Risk Factors, Protective Factors, Vulnerability, and Resilience

A Framework for Understanding and Supporting the Adult Transitions of Youth with High-Incidence Disabilities

CHRISTOPHER MURRAY

ABSTRACT

Findings from numerous investigations of youth with high-incidence disabilities have indicated that these youth have poorer adult outcomes than do their peers without disabilities. Despite the consistency with which these findings have been observed, little is known about the specific factors that contribute to these poor outcomes, and even less is known about factors and processes that might improve them. Part of this limitation may be related to the lack of an organizing model or framework for thinking about the many factors and processes that can influence the outcomes of youth with disabilities. The purpose of this article is to examine how the related concepts of risk factors, protective factors, and resilience might inform our understanding of the postschool outcomes of youth with disabilities. These constructs are reviewed and their application to research focused on understanding and supporting the adult transitions of youth with high-incidence disabilities is explored. Based on this review, several recommendations are offered for future research and practice efforts aimed at understanding and supporting the life transitions of youth with high-incidence disabilities.

I T IS NOW CLEAR THAT MANY YOUTH WITH HIGH-incidence disabilities experience poor outcomes following high school. These findings have been demonstrated in numerous longitudinal investigations, which have been based in different geographical locations and focused on a variety of indicators related to postschool outcome status (Affleck, Ed-gar, Levine, & Kortering, 1990; Blackorby & Wagner, 1996; Frank, Sitlington, & Carson, 1995; Hasazi, Gordon, & Roe, 1985). However, although youth with disabilities are more likely than their nondisabled peers to experience poor outcomes, little is known about the causes for these findings (Kohler, 1993). Although the research conducted to date has made an invaluable contribution because it has increased awareness of the need for transition-related services, there remains a need for focused efforts devoted to understanding the complex web of factors and processes that contribute to postschool outcome status among these youth. Such efforts must be grounded in theoretical and conceptual models that account for the complexities of life course development and adjustment.

The purpose of this article is to examine how a risk and resilience framework can assist in this process. In the first section, several investigations of postschool status are reviewed to illustrate the complex nature of the concept of risk. Second, the concepts of protective factors and resilience are briefly discussed and defined. Third, several investigations that have used these concepts in studies of students with disabilities are reviewed to provide an overview of how this model might be applied to transition-related research. Last, several recommendations are offered for those interested in applying this framework to efforts aimed at understanding and supporting the adult transitions of youth with high-incidence disabilities.

Literature Review

Postschool Outcomes and Risk Factors

The findings from numerous longitudinal investigations have indicated that students with learning disabilities (LD) have lower rates of employment, lower earnings, lower rates of postsecondary school attendance (and graduation), and lower rates of independent living status than do young adults without disabilities (Blackorby & Wagner, 1996; Goldstein, Murray, & Edgar, 1998; Murray, Goldstein, & Edgar, 1997; Murray, Goldstein, Nourse, & Edgar, 2000). Students with emotional and behavioral disorders (EBD) have high rates of school dropout, high incarceration rates, low rates of employment, and low rates of postsecondary school attendance following high school (Carson, Sitlington, & Frank, 1995; Frank et al., 1995; Leone, 1990; Malmgren, Edgar, & Neel, 1998; Wagner, 1995). Students with mild mental retardation (MMR) experience many similar problems following high school, although the findings from a number of investigations suggest that these youth are even more likely than youth with LD and EBD to experience poor outcomes (Affleck et al., 1990; Blackorby & Wagner, 1996).

A number of social and demographic variables influence interpretation of these findings. Among schoolchildren in the United States, gender is a predictor of receiving a high-incidence disability label, with males being placed into these categories at higher rates than females (U.S. Department of Education, 1999, 2000). Because males are more likely than females to be placed into these categories, a greater number of males with high-incidence disabilities experience poor postschool outcomes. However, a number of investigations have shown that females with high-incidence disabilities have poorer postschool outcomes than do males with high-incidence disabilities (Benz, Yovanoff, & Doren, 1997; Murray et al., 1997; Wagner, 1992). This interaction between gender and disability status leads to an increased likelihood of negative outcomes for these females. At least three investigations have demonstrated this effect (Benz et al., 1997; Murray et al., 1997; Wagner, 1992), suggesting that there are unique factors or circumstances that place females with disabilities at a heightened risk of experiencing poor outcomes. Although the specific nature of this finding is unclear, some researchers have suggested that females with high-incidence disabilities have more significant intellectual, academic, and emotional problems than do males who receive these labels (Vogel, 1990; Wagner, 1992).

Race is also associated with disability status, with students of color being more likely to be placed in high-incidence disability categories than White students (U.S. Department of Education, 2000). Findings from numerous investigations have documented this overrepresentation, and African Americans are placed into these categories at particularly high rates (Harry, 1992). Race is also a predictor of postschool outcome status in its own right, with African Americans, Native Americans, and Latin Americans having poorer postschool outcomes than White Americans (Feagin & Feagin, 1996). Given this information, one would expect African American youth with high-incidence disabilities to be more likely to experience poor postschool outcomes than (a) African American students without disabilities, (b) White students with disabilities, and (c) White students without disabilities. Blackorby and Wagner (1996) partially confirmed this hypothesis by showing that African American youth with disabilities had poorer outcomes on indicators of employment and independent living status than did White youth with disabilities. Although it is unclear if these outcomes are caused by these two factors' interacting in some unique way or if they are caused by an accumulation of risks (i.e., being African American and having a disability), it is clear that some combination of these characteristics increases the likelihood that a poor postschool outcome will occur.

