

Introduction

Communities In Schools (CIS) is the nation's fifth largest youth serving organization and the leading dropout prevention organization, delivering resources to nearly one million students in 3,250 schools across the country. To further their network-wide commitment to using evidence-based strategies in these efforts, CIS has determined that research evidence is needed on the risk factors that increase the likelihood of students dropping out of school and the strategies that most effectively address the risk factors.

To accomplish this, CIS teamed with the National Dropout Prevention Center/Network at Clemson University (NDPC/N) to conduct a multi-component study to (1) review research on risk factors or conditions that increase the likelihood of students dropping out of school and (2) identify exemplary programs that address these risk factors.

NDPC/N carried out a comprehensive search and review of major studies, prior reviews, and meta-analyses completed as of December 31, 2005, on risk factors for school dropout and on elements and programs proven to be effective in addressing these factors through empirical research. The steps taken for each search and review are summarized in Charts A-1 to A-3 in Appendix A.

Cautionary note. It became clear during the search that there were a number of issues related to the quality of available research evidence on programs addressing school dropout and other prevention issues that make it difficult to conclusively identify effective programs. Many programs do not include rigorous evaluation of program effectiveness or collect little to no long-term follow-up data to determine if program effects endure over time (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 1999; Fashola & Slavin, 1998; Rumberger, 2001). Without clear evidence using control or comparison groups to show that a program has significant and lasting impact on dropout or other problem behaviors, it is difficult to identify quality or model programs or the components that make them effective.

This lack of evidence also means that few, if any, of the programs would meet the screening criteria and evidence standards for the U.S. Department of Education's *What Works Clearinghouse*. As the goal of this review was to assist CIS Affiliates with their current efforts, this review had to rely on the best available research evidence. Selected programs are evidence-based and met as many of the *Clearinghouse* criteria as possible. It is the intent of CIS to continuously update the list of evidence-based programs and add critical elements as more quality evidence becomes available.

This narrative describes the results of the NDPC/N review. The first section addresses the literature review on and identification of significant risk factors for school dropout. The next section outlines the search for and identification of exemplary programs. This section of the narrative also describes the search for and identification processes for key components and evidence-based strategies. A number of appendices follow the narrative and include additional tables and charts and risk factor and program descriptions.

Significant Risk Factors for School Dropout

Risk Factor Literature Search

The identification of significant risk factors was accomplished in several steps (see Chart A-1 in Appendix A). The first step included a thorough review of the literature to determine the risk factors and conditions that increase the likelihood of students dropping out of school. Twenty-five years of ERIC literature from 1980 up to December 31, 2005,¹ were reviewed to obtain an historic view of the issue. Materials from the National Dropout Prevention Center/Network Library were included in the review. Other electronic databases such as *PsychInfo* and *Medline* were also explored for pertinent materials. An Internet search was conducted for ephemeral and unpublished items. Search terms included risk factors, risk indicators, at-risk youth, dropout indicators, and dropout identification. Bibliographies and reference lists from some key documents on dropout were also scanned for relevant items.

The first search resulted in around 3,400 potential citations for review, which was eventually narrowed, based on relevance, research base, and source, to approximately 75 articles that were judged worthy of further analysis. To best assess available research on risk factors up to December 2005 on risk factors, NDPC/N staff decided to review only the major articles in this group that specifically focused on high school graduation or school dropout as the primary goal of analysis. Forty-four of the citations met this criterion. These articles were reviewed and a summary of major trends found in these appears in the following section.

Risk Factors Across Four Domains

As for other types of educational outcomes, researchers have found that dropping out of school stems from a wide variety of factors in four areas or domains: individual, family, school, and community factors (Hawkins, Catalano, & Miller, 1992; Rumberger, 2001). Risk factors for dropout from all four domains were described in the articles reviewed. A brief summary of some of these factors are described here, beginning with the factors identified in the individual domain.

