attackers engaged in prior to their school attack. For example, the researchers found that nearly all of the attackers had engaged in some behavior prior to their attacks that seriously concerned at least one adult in their life—and most attackers engaged in various behaviors that concerned three or more different adults in their life. The attackers were already on someone’s “radar screen” prior to their incidents (Vossekuil et al., 2002).

Many attackers felt bullied or persecuted by others prior to the attack and, in a number of cases, had experienced bullying that had gone on for long periods of time and carried out by many fellow students. Strikingly, not only did other students often know of the planned attack, in more than half of the attacks other children encouraged, dared, or assisted the attacker in some manner (e.g., by adding to a target list or showing the attacker how to load a weapon).

What Constitutes Threat Assessment in School?

In general, the Threat Assessment Approach comprises a set of operational activities that combine the use of an investigative process and information-gathering strategies to inform a set of relevant questions, which are used to determine whether the student/situation poses a serious risk of targeted violence (see Borum et al., 1999, for a detailed description of the general threat assessment approach; see also IACP, 1999, p. 67; see Fein et al., 2002, for a detailed

10. SCHOOL THREAT ASSESSMENT 153

description of threat assessment in schools; see Jimerson and Brock, 2004, for a discussion of the importance of threat assessment in preparing for and preventing a school crisis). In essence, these activities are designed to identify, assess, and manage students who pose a risk of violence to an identified, or identifiable, target.

A threat assessment may be initiated by any communication or behavior of concern. Threats are not a necessary threshold for concern; in fact, the Threat Assessment Approach strongly encourages not waiting for a threat before initiating an inquiry when a student has already raised some concern through other behaviors. This does not mean that threats should ever be ignored. If there is a threat, it is important to respond to the threat and launch an inquiry, because some students who threaten may take a lack of response to their threat as tacit permission to proceed with a violent plan.

The process of gathering information about the student includes an investigative emphasis on corroboration of facts to establish their veracity (in contrast with the typical clinical reliance on self-report and subjective perceptions). The focus of the inquiry is on the student's behavior in the instant case, and what the progression of their behaviors may suggest (i.e., movement from development of an idea to implementation of a plan and efforts to acquire a weapon to carry out the attack). The threshold for concern is evidence suggesting that the student may be on a pathway toward violent action. The threshold is deliberately set low enough to facilitate early intervention, as the emphasis of this approach is on prevention and the development of effective case management strategies.

Although much discussion in the violence risk assessment literature has focused on the accuracy of predictions (Borum, 1996; Monahan, 1981; Mossman, 1994; Otto, 1992), we see an important distinction between *predicting* violence and *preventing* it. The central difference lies in the outcome implied by each term. With the frame of "violence prediction" or even "violence risk assessment," the implicit outcome is maximizing the accuracy of the assessor's predictions—to be able to gauge accurately who is more likely to be violent, and the circumstances under which the probability is greatest (Sewell & Mendelsohn, 2000). With a frame of "violence prevention," however, the outcome emphasis shifts from optimizing predictive accuracy to effecting appropriate interventions. By emphasizing prevention as the outcome, the need to provide necessary services takes precedence over the need to be "right" about whether a given child will in fact become violent. More importantly, we would argue that the need to intervene permits school officials and others to consider options that are less punitive (e.g., counseling, establishing a friendship with the child, and finding a mentor) than those available when the emphasis is placed on the child's danger to others.

The Threat Assessment Approach requires the person or team conducting the inquiry to gather information, and answer key questions about the instant case, to evaluate the evidence suggesting movement toward violent action. These questions focus on the following:

1. Motivation for the behavior that brought the student being evaluated to official attention.
2. Communication about ideas and intentions.
3. Unusual interest in targeted violence.
4. Evidence of attack-related behaviors and planning.
5. A capacity to carry out an act of targeted violence.
6. Feelings of hopelessness or despair (including suicidal ideation or attempts) or recent losses, real or perceived (including losses of status).
7. A trusting relationship with a responsible adult (a protective factor).
8. A belief that violence is a solution to his or her problems.
9. Consistency between communications and behaviors.
10. Concern by others about the student's potential for harm.
11. Factors in the student's life and/or environment or situation that might increase or decrease the likelihood of attack.

Fein et al. (2002) present a full discussion of key questions for a school threat assessment.