Socioeconomic status (SES) is also related to disability status. A greater proportion of students from low-SES backgrounds receive special education labels than students from middle- and upper-SES backgrounds (Sherman, 1994). However, SES is related to race as well, with a greater proportion of children of color, particularly African Americans, Latin Americans, and Native Americans, living in low-SES households (McLoyd, 1998). In addition, children and youth from low-SES backgrounds are more likely than youth from middle- and upper-SES backgrounds to have poor postschool outcomes (Jimerson, Egeland, & Teo, 1999; Sherman, 1994). Thus, disability status, racial status, and SES independently increase the likelihood of a negative postschool outcome, and the accumulation of these risk factors may increase this likelihood even more. Furthermore, the relationships among these and other factors can operate indirectly, adding complexity to explanations of outcome status (e.g., race influences SES, SES influences special education status, special education status influences educational opportunities, educational opportunities influence achievement, achievement influences school dropout status, and school dropout status influences postschool outcomes). In this way, indirect relationships in chains of variables, as well as chains in their entirety, are important for understanding later outcome status.

This brief description illustrates the complex nature of risk. There are many other factors and processes that can also directly and indirectly influence outcome status among youth with high-incidence disabilities. Growing up in an abusive home environment is a risk factor for emotional and behavioral problems across one's life span (Cicchetti & Carlson, 1989). Peer rejection and victimization can directly affect outcomes by causing delinquency (Parker & Asher, 1987) and can indirectly affect outcomes by influencing school adjustment and achievement (Kochenderfer & Ladd, 1996). Poverty directly influences outcome status, but many of these effects operate indirectly through neighborhoods (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993), reduced access to health care (McLoyd, 1998), family discord (Garmezy,

1991), and limited opportunities for involvement in prosocial activities (Murray-Nettles & Pleck, 1996). Moreover, poverty itself may be the result of racial biases and other forms of discrimination that take place within the broader society (Feagin & Feagin, 1996). The fact that human development and post-school outcomes are shaped by indirect, interactive processes makes it important to use research models that account for these complexities. Although strategies designed to control the effects that one variable has on another in the presence of a third may help isolate specific direct effects, these statistical methods can mask the interactive nature of developmental processes and experiences (Rutter, 1990).

Vulnerability and risk represent multifaceted, complex processes. *Vulnerability* denotes an individual's susceptibility to a negative outcome, and *risk factors* are biological, environmental, and psychosocial hazards that increase the likelihood that a maladaptive outcome will occur (Werner, 1990). Students with high-incidence disabilities are susceptible to experiencing poor postschool outcomes, and specific risk factors, processes, and experiences can increase this likelihood even more. Thinking about development in this way, one can begin to view variations in outcome status as the result of interrelated factors and processes that directly and indirectly influence one's life course.

Protective Factors and Resilience

Although exposure to risk can increase the likelihood that a negative outcome will occur, it does not guarantee it. Many youth with high-incidence disabilities have positive post-school outcomes. And, although it is true that a greater proportion of females with LD from low-SES backgrounds will have poorer postschool outcomes than will the proportion of middle-class males with LD, some of these females will beat the odds and will have even better outcomes than some of the males who were exposed to fewer risks. Children and youth who have positive outcomes despite vulnerability and heightened risk have been called *resilient* (Werner & Smith, 1989).

Although the concept of resilience has received increased attention from educators in recent years, studies of resilient children and youth have a relatively long history among psychologists and psychiatrists (Garmezy, 1994). The concept of resilience suggests that some children, even those exposed to the most extreme and harsh conditions, can overcome adversity and have healthy adult outcomes (Moskovitz, 1983). The question one must ask, then, is, Why? Why is one child negatively affected by exposure to risk when another who is exposed to similar or greater obstacles adapts positively to life's challenges?

One reason that it is difficult to accurately predict outcome status by looking at risk factors alone is that other factors and processes may be working to counteract these risks. According to Rutter (1985), "Protective factors refer to influences that modify, ameliorate, or alter a person's response to some environmental hazard that predisposes to a maladaptive

outcome" (p. 600). Researchers representing a broad number of academic disciplines and focused on a wide range of outcomes, including those related to social status, psychological state, behavior, education, and economic status, have identified a surprisingly similar group of protective factors and processes. These factors include (a) characteristics of individuals (e.g., positive temperament, internal locus of control, high self-esteem, positive outlook on the future, moderate to high intelligence); (b) family factors (e.g., emotionally supportive and warm relationships with at least one parent, effective parenting styles); (c) school factors (e.g., access to quality schools, feeling a sense of school belonging, good peer relationships); and (d) community factors (e.g., social support from adults, involvement in other prosocial organizations; Elder, 1974; Farnworth, Schweinhart, & Berrueta-Clement, 1985; Garmezy, 1991; Hawkins, Catalano, & Miller, 1992; Jessor, 1993; Rutter, Maughan, Mortimore, & Ouston, 1979; Sroufe, 1983; Svetaz, Ireland, & Blum, 2000; Wang & Gordon, 1994; Werner & Smith, 1989).

Protective factors are resources. These factors can modify the impact of risk exposure and can alter outcome status. As with risk factors, the relationships between protective factors and outcomes can be indirect. Children and youth with positive temperaments, for example, may elicit caring and support from adults, and receiving social support from adults can influence children's long-term adjustment (Werner & Smith, 1989). Thus, positive temperamental characteristics help explain outcome status through social support.