Individual Domain: Factors Related to Individual Students

High-risk demographic characteristics. Studies have linked leaving school early to a number of individual factors that put children and youth at greater risk. This includes a number of unalterable, background characteristics such as race/ethnicity (Battin-Pearson, Newcomb, Abbott, Hill, Catalano, & Hawkins, 2000; Ekstrom, Goertz, Pollack, & Rock, 1986; Rumberger, 2001; Schargel, 2004; Teachman, Paasch, & Carver, 1996), gender (Batin-Pearson et al., 2000; Goldschmidt & Wang, 1999; Rumberger, 2001), immigration status (Rumberger, 1995), limited English proficiency (Schargel, 2004), and having limited cognitive abilities (Lehr, Johnson, Bremer, Cosio, & Thompson, 2004; Lloyd, 1978; Wehlage & Rutter, 1986) or some other type of disability, whether it is physical, emotional, or behavioral (Lehr et al., 2004; Schargel, 2004; Wagner, Blackorby, Cameto, Hebbeler, & Newman, 1993).

Students with disabilities have been found to have similar types of risk factors for dropout as for other students (Lehr et al., 2004) but are more likely to have multiple risk factors than other students (Wagner et al., 1993). Students diagnosed as seriously emotionally disturbed or who have learning disabilities are particularly vulnerable to dropping out (Kaufman, Bradbury, & Owings, 1992; Wagner et al., 1993).

Early adult responsibilities. An individual's nonschool experiences also have been found to impact dropout. When adolescents are forced to take on adult responsibilities, it decreases their likelihood of staying in school until graduation. Possible responsibilities range from becoming a teen parent (Cairns, Cairns, & Neckerman, 1989; Gleason & Dynarski, 2002; Rumberger, 2001), having to take a job to help

out his or her family (Jordan, Lara, & McPartland, 1994), or having to care for siblings (Rosenthal, 1998). Combining school with working at a job more than 20 hours a week significantly increases the likelihood that a student will leave school before graduating (Barro & Kolstad, 1987; Goldschmidt & Wang, 1999; Wehlage & Rutter, 1986).

High-risk attitudes, values, and behaviors. Children and adolescents may also have general attitudes and behaviors that increase the likelihood that they will not graduate. Early antisocial behavior, such as violence, substance use, or trouble with the law, has been linked in a number of studies to dropping out of school (Battin-Pearson et al., 2000; Ekstrom et al., 1986; Wehlage & Rutter, 1986). Early sexual involvement has also been linked to dropping out (Battin-Pearson et al., 2000), as has spending no time each week reading for fun (Gleason & Dynarski, 2002). Having close friends who are involved in antisocial behavior or who have dropped out increases the risk that a youth will also drop out (Battin-Pearson et al., 2000; Cairns et al., 1989; Catalano & Hawkins, 1995; Elliott & Voss, 1974). Low occupational aspirations (Rumberger, 2001) and having low self-esteem and self-confidence (Rosenthal, 1998) also have been found to increase the risk of dropout.

Poor school performance. An individual's school experiences have been found to have a major impact on the likelihood that he or she will graduate. School performance and engagement with school are two of the primary experiences. Poor academic performance is one of the most consistent predictors of dropout, whether measured through grades, test scores, or course failure (Alexander, Entwisle, & Kabbani, 2001; Battin-Pearson et al., 2000; Ensminger & Slusarcick, 1992; Rumberger, 2001; Wagner et al., 1993). It has been found to impact dropout starting in the 1st grade (Alexander et al., 2001) and continuing throughout elementary school (Lloyd, 1978), into middle (Battin-Pearson et al., 2000; Cairns et al., 1989; Gleason & Dynarski, 2002; Ingels, Curtin, Kaufman, Alt, & Chen, 2002), and on into high school (Alexander et al., 2001; Ekstrom et al., 1986; Elliott & Voss, 1974; Gleason & Dynarski, 2002).

Other evidence that poor school performance is a major factor in leaving school early comes from dropouts themselves. Poor academic performance was given as one of the major reasons that dropouts left school before graduation in several surveys (Bridgeland, Dilulio, & Morison, 2006; Ekstrom et al., 1986; Jordan et al., 1994). "Got poor grades" (Ekstrom et al., 1986), "was failing in school" (Bridgeland et al., 2006; Jordan et al., 1994), or "couldn't keep up with schoolwork" (Jordan et al., 1994) were reported by at least one-third of dropouts surveyed as primary reasons for dropping out in three surveys.