Taken together, the information learned from these questions—as gathered from the student and from corroborating sources (e.g., family members, friends, teachers, classmates, and school and mental health records)—should provide evidence to answer the more global concern of whether the student is moving on a path toward violent action. In addition, the answer to Item 11 can inform the development of a risk management plan by highlighting conditions in the student's life that could be monitored for changes, enhanced to provide the student support, and/or reduced to help the student solve a problem. For example, school officials could decide to take active steps to minimize factors that are considered to put the student at greater risk to make an attack, such as through referral to appropriate services. Alternatively, they could opt instead to monitor the student (perhaps with assistance from family and others close to the student) for changes in conditions that could increase the student's targeted violence risk.

CONCLUSION

When considering how best to prevent (rather than optimally predict) targeted violence in circumstances where a student has come to the attention of the school because of threatening or concerning behavior, traditional trait-based approaches are unlikely to be helpful. The use of profiles is ineffective and inefficient, carries with it a considerable risk of false-positives (most youth who “fit” the profile are not a targeted violence risk), has a potential for bias (by encouraging a search for confirming evidence that the student fits the profile rather than disconfirming evidence that the student does not), and has been sharply criticized for its potential to stigmatize students and deprive them of civil liberties. The use of clinical risk assessments may be inappropriate for assessing risk of targeted violence in school, as many mental health professionals do not have requisite training in risk assessment or understand critical distinctions between assessing risk of general aggression and targeted violence. Finally, because targeted school violence is such an infrequent event, it is not amenable

TABLE 10.1
Implications for Practice: Developing a School Threat Assessment Plan

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1. Identify one person to conduct threat assessments for the school or, preferably, assemble a multidisciplinary team to do the same. The team should involve representatives from various systems that have contact with the students—including at a minimum members from the school and local law enforcement agency. Others systems can include the mental health community, after-school (and weekend) programs and teams, juvenile justice system, social services, and so on.
 2. Establish the *authority* and *capacity* to conduct threat assessments in school. If the team only has members from the school and local law enforcement, it should develop and maintain relationships with other key systems in the community (see Item 1).
 3. Establish mechanisms to *identify*, *assess*, and *manage* students who may pose a threat to the school or someone at school. Having relationships with other systems—or having them represented on the team—helps all three threat assessment components. Having relationships can (a) facilitate earlier identification (e.g., when a student is arrested over the weekend, the school may not learn about it); (b) enable more efficient information gathering (e.g., those who coach the student on a weekend sports team may be aware of a tough family situation the student is facing); and (c) assist in finding ways to manage or reduce the risk a student may pose by intervening or monitoring a student. With multiple systems already involved in the assessment process, chances are higher that the team can find an adult whom the student already trusts to initiate efforts to move the student away from thoughts or plans of violence.
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Source: Fein et al. (2002).

10. SCHOOL THREAT ASSESSMENT 155

to statistical prediction by actuarial tools. Nor is it amenable to evaluation by expert systems or artificial intuition programs because expert consensus on this topic has not yet been reached and the validity (i.e., accuracy) of the programs or their decision rules is not yet established.

Based in the limitations of these competing approaches, we suggest that a fact-based approach is needed to investigate and assess the risk for targeted violence in schools. The fact-based Threat Assessment Approach (Borum et al., 1999; Fein & Vossekuil, 1998; Fein et al., 1995, 2002) represents a good first step toward identifying and assessing risk posed by students for targeted violence in schools. Implementing threat Assessment Procedures in school can address both the actual risk of targeted school violence and fear of such attacks as well. Table 10.1 sets out steps professionals can take to implement a threat assessment plan in school. We suggest further that a Threat Assessment Approach can be most effective when placed in the context of larger efforts to create safe school climates and to reduce bullying within schools (see, e.g., Fein et al., 2002; Pollack, 1998; Pollack & Shuster, 2000). We recommend that schools adopt policies, practices, and procedures that promote a school culture and climate that increase students' connectedness to adults and where differences are respected (Fein et al., 2002). Particularly when used in conjunction with broader efforts to assess a school's climate, address problem areas, reduce bullying, and establish relationships with every student in the school, a Threat Assessment Approach can provide a solid answer to the question of what can be done to prevent school-based attacks from occurring.

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