Risk Factors, Protective Factors, and Postschool Outcomes

Figure 1 summarizes the relationship between risk factors, protective factors, the vulnerable student, and postschool outcomes. In this model, individual characteristics (i.e., demographic and personality traits) as well as experiences within the contexts of families, schools, peer groups, and broader communities shape development and outcomes. In the box on the left, features of these contexts are conceptualized as risk factors, which can negatively affect development and can heighten the likelihood of poor outcome status. In the box on the right, features of these same contexts are conceptualized as protective and can promote healthy development and positive long-term adjustment. The four-way arrows within the risk and protective factor boxes depict the dynamic, interactive relationships among these spheres of influence. These arrows are meant to show that these contexts interact and can influence development indirectly. The two-way arrows between risk factors and the vulnerable student on the left and between protective factors and the vulnerable student on the right reflect the transactional nature of this relationship. The two-way arrows show that although risk and protective factors affect the student and influence his or her outcomes, the student also influences these contexts.
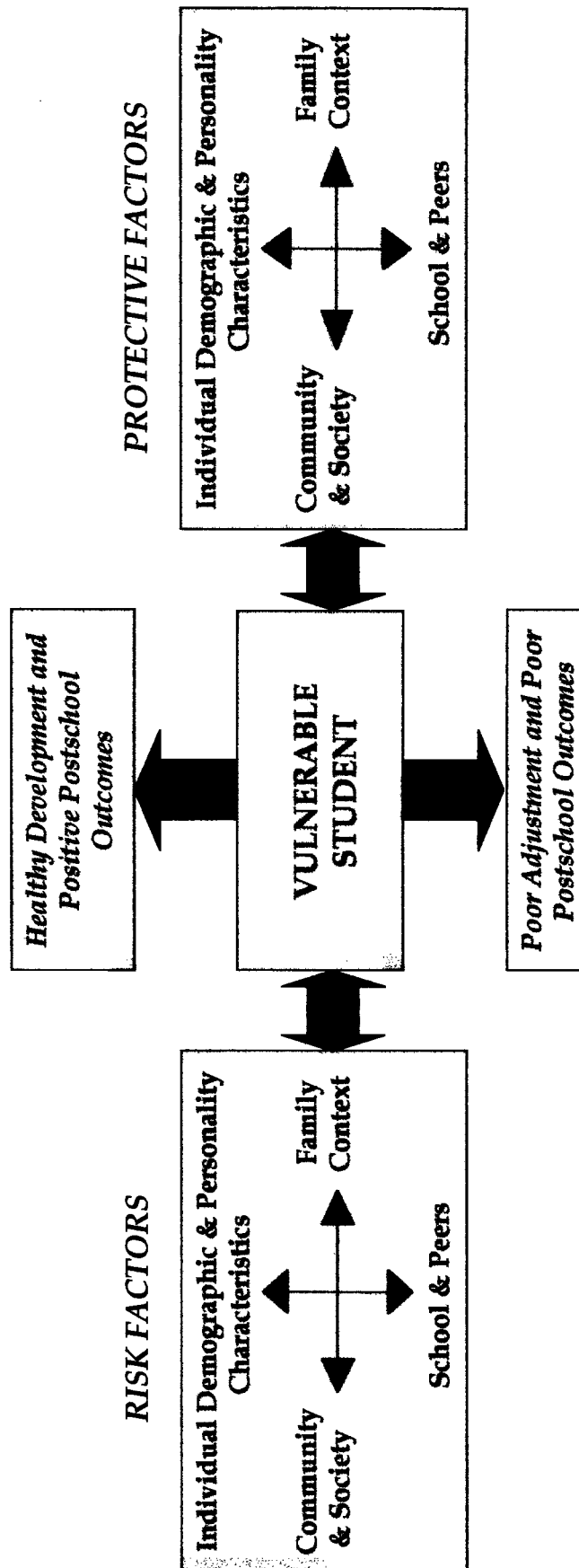
FIGURE 1. Relationship between risk factors, protective factors, the vulnerable student, and outcomes.

Several researchers have used aspects of this model to understand how risk and protective factors operate and influence the outcomes of adolescents and adults with disabilities. Werner (1993), using data from the Kauai longitudinal study, examined protective factors associated with positive adult outcomes among individuals who were classified as LD during childhood. These youth were considered high risk because they came from impoverished backgrounds and because of their disability status. Adults were classified as resilient according to their adult employment status, enrollment in postsecondary school, satisfaction with spousal relationship, satisfaction with parenting roles, quality of relationships with peers, and general life satisfaction. Adults who reported positive ratings on a combination of these indicators were considered well adjusted and resilient.

After resilient adults were identified, data collected from these adults during childhood and adolescence were analyzed to explore factors that contributed to their positive outcome status. Resilient adults were more likely to have had as children positive temperaments, a belief that obstacles and challenges could be overcome, parents who fostered self-esteem and who implemented rules and structure within home environments, caring and supportive relationships with adults in their lives (i.e., other than or in addition to parents), and opportunities for employment and other positive experiences during the transition between adolescence and adulthood (Werner, 1993). This investigation highlights the complex nature of developmental experiences and shows how individual child characteristics as well as experiences in multiple contexts can promote long-term adjustment among high-risk youth.

Blum, Kelly, and Ireland (2001) examined risk and protective factors associated with involvement in health-compromising behaviors among adolescents with LD, EBD, and mobility impairments and youth without disabilities. Initial findings from this investigation indicated that youth with disabilities were more likely to be engaged in health-compromising behaviors than were youth without disabilities. The researchers then examined how risk and protective factors influenced involvement in these behaviors. Risk factors at the individual level (i.e., sexually experienced, appears old for age, belief in early death, victim of violence, somatic complaints); family level (i.e., suicide in family, gun available in home); and school level (i.e., repeated a grade) increased the likelihood of involvement in health-compromising behaviors. Protective factors that reduced the likelihood of involvement in health-compromising behaviors included (a) individual student characteristics (i.e., religiosity, appears young for age, high self-esteem); (b) experiences within families (i.e., family connectedness, parental presence, parental expectations, activities with parents, lives with both parents); and (c) experiences within schools (i.e., school connectedness, high grade point averages; see Svetaz et al. (2000) for a similar analysis of emotional well-being among adolescents with LD).