Another aspect of school performance that is related to achievement but a major factor on its own, is being retained and having to repeat a grade (Alexander et al., 2001; Cairns et al., 1989; Janosz, Le Blanc, Boulerice, & Tremblay, 1997; Rumberger, 2001; Wagner et al., 1993). As for low achievement, beginning in 1st grade, retention at any grade level has been found to impact the chances that a student will drop out. What makes retention so powerful is that its effects are additive, where multiple retentions dramatically increase the odds that a student will drop out (Alexander et al., 2001; Cairns et al., 1989; Gleason & Dynarski, 2002).

Students with disabilities have been found to have multiple school performance risk factors. These students were found in one national study of high school students to be on average three years behind grade level in both reading and math, to have lower average grade point averages, and a higher likelihood of having failed a course than students without disabilities (Wagner et al., 1993).

Disengagement from school. Interrelated with school performance is the level of a student's engagement with school. Whether it begins before, after, or occurs simultaneously with poor performance, students who are alienated and disengaged from school are much more likely to drop out (Alexander, Entwisle, & Horsey, 1997; Rumberger, 2001). Researchers have found that disengagement manifests itself in both

behavior and attitudes and have categorized engagement into several groupings: academic, social, behavioral, and psychological.²

Academic disengagement. One primary indicator of a student's level of detachment and disengagement from school academically is absenteeism (Alexander et al., 1997; Gleason & Dynarski, 2002; Kaufman et al., 1992; Rumberger, 2001). There is evidence that the number of days out of school impacts dropout starting in the 1st grade and continues to be a factor throughout a student's school career, with some evidence that patterns of absenteeism are consistent across grade levels, at least for students with disabilities (Wagner et al., 1993). Missing too many days and having trouble catching up was the second most reported reason for dropping out of school in a recent survey of dropouts around the U.S. (Bridgeland et al., 2006). Other behaviors that can signal academic disengagement include cutting classes (Ekstrom et al., 1986; Wehlage & Rutter, 1986), truancy (Wehlage & Rutter, 1986), consistently not completing homework (Ekstrom et al., 1986), and coming to class unprepared (Kaufman et al., 1992).

Behavioral disengagement. Another major behavioral indicator that a student is not fully engaged with school is misbehavior (Alexander et al., 2001; Ekstrom et al., 1986; Kaufman et al., 1992; Rumberger, 2001; Wehlage & Rutter, 1986). Acting up in school, particularly if these behaviors result in repeated suspensions or an expulsion, can increase a student's alienation from school (Ekstrom et al., 1986; Wehlage & Rutter, 1986). Discipline problems in both middle (Gleason & Dynarski, 2002; Goldschmidt & Wang, 1999; Kaufman et al., 1992) and high school (Alexander et al., 2001; Ekstrom et al., 1986; Gleason & Dynarski, 2002; Wehlage & Rutter, 1986) have been consistently linked to increased dropout. In a few studies, misbehavior as early as the 1st grade has been linked to dropout (Jimerson, Egeland, Sroufe, & Carlson, 2000). Getting into trouble with police has also been found to be consistent with a pattern of disengagement and has been linked to dropout (Barro & Kolstad, 1987; Ekstrom et al., 1986; Wehlage & Rutter, 1986).

Psychological disengagement. School disengagement can also appear in attitudes toward school. Having low educational expectations either in being uncertain about high school graduation (Gleason & Dynarski, 2002; Rumberger, 2001; Wehlage & Rutter, 1986) or lacking plans for education beyond high school (Alexander et al., 1997; Janosz et al., 1997; Kaufman et al., 1992) have been found to significantly increase the likelihood that a student will drop out before getting a diploma. Reasons for dropping out given by dropouts illustrate psychological disengagement from school. Surveys have found that dropouts commonly felt that they didn't belong at school (Jordan et al., 1994), had trouble getting along with their teachers (Ekstrom et al., 1986; Jordan et al., 1994), or just had a general dislike of school (Ekstrom et al., 1986; Jordan et al., 1994).

Social disengagement. Dropouts also have been found to be more likely to have trouble getting along with peers at school or have problems with social skills (Jimerson et al., 2000). One study found that the factor influencing dropout wasn't that students were socially isolated but that the friends they had were also at risk of dropping out (Cairns et al., 1989). Another aspect of social disengagement at school is the lack of involvement in extracurricular activities at school, such as clubs, sports, science fairs, scouting, or the school newspaper (Elliott & Voss, 1974; Ingels et al., 2002). Social engagement in high school through involvement in school or community clubs or activities was found to be particularly important for students with disabilities to keep them from dropping out of school (Wagner et al., 1993).

Education stability. Another major school-related experience that can impact dropout is educational mobility through changing schools, particularly when it means attending multiple schools (Gleason & Dynarski, 2002; Rumberger, 2001; Teachman et al., 1996). High mobility between schools or changes in services for students with disabilities has also been linked to increased dropout (Lehr et al., 2004).

Family Domain: Factors Related to Family Background and Home Experiences

Background characteristics. A student's family background and home experience exert a powerful influence over educational outcomes, including dropping out of school. One of the most consistent family background factors found to impact dropout has been socioeconomic status (SES), whether measured through parental education, income, or occupational level (Alexander et al. 2001; Battin-Pearson et al., 2000; Cairns et al., 1989; Lehr et al., 2004; Rumberger, 2001; Schargel, 2004; Wehlage & Rutter, 1986). Youth in non-English-speaking homes have been found to be more likely to drop out (Rosenthal, 1998; Rumberger, 2001). Family structure can also impact dropout, where students from single-parent (Ekstrom et al., 1986; Kaufman et al., 1992; Lehr et al., 2004; Rumberger, 2001) as well as stepparent (Rumberger, 1995; Teachman et al., 1996) families have been found to be more likely to drop out of school.

Level of household stress. High levels of stress in households can increase the likelihood of dropping out (Rosenthal, 1998). This can be caused by any number of problems such as substance use (Rosenthal, 1998), family conflict (Catalano & Hawkins, 1995; Rosenthal, 1998), or family financial or health problems (Rosenthal, 1998). Residential moves also negatively impact children and youth and impact dropout (Ensminger, Lamkin, & Jacobson, 1996; Lehr et al., 2004). Other family changes in addition to moving, such as death, divorce, or remarriage, also have a negative impact on staying in school (Alexander et al., 1997; Alexander et al., 2001).

Family dynamics. Some studies have found a link between family processes and relationships and graduation. The quality of early caregiving and mother-child relationships was found in one study to be significantly linked to dropout (Jimerson et al., 2000). Students from families with low monitoring of everyday activities (Janosz et al., 1997; Rosenthal, 1998), who have no curfew on school nights (Ensminger et al., 1996; Ensminger & Slusarcick, 1992), or who have a high degree of regulation (Janosz et al., 1997) have been found to be more likely to leave school before graduation. Permissive parenting styles have also been linked to higher rates of dropout (Lehr et al., 2004; Rosenthal, 1998).

Attitudes, values, and beliefs about education. Parents' attitudes, values, and beliefs about education have been found to have an impact on a student's expectations about education and the likelihood that he or she will drop out. Low parental educational expectations have been found to be linked to higher dropout rates (Alexander et al., 2001; Ensminger & Slusarcick, 1992; Kaufman et al., 1992; Rumberger, 1995). The chances are greater that a teenager will leave school before graduating if his or her parents also dropped out of school (Catalano & Hawkins, 1995; Elliott & Voss, 1974). If one adolescent in a family has dropped out, it increases the likelihood that his or her siblings will also leave school before graduating (Gleason & Dynarski, 2002; Kaufman et al., 1992).