In a qualitative investigation of highly successful adults with LD, Gerber, Ginsberg, and Reiff (1992) interviewed adults with LD and used a combination of data related to outcome status to classify them as high, moderate, or low in success. In this investigation, the majority of adults ($n = 46$) were classified as "highly successful," 25 were considered "moderately successful," and none were classified as low in success. Interviews were then conducted with participants to determine factors associated with these levels of success. Results revealed a number of themes that distinguished the two groups. The first theme, control, represented the participants' ability to set and accomplish goals in ways that provided them with an intrinsic sense of accomplishment. Whereas adults in the high-success group reported high levels of control, participants in the moderately successful group had greater concern for extrinsic influences in their lives. Adults in the highly successful group also indicated acceptance, understanding, and action regarding their disabilities. This understanding appeared to strengthen their identities and acceptance of self. Highly successful individuals were also characterized as persistent, hard working, and committed to finding the "right fit" for their abilities. Last, individuals in the high-success group reported receiving significant amounts of social support from mentors, spouses, and friends (Gerber et al., 1992).

Halpern, Yovanoff, Doren, and Benz (1995) and Benz et al. (1997) have conducted one of the only prospective investigations of how experiences during high school influence later outcomes among youth with high-incidence disabilities. These researchers collected data from students, parents, teachers, and school records during students' final year of high school. These youth were then followed into adulthood, and prior experiences were used to predict postsecondary educational involvement (Halpern et al., 1995) and employment status (Benz et al., 1997). Findings from the first investigation indicated that individual student characteristics (i.e., achievement levels) and school experiences (i.e., the provision and completion of needed instruction, transition planning, student and parent satisfaction with instruction) were stronger predictors of participation in postsecondary education than were gender, ethnicity, family income level, dropout status, the prevalence of integrated instruction, or congruence of student–parent expectations (Halpern et al., 1995). In the second investigation, Benz et al. (1997) prospectively examined variables that influenced employment-related outcomes among youth with and without disabilities. They found that individual student characteristics (i.e., achievement levels, social skills, job search skills) and community-related variables (i.e., having previous work experience) were positively associated with employment-related outcomes.

Although diverse in focus, these investigations demonstrate the application of models that focus on risk and protective factors. Such models help clarify the relationship between individual student characteristics, experiences within multiple contexts, and consequent outcomes. This brief re-

view also illustrates how a variety of methods can be employed to assist in the understanding of factors that influence outcome status.

DISCUSSION

As stated earlier, although it is clear that many young adults with high-incidence disabilities experience poor postschool outcomes, the factors that contribute to these poor outcomes are not well documented or understood. Longitudinal investigations that have followed students with disabilities into adulthood usually begin at some point following high school (Blackorby & Wagner, 1996; Murray et al., 1997), and thus any data that have been gathered regarding experiences in childhood and adolescence have usually been collected through retrospective accounts (Gerber et al., 1992; Hasazi et al., 1985). These limitations severely hamper our understanding of how early experiences contribute to later outcomes, making the implementation of well-grounded interventions a challenging proposition. In the following sections, issues related to research and practice are discussed. Because practitioners are often engaged in research efforts, and because researchers are often engaged in practice, these sections are not meant to be exclusive. Instead, they are organized to address a broad number of issues that fall within each of these categories.

Issues Related to Research

In this article, risk factors are conceptualized as characteristics, traits, and experiences that can negatively affect development and outcomes. Currently, very little information relating risk factors to the outcome status of youth with high-incidence disabilities exists. Therefore, future efforts must clarify the relationship between specific risk factors/processes and postschool outcome status. Based on previous work in special education as well as work in other social science areas, important risk variables for inclusion in prospective studies should focus on student characteristics, experiences within the contexts of families, experiences in school, and experiences in neighborhoods and communities (Benz et al., 1997; Garmezy, 1987, 1991; Halpern et al., 1995; Hawkins et al., 1992; Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997; Patterson, Forgatch, Yoerger, & Stoolmiller, 1998; Ryan, Stiller, & Lynch, 1994; Sroufe, 1983; Wehmeyer & Schwartz, 1997). Specific features of these contexts that have been associated with development and outcomes are summarized in Table 1 in the column labeled "Risk Factors." This list is by no means exhaustive; however, because there is some empirical support for each of these variables, future research efforts should focus on collecting information in each of these areas.

In addition to these risk factors, a number of factors and processes have been shown to distinguish between resilient high-risk youth and high-risk youth who do not experience positive outcomes (see Table 1, Protective Factors). Support for these protective factors also comes from a broad research base (Farnworth et al., 1985; Fisher, Kotes, Cole, Perkins, & Wynne, 1987; Gerber et al., 1992; Garmezy, 1991; Halpern et al., 1995; Hawkins et al., 1992; Jessor, 1993; Rutter et al., 1979; Sroufe, 1983; Svetaz et al., 2000; Wang & Gordon, 1994; Werner, 1993) focused on different indicators of vulnerability (i.e., poverty, family history of mental illness, disability status) as well as different outcomes (e.g., mental health, educational outcomes, economic outcomes). Many of these factors appear to represent the opposite poles of risk factors. For example, in the row containing individual child characteristics, poor academic achievement is a risk factor and strong academic achievement is a protective factor. However, protective factors represent more than the linear opposite of risk. Instead, these factors are interactive and can best be conceptualized as processes that change or modify one's experience of risk (Hawkins et al., 1992; Rutter, 1985). Because there is empirical support for the importance of these protective factors, researchers and practitioners in special education should make efforts to document the relationship between these factors/processes and the postschool outcome status of youth with high-incidence disabilities.

Ideally, such data would be collected over time and across developmental periods. In this review, I have not devoted enough attention to the importance of development, although a focus on development is one of the hallmarks of research on resilience (Egeland, Carlson, & Sroufe, 1993; Matsen, Best, & Garmezy, 1991). The fact that individuals respond differently to various challenges and opportunities during different developmental periods should come as no surprise to researchers and practitioners involved in transition-related issues. Transition implies change, and reactions and responses to various stressors and challenges, as well as reactions to support and protection, are influenced, modified, and interpreted according to cognitive, emotional, and behavioral maturational levels (Rutter, 1985). Because of the importance of developmental periods, researchers interested in understanding the postschool outcomes of youth with high-incidence disabilities should consider collecting information at multiple time points, during different developmental periods (i.e., early childhood, childhood, adolescence, adulthood) and important transitional periods (e.g., preschool to kindergarten, elementary to middle school, middle school to high school, high school to adulthood). Such data are likely to yield richer insights than data collected at single points in time or during only one developmental stage.