Behavior related to education. Not only are parents' expectations important in preventing dropout but also their actions related to education. Parents of dropouts have tended to have infrequent contacts with the school about their child's academic performance and/or behavior (Jimerson et al., 2000; Rumberger, 1995), rarely talk to their child about school (Gleason & Dynarski, 2002; Teachman et al., 1996), or get involved in school PTA and activities (Kaufman et al., 1992). One study found a link between a lack of study aids at home and dropout (Ekstrom et al., 1986), and another found a link between little parent monitoring of homework and dropout (Goldschmidt & Wang, 1999).

School Domain: Factors Related to School Structure, Environment, and Policies

School structure. One structural feature of schools that has received a lot of attention lately due to issues over achievement and vouchers for students in low-performing schools is whether the school is publicly or privately controlled. For the most part, studies have found that Catholic and other private schools have had lower dropout rates than public schools (Goldschmidt & Wang, 1999; Ingels et al., 2002; Rumberger, 2001). However, it is still not clear whether these differences are due to student body characteristics,

school resources and family support, or some structural or organizational characteristics of these schools (Rumberger, 2001).

Large school size (Barro & Kolstad, 1987; Lehr et al., 2004), particularly for low SES schools (Rumberger, 1995), has also been linked to higher dropout rates. A recent Johns Hopkins study has located the dropout crisis in high school “dropout factories,” about 2,000 large, primarily urban, low-income high schools that produce most of the dropouts in the U.S. (Balfanz & Legters, 2004). The researchers argue that traditional structures common to these large schools are the key to their low “promoting power.”

School resources. There is still debate over whether a school’s resources have a major impact on educational outcomes (Rumberger, 1995). High student-teacher ratios were found to be linked to dropout in one study in low SES schools (Rumberger, 1995) and another found that dropout rates were lower in schools where students perceived their teachers as high quality (Rumberger, 2001).

Student body characteristics. Some researchers have found that factors in schools themselves also impact on a student’s school experience and their likelihood of dropping out. One aspect consistently found to impact educational outcomes including dropout is the composition of the student body (Rumberger, 2001). Schools with high concentrations of low-income or minority students have higher dropout rates, over and above the individual background characteristics and performance of students (Goldschmidt & Wang, 1999; Kaufman et al., 1992; Rumberger, 1995).

Student body performance. Not only do a student’s own performance measures impact his or her chances of dropping out, there is evidence that the level of performance of the student body as a whole also impacts a student’s chances. The proportion of the student body retained (Goldschmidt & Wang, 1999) and the percentage of low achievers in math (Kaufman et al., 1992) have both been found to impact dropout.

School environment. Many of the above factors can produce a negative school environment or climate, which has been linked to increases in dropout rates (Lehr et al., 2004; Rumberger, 2001). School environments with high rates of absenteeism or high rates of misbehavior have been linked to higher individual dropout rates (Goldschmidt & Wang, 1999). Goldschmidt and Wang (1999) also found that being in a school with a high-risk incoming class (many individual risk factors such as low SES, low grades and test scores, and disciplinary problems) increased the chances that a student would drop out.

Feeling unsafe at school can be a risk factor for dropout (Bekuis, 1995) as well as being in a school with a high level of attendance, violence, and/or safety problems (Kaufman et al., 1992). Research from one national survey found that students are more likely to drop out when large proportions of students view discipline at their school as unfair or have low ratings of teacher support (Rumberger, 1995). Involuntary withdrawal through academic and discipline policies may also make the environment of school so negative for students that they begin to disengage and end up leaving before graduation.

Academic policies and practices. Standards-based reforms and high-stakes testing begun in the 1990s and accelerated with the passage of the federal No Child Left Behind Act have changed many schools’ academic policies and practices. There is some evidence that these policies may be increasing the likelihood that low-performing students will drop out of school. Accountability and high-stakes testing may be increasing attrition between 9th and 10th grades (Abrams & Haney, 2004), and retention (Allensworth, 2004; Miller, Ross, & Sturgis, 2005). In an analysis of patterns in Chicago elementary schools after the implementation of high-stakes testing, researchers found that although achievement improved, retention had dramatically increased, particularly for the most vulnerable students—those who

were overage for grade, minority students, low achievers, and English-language learners (Allensworth, 2004). Some students began high school two or more years behind those in their age group, increasing the probability that they would drop out by age 17 by 8 percentage points. In addition, improvements in graduation rates and dropout rates that had begun prior to the new standards, were reversed during the initial years of the program before beginning to slowly improve (Allensworth, 2004).