Data related to risk and protective processes could then be used to predict outcome status or could be analyzed by creating groups of "successful" and "unsuccessful" adults and then examining how data collected at earlier time points helps differentiate groups. Such analyses would incorporate sensitivity to the importance of developmental stages and transitions and would also focus on understanding the interactive and indirect relationships between influential factors.

TABLE 1. Summary of Risk Factors, Protective Factors, and Preliminary Implications for Practice

Context	Risk factors	Protective factors	Preliminary implications for practice
Individual	• Gender • Race • History of medical problems • Poor academic skills • Low school attendance • Low IQ • Low levels of self-determination • Poor social problem-solving skills • Emotional problems • Stressful life events.	• Positive temperament • High self-esteem • Moderate to high intelligence • Internal locus of control/ high levels of self-determination • Strong academic skills • Moderate to high intelligence • Strong social problem-solving skills • Positive/optimistic outlook on future	• Promote self-determination & agency • Promote self-esteem • Promote social cognitive problem-solving skills • Promote academic skills & cognitive competencies
Family	• Low socioeconomic status • Inconsistent, harsh, & disorganized parenting style (authoritarian) • Family composition • Family history of mental illness • History of child maltreatment	• Secure child–caregiver attachment relationship • Warm but demanding parenting style (authoritative) • Family composition • Parent level of education • Parent employment • High expectations for child	• Develop stronger school–home relationships and promote authoritative parenting practices • Provide parents with specific strategies for assisting students with academic work, goal setting, and behavior management • Start parent education programs (e.g., after-school GED program)
School	• Poor quality of instruction • Few opportunities for involvement in school activities • Low levels of bonding to school • Dangerous or unsafe school environment • Poor peer relationships • School dropout	• Positive & supportive teacher–student relationships • A clear focus on building academic, social, and emotional competencies • A focus on building self-determination and internal locus of control • Consistent school–home communication • Consistent and well-designed transition planning	• Meet with students regularly & build positive relationships • Implement research-based educational practices & focus on building strong academic skills • Teach students to set goals, act on those goals, and assess progress (self-determination and agency) • Provide students with opportunities for mastery experiences (self-esteem) • Implement social–emotional learning curricula & explicitly teach social problem solving skills • Communicate regularly with home to develop parallel goals & activities • Design a system for providing realistic and relevant transition planning
Community	• Few opportunities to participate in prosocial activities • Few viable employment opportunities and options • Few opportunities to develop & sustain meaningful relationships with positive adult models • High levels of crime, violence, and poverty	• Accessible prosocial organizations within the community • Opportunities for employment during high school • Access to mentors and adult role models in the community	• Develop a list of clubs and other organizations in the community & promote youth involvement • Assist students in identifying and attaining viable employment in their communities • Start a mentoring program by recruiting interested community members, college students, & teachers to serve as mentors

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Issues Related to Practice

Once risk and protective factors related to postschool adjustment have been clearly identified and the relationship between these indicators and outcome status has been demonstrated, it may be possible to eliminate or significantly alter risk exposure while promoting protective experiences. At the first level, this would involve the prevention of known risk factors. For example, the effects of poverty and the many constructs it encompasses on a host of wide-ranging outcomes are undeniably real (McLoyd, 1998; Sherman, 1994). Therefore, efforts designed to reduce children's exposure to poverty are of primary importance. Such efforts may be particularly important when examining resilient youth because, as Garmezy (1987) has observed, examining resilient high-risk youth can have social and political consequences if not carefully framed:

> The concept of protective factors is potentially
> a political weapon. Resilient children and the
> countless numbers of successful adults who
> demonstrate their escape from poverty and dis-
> advantage, can be used by political advocates of
> an ideological viewpoint that holds the resiliency
> of some to be proof of its possession by all: that
> anyone can emulate such achievements if they
> only try harder. (p. 171)

The concept of resilience implies escape from vulnerability and risk, and the fact that some children and youth do escape does not mean that all, or even most, can escape. Risk factors are, by their very nature, reliable in predicting negative outcomes. Therefore, primary prevention efforts to reduce exposure to known risks should always be at the forefront of social service efforts. In addition, as our understanding of the risks associated with the negative outcomes of youth with high-incidence disabilities expands, it may become apparent that some risk factors are more susceptible to change than others. Once these factors are identified, efforts should be made to reduce exposure to them.

At the same time, other efforts designed to build the capacity for resilience should also be of concern. Based on research in various fields of study, such efforts should focus on at least four levels: (a) the individual, (b) schools, (c) families, and (d) communities (Matsen, 1994). Efforts to combine interventions in ways that target these contexts concurrently should also be considered because multicomponent, multilevel intervention may have stronger effects than efforts focused on only one factor or context (Hawkins & Catalano, 1992). A preliminary list of strategies that might promote resilience is presented in Table 1.