Other researchers have found mixed evidence across recent studies on the impact of high school exit tests on dropping out (Beatty, Neisser, Trent, & Heubert, 2001; Center on Education Policy, 2003; Rumberger, 2004). A major impediment to understanding their impact is the limited empirical evidence available (Beatty et al., 2001; Center on Education Policy, 2003). One expert panel concluded that there is no evidence that exit exams decrease dropout rates and note that although exit exams on their own may not cause a student to drop out, they may be the final factor to push a student out of school (Center on Education Policy, 2003).

Another problem with raised standards is that they are often put in place without providing the supports, such as tutoring and summer programs, that students need to meet the new standards (Lehr et al., 2004; Miller et al., 2005). Schools that need the most improvement most likely have the fewest resources to make improvements (Miller et al., 2005).

Surveys of dropouts also reflect issues with school academic policies and practices. Students report a lack of relevant high school curriculum as a main reason they drop out (Lehr et al., 2004) as well as courses being unrelated to work (Obasohan and Kortering, 1999). In a recent national survey, the most common reason given by dropouts for leaving school was that their classes were not interesting (Bridgeland et al., 2006). A majority of dropouts surveyed felt that schools could improve the chances that students would stay in school if they provided opportunities for real-world learning, had better teachers who made classes more interesting, and kept classes smaller with more individualized instruction (Bridgeland et al., 2006).

Supervision and discipline policies and practices. Zero tolerance discipline policies that require automatic arrest and suspension or expulsion for substance possession or sales and weapons possessions also have the potential to impact dropout rates. Arrests, suspensions, and expulsions have increased since the early 1990s (Miller et al., 2005). These policies often result in a double dose of punishment for students, where they may get suspended or expelled and also have to appear in court for school misbehavior (Miller et al., 2005). As was noted earlier, being suspended often or expelled significantly increases the likelihood that a student will drop out. Policies that increase the likelihood of these consequences will increase the number of students put at risk for dropout.

Pressures to suspend, expel, or transfer students who misbehave or who are generally disruptive may also increase with the push for accountability and the use of high-stakes testing practices. Schools may systematically “discharge” or exclude disruptive and misbehaving students from school (Miller et al., 2005; Rumberger, 2001).

Community Domain: Factors Related to Communities and Neighborhoods

Location and type. Dropout rates are consistently higher in urban than suburban or rural schools (Lehr et al., 2004; Schargel, 2004). In the Johns Hopkins study of the promoting power of schools, 61 percent of urban schools, 20 percent of suburban, and only 5 percent of rural schools had the lowest levels of promoting power, where entering freshman had less than a 50/50 chance of graduating four years later (Balfanz & Legters, 2004). Geographic location also matters for dropout, where students are more likely to drop out in western and southern states (Ekstrom et al., 1986; Lehr et al., 2004; Rosenthal, 1998; Schargel, 2004).

Demographic characteristics. Dropout rates are also higher in impoverished communities (Rosenthal, 1998; Rumberger, 2001), those with higher proportions of minorities, or those with a large foreign-born population (Rosenthal, 1998). Higher dropout rates have been linked to communities with high numbers of single-parent households or adult dropouts (Rosenthal, 1998) and with low levels of education (Goldschmidt & Wang, 1999). There is some evidence that employment rates are related to dropping out—where low unemployment may encourage youth to leave school early and high unemployment discourage it (Rumberger, 2001).

Environment. Conditions in communities can increase the likelihood that students will drop out. Higher dropout rates have been found in those communities with a high amount of instability and mobility (Catalano & Hawkins, 1995; Rosenthal, 1998). Urban, high poverty areas also are more likely to have high levels of violence, drug-related crime, and overcrowding which could also impact school engagement, performance, and ultimately dropout.