Individual Factors. At the individual level, there appear to be a number of abilities or competencies that can affect the outcomes of youth with high-incidence disabilities. One of the most promising areas of work is related to the con-

cept of self-determination (Wehmeyer & Schwartz, 1997). *Self-determination* generally refers to an individual's ability to make autonomous decisions, set goals, independently attempt to accomplish goals, independently attain goals, independently evaluate his or her performance, and make adjustments based on goal progress (Field, Hoffman, & Posch, 1997; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000). This concept is closely aligned with research related to internal locus of control and self-esteem, both of which have been shown to influence outcome status (Blum et al., 2001; Werner, 1993). A second important individual capacity is related to social skills and social cognitive problem-solving abilities (Kohler, 1993; Shure & Spivack, 1980, 1988). Students who are socially competent and who are able to develop and sustain prosocial relationships with others are more likely than individuals who do not possess these skills to have positive postschool outcomes (Kohler, 1993). Last, strong academic and cognitive skills have consistently been associated with long-term adjustment, and youth who possess these skills are more likely to experience better outcomes following high school than are youth who do not (Benz et al., 1997; Halpern et al., 1995; Matsen, 1994).

Because each of these individual capacities has been associated with outcome status, efforts should be made to build these skills among individuals with high-incidence disabilities. Finding ways to build self-determination, social cognitive problem-solving skills, and academic and cognitive abilities among youth with high-incidence disabilities is appealing for several reasons. First, these skills appear to affect the long-term outcomes of youth with disabilities. In addition, these skills can have an immediate impact on the social, emotional, and academic functioning of youth in school environments. Further, these skills are important for functioning in settings other than school and may help students develop and sustain relationships, and promote involvement, within other contexts.

Family Context. One of the most consistent findings in research focused on resilience has been that parents and families are an essential component to promoting positive adjustment. This finding has been demonstrated with children and youth at risk because of economic hardship and poverty (Elder, 1974; Werner & Smith, 1989) and maternal mental illness (Fisher et al., 1987) and among adolescents at risk of delinquency and drug use (Hawkins & Catalano, 1992; Hawkins et al., 1992). Parents who provide students with emotionally supportive, responsive relationships that are also characterized by structure and the modeling of appropriate behaviors appear to have the most powerful influence over student outcome status (Hawkins et al., 1992; Matsen, 1994; Werner & Smith, 1989). Effective parents can promote a variety of academic, social, behavioral, and emotional skills and competencies in children and youth (Matsen et al., 1990). Although teachers and other school personnel do not have direct control over parenting practices, finding ways to

develop and sustain meaningful school–home connections may provide practitioners with opportunities to work with parents in ways that promote the consistency of support in home environments (Epstein, 1990, 1995).

School Context. A considerable body of research has investigated the effects of successful schools in high-risk environments (Comer, 1988, 1993; Freiberg, Prokosch, Treister, & Stein, 1990; Rutter et al., 1979). Among the school-level variables thought to exert the most powerful influence on children and youth are close and caring teacher–student relationships, the promotion of self-esteem and self-determination, a consistent focus on academic skills, the active teaching and modeling of appropriate social and behavioral skills, and school–home involvement. Children and youth spend approximately 15,000 hours of their lives in schools, which are one of the primary means through which individuals develop the skills and capacities for later success (Rutter et al., 1979). Teachers can have powerful and lasting effects on the lives of children and youth with disabilities both through the provision of important learning experiences and, perhaps more important, through the quality of the relationships they develop with students.

Research focused specifically on students with high-incidence disabilities also suggests at least two other important school-level variables: high school graduation and transition planning. First, high school graduation has repeatedly been shown to influence the postschool outcome status of youth with high-incidence disabilities; thus, developing strategies to help these students complete this experience is a critical educational objective (Blackorby & Wagner, 1996; Sitlington & Frank, 1993). Second, researchers in special education have also found that quality transition planning during high school can promote positive postschool outcomes (Halpern et al., 1995). Therefore, schools should carefully plan and implement transition-related experiences in high school environments.

Community Context. A number of community-related variables can influence student outcomes, and teachers and schools can influence many of these variables directly (Reynolds, 1994). Work experience during high school has been shown to have a positive impact on postschool employment status, so schools should find ways to promote these experiences (Benz et al., 1997). However, employment-related experiences should be designed with care because these experiences should not come at the expense of academic and other school-related competencies (Halpern, Doren, & Benz, 1993).

In addition, although not systematically studied among populations of students with high-incidence disabilities, involvement with sports teams, church groups, and other community organizations appears to influence outcomes among high-risk populations (Murray-Nettles, 1991). In one of the few investigations that has considered such experiences, Wagner (1995) reported that youth with EBD who were in-volved in such activities had better school-related adjustment than did students with EBD who did not engage in such activities. Therefore, promoting involvement in community groups and organizations may serve an important developmental function for children and youth with high-incidence disabilities.

Conclusions

It is now clear that many youth with high-incidence disabilities experience poor outcomes in adulthood. Less clear, however, is an understanding of why these outcomes occur. A risk and resilience model provides a framework for exploring the impact of individual, social, and contextual experiences on the long-term outcomes of youth with high-incidence disabilities. Developing further understanding about how specific risk and protective factors and processes operate in the lives of youth with high-incidence disabilities will provide researchers and practitioners with greater insight into the lives of these youth. This understanding will provide greater opportunities for the implementation of well-grounded prevention and intervention efforts. Such efforts will likely focus on the multiple contexts of individuals, families, schools, and communities because it appears that these interrelated contexts influence development and outcome status. Although such efforts will require substantial commitments on the part of researchers, practitioners, and policymakers, such commitments are necessary if we are truly interested in understanding and supporting youth with high-incidence disabilities during their transition to adulthood. ∎

CHRISTOPHER MURRAY, PhD, is an assistant professor of special education in the School of Education at DePaul University. His research interests focus on understanding how social and contextual experiences influence the adjustment and outcomes of students with disabilities in urban environments. Address: Christopher Murray, DePaul University, School of Education, 2320 N. Kenmore Ave., Chicago, IL 60614¬3250; e-mail: cmurray@depaul.edu

REFERENCES

Affleck, J. Q., Edgar, E., Levine, P., & Kortering, L. (1990). Postschool status of students classified as mildly mentally retarded, learning disabled, or nonhandicapped: Does it get better with time? *Education and Training in Mental Retardation, 25,* 315–324.

Benz, M. R., Yovanoff, P., & Doren, B. (1997). School-to-work components that predict postschool success for students with and without disabilities. *Exceptional Children, 63,* 151–165.

Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. *Exceptional Children, 62,* 399–413.

Blum, R. W., Kelly, A., & Ireland, M. (2001). Health risk behaviors and protective factors among adolescents with mobility impairments and learning and emotional disabilities. *Journal of Adolescent Health, 28,* 481–490.

Brooks-Gunn, J., Duncan, G. J., Klebanov, P. K., & Sealand, N. (1993). Do neighborhoods influence child and adolescent development? *American Journal of Sociology, 99,* 353–395.

Carson, R. R., Sitlington, P. L., & Frank, A. R. (1995). Young adulthood for individuals with behavioral disorders: What does it hold? *Behavioral Disorders, 20,* 127–135.

Cicchetti, D., & Carlson, V. (Eds.). (1989). *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect.* New York: Cambridge University Press.

Comer, J. P. (1988). Educating poor minority children. *Scientific American, 259*(5), 42–48.

Comer, J. P. (1993). *School power: Implications of an intervention project.* New York: Free Press.

Egeland, B., Carlson, E., & Sroufe, L. A. (1993). Resilience as a process. *Development and Psychopathology, 5,* 517–528.

Elder, G. H. (1974). *Children of the Great Depression: Social change in life experiences.* Chicago: University of Chicago Press.

Epstein, J. L. (1990). School and family connections: Theory, research, and implications for integrating sociologies of education and family. *Marriage and Family Review, 15,* 99–126.

Epstein, J. L. (1995). School/family/community partnerships: Caring for the children we share. *Phi Delta Kappan, 76,* 701–712.

Farnworth, M., Schweinhart, L. J., & Berrueta-Clement, J. R. (1985). Preschool intervention, school success and delinquency in a high risk sample of youth. *American Educational Research Journal, 22,* 445-464.

Feagin, J. R., & Feagin, C. B. (1996). *Racial and ethnic relations.* Upper Saddle River, NJ: Prentice Hall.

Field, S., Hoffman, A., & Posch, M. (1997). Self-determination during adolescence: A developmental perspective. *Remedial and Special Education, 18,* 285–293.

Fisher, L., Kotes, R. F., Cole, R. E., Perkins, P. M., & Wynne, L. C. (1987). Competent children at risk: A study of well-functioning offspring of disturbed parents. In E. J. Anthony & B. J. Cohler (Eds.), *The invulnerable child* (pp. 211–227). New York: Guilford.

Frank, A. R., Sitlington, P. L., & Carson, R. R. (1995). Young adults with behavioral disorders: A comparison with peers with mild disabilities. *Journal of Emotional and Behavioral Disorders, 3,* 156–164.

Freiberg, H. J., Prokosch, N., Treister, E. S., & Stein, T. (1990). A study of five at risk inner city elementary schools. *Journal of School Effectiveness and School Improvement, 1,* 5–25.

Garmezy, N. (1987). Stress, competence, and development: Continuities in the study of schizophrenic adults, children vulnerable to psychopathology, and the search for stress-resistant children. *American Journal of Orthopsychiatry, 57,* 159–174.

Garmezy, N. (1991). Resiliency and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist, 34,* 416–430.

Garmezy, N. (1994). Reflections and commentary on risk, resilience, and development. In R. J. Haggerty, L. R. Sherrod, N. Garmezy, & M. Rutter (Eds.), *Stress, risk, and resilience in children and adolescents: Processes, mechanisms, and interventions* (pp. 1–18). New York: Cambridge University Press.

Gerber, P. J., Ginsberg, R., & Reiff, H. B. (1992). Identifying alterable patterns in employment success for highly successful adults with learning disabilities. *Journal of Learning Disabilities, 25,* 475–487.

Goldstein, D. E., Murray, C., & Edgar, E. (1998). Employment earnings and hours of high school graduates with learning disabilities through the first decade after graduation. *Learning Disabilities Research & Practice, 13,* 53–64.

Halpern, A. S., Doren, B., & Benz, M. R. (1993). Job experiences of students with disabilities during their last two years in school. *Career Development for Exceptional Individuals, 16,* 63–73.

Halpern, A. S., Yovanoff, P., Doren, B., & Benz, M. R. (1995). Predicting participation in postsecondary education for school leavers with disabilities. *Exceptional Children, 62,* 151–164.

Harry, B. (1992). *Cultural diversity, families, and the special education system: Communication and empowerment.* New York: Teachers College Press.

Hasazi, S. B., Gordon, L. R., & Roe, C. A. (1985). Factors associated with the employment status of handicapped youth exiting high school from 1979 to 1983. *Exceptional Children, 51,* 455–469.

Hawkins, J. D., & Catalano, R. F. (1992). *Communities that care: Actions for drug abuse prevention.* San Francisco: Jossey-Bass.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse and prevention. *Psychological Bulletin, 112,* 64–105.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48,* 117–126.

Jimerson, S., Carlson, E., Rotert, M., Egeland, B., & Sroufe, L. A. (1997). A prospective, longitudinal study of the correlates and consequences of early grade retention. *Journal of School Psychology, 35,* 3–25.

Jimerson, S., Egeland, B., & Teo, A. (1999). A longitudinal study of achievement trajectories: Factors associated with change. *Journal of Educational Psychology, 91,* 116–126.

Kochenderfer, B. J., & Ladd, G. W. (1996). Peer victimization: Cause or consequence of school maladjustment? *Child Development, 67,* 1305–1317.

Kohler, P. (1993). Best practices in transition: Substantiated or implied? *Career Development for Exceptional Individuals, 16,* 107–121.

Leone, P. E. (Ed.). (1990). *Understanding troubled and troubling youth.* London: Sage.

Malmgren, K., Edgar, E., & Neel, R. S. (1998). Postschool status of youths with behavioral disorders. *Behavioral Disorders, 23,* 257–263.

Matsen, A. S. (1994). Resilience in individual development: Successful adaptation despite risk and adversity. In M. C. Wang & E. W. Gordon (Eds.), *Educational resilience in inner-city America* (pp. 3–25). Hillsdale, NJ: Erlbaum.

Matsen, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology, 2,* 425–444.

McLoyd, V. (1998). Socioecomomic disadvantage and child development. *American Psychologist, 53,* 185–204.

Moskovitz, S. (1983). *Love despite hate.* New York: Schocken Books.

Murray, C., Goldstein, D. E., & Edgar, E. (1997). The employment and engagement status of high school graduates with learning disabilities through the first decade after graduation. *Learning Disabilities Research & Practice, 12,* 151–160.

Murray, C., Goldstein, D. E., Nourse, S., & Edgar, E. (2000). The postsecondary school attendance and completion rates of high school graduates with learning disabilities. *Learning Disabilities Research & Practice, 15,* 119–127.

Murray-Nettles, S. (1991). Community contributions to school outcomes of African American students. *Education and Urban Society, 24,* 132–147.

Murray-Nettles, S., & Pleck, J. H. (1996). Risk, resilience, and development: The multiple ecologies of black adolescents in the United States. In R. Haggerty, L. Sherrod, N. Garmezy, & M. Rutter (Eds.), *Stress, risk, and resilience in children and adolescents: Processes, mechanisms, and interventions* (pp. 147–181). Cambridge, UK: Cambridge University Press.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low accepted children at risk? *Psychological Bulletin, 102,* 357–389.

Patterson, G. R., Forgatch, M. S., Yoerger, K. L., & Stoolmiller, M. (1998). Variables that initiate and maintain an early-onset trajectory for juvenile offending. *Development and Psychopathology, 10,* 531–547.

Reynolds, M. C. (1994). Special education as a resilience-related venture. In M. C. Wang & E. W. Gordon (Eds.), *Educational resilience in inner-city America* (pp. 131–137). Hillsdale, NJ: Erlbaum.

Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry, 147,* 598–611.

Rutter, M. (1990). Psychosocial resilience and protective mechanisms. In J. Rolf, A. S. Matsen, D. Cicchetti, K. H. Nuecterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 181–214). New York: Cambridge University Press.

Rutter, M., Maughan, B., Mortimore, P., & Ouston, J. (1979). *Fifteen thousand hours: Secondary schools and their effects on children*. Cambridge, MA: Harvard University Press.

Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence, 14*, 226–249.

Sherman, A. (1994). *Wasting America's future: The children's defense fund report on the costs of child poverty*. Boston: Beacon Press.

Shure, M. B., & Spivack, G. (1980). Interpersonal problem solving as a mediator of behavioral adjustment in preschool and kindergarten children. *Journal of Applied Developmental Psychology, 1*, 29–44.

Shure, M. B., & Spivack, G. (1988). Interpersonal cognitive problem solving. In R. H. Price, E. L. Cowen, R. P. Lorion, & J. Ramos-Mckay (Eds.), *14 ounces of prevention* (pp. 69–82). Hyattsville, MD: American Psychological Association.

Sitlington, P. L., & Frank, A. R. (1993). Dropouts with learning disabilities: What happens to them as young adults? *Learning Disabilities Research & Practice, 8*, 244–252.

Sroufe, L. A. (1983). Infant-caregiver attachment and patterns of adaptation in preschool: The roots of maladaption and competence. In M. Perlmutter (Ed.), *Development and policy concerning children with special needs, The Minnesota Symposium on Child Psychology* (Vol. 16, pp. 41–83). Hillsdale, NJ: Erlbaum.

Svetaz, M. V., Ireland, M., & Blum, R. (2000). Adolescents with learning disabilities: Risk and protective factors associated with emotional well-being: Findings from the National Longitudinal Study of Adolescent Health. *Journal of Adolescent Health, 27*, 340–348.

U.S. Department of Education. (1999). *Twenty-first annual report to Congress on the implementation of the Individuals with Disabilities Education Act*. Washington, DC: Author.

U.S. Department of Education. (2000). *Twenty-second annual report to Congress on the implementation of the Individuals with Disabilities Education Act*. Washington, DC: Author.

Vogel, S. A. (1990). Gender differences in intelligence, language, visual-motor abilities, and academic achievement in students with learning disabilities: A review of the literature. *Journal of Learning Disabilities, 23*, 44–52.

Wagner, M. (1992). *Being female—A secondary disability? Gender differences in the transition experience of young people with disabilities*. Menlo Park, CA: SRI International.

Wagner, M. (1995). Outcomes for youths with serious emotional disturbance in secondary school and early adulthood. *The Future of Children, 5*, 90–112.

Wang, M. C., & Gordon, E. W. (Eds.). (1994). *Educational resilience in inner-city America*. Hillsdale, NJ: Erlbaum.

Wehmeyer, M. L., Palmer, S. B., Agran, M., Mithaug, D. E., & Martin, J. E. (2000). Promoting causal agency: The self-determined learning model of instruction. *Exceptional Children, 66*, 439–453.

Wehmeyer, M., & Schwartz, M. (1997). Self-determination and positive adult outcomes: A follow-up study of youth with mental retardation or learning disabilities. *Exceptional Children, 63*, 245–255.

Werner, E. E. (1990). Protective factors and individual resilience. In S. J. Meisels & J. D. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 97–116). New York: Cambridge University Press.

Werner, E. E. (1993). Risk and resilience in individuals with learning disabilities: Lessons learned from the Kauai longitudinal study. *Learning Disabilities Research & Practice, 8*, 28–34.

Werner, E. E., & Smith, R. S. (1989). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: Adams, Bannister & Cox.