Major Trends in Risk Factor Research

No Single Risk Factor for Dropout

As is evident from the above discussion, numerous risk factors for dropout have been identified across the four domains. But is there a single factor that is most important so that predictions can be made about who might drop out? A number of studies have attempted to identify a primary risk factor for dropout so that schools could identify students most at risk for dropping out. For example, Gleason & Dynarski (2002) examined 40 factors and how well each predicted dropout from middle or high school two to three years after data was collected. Factors included personal and psychological characteristics, like low self-esteem and parents don't talk to them about school; previous school experiences, such as high absenteeism and low grades; family characteristics, like being on public assistance or having a sibling that dropped out; and the adult responsibility of having a child. They analyzed the relative ability of each these factors to predict who would drop out. Their findings on some of the 9th grade risk factors for high school dropout are summarized in Chart 1.

As seen in the chart, the individual predictive power of each factor was relatively low, with dropout rates on factors ranging from 13 percent to 32 percent. On all of the identified factors, the majority of students who had a particular risk factor did *not* drop out of school. As the authors point out, the identification of at-risk students based on any one factor would have been wrong more times than it was right (Gleason & Dynarski, 2002). Therefore, even though a student shares certain risk factors with other students who have dropped out, it doesn't mean that a *particular* student will drop out. In addition, no one factor stood out as a primary cause of dropout.

Multiple Factors Best Predictors

Gleason & Dynarski (2002) also examined how well multiple factors identified students at risk of dropout. They analyzed the impact of combinations of one or more of the following risk factors: high absenteeism, being overage for grade, low grades, having a child, having a sibling who has dropped out, having previously dropped out, being unsure of graduating from high school, and spending less than one hour per week on homework. They also analyzed the predictive power of a regression risk factor based on all 40 identified factors. Their findings are summarized at the end of Chart 1. Twenty-five percent of students classified using two risk factors dropped out, 34 percent classified using three factors dropped out, and 42 percent classified using the regression factor model dropped out. Even though these groupings are better predictors, they still were more often wrong than right in predicting who would drop out.

Other studies came to the same conclusion about single factors and attempted to come up with a composite of factors to predict dropout. Balfanz and Herzog (2006), using four 6th grade risk factors—attending school less than 80 percent of time, poor behavior/conduct grade, failing math and failing English—were able to predict around 40 percent of nongraduates in Philadelphia schools.

Cairns and colleagues (1989) found that it was the combination of high aggression, poor performance, and being older than their peers in the 7th grade, rather than each factor alone, that was the best predictor of dropping out of school in their sample before the end of 11th grade. Eighty-two percent of boys and 47 percent of girls with these traits and experiences left school before completing a degree. Other factors were also important, including family SES, race/ethnicity, and peer social groups.

The study that had factors with the highest predictive ability included a combination of early childhood factors, family background and individual characteristics, school performance, and experiences (Jimerson, Egeland, Sroufe and Carlson, 2000). Using these factors, researchers were able to predict 82 percent of dropouts and 77 percent of graduates. One probable reason for the higher success of their predictors is

that they followed a student cohort over time and collected data on factors at several stages—early childhood; grades 1, 3, and 6; and at age 16.

Ingels et al. (2002), while analyzing the data from the 1988 National Education Longitudinal Study (NELS), explored how risk for dropout increased with multiple factors. They used the following six 8th grade risk factors for analysis: single-parent households, parents without a high school diploma, an older sibling who dropped out, home alone in afternoon 3+ hours, limited English proficiency, and low-income family. Their findings are graphed in Chart 2. As can be seen in the chart, risk increases with each additional risk factor. About 3 percent of students without any of the six factors dropped out while almost a third of students with three or more factors dropped out (Ingels et al., 2002).

None of the studies reviewed were able to predict dropouts or graduates with 100 percent accuracy. Gleason and Dynarski (2002) highlight the problem of using “inefficient” risk factors if the goal is selection of students to receive services to attempt to prevent dropout. For example, a high school might decide to use the Gleason-Dynarski risk regression model to target students for their dropout prevention efforts. If the school has an incoming 10th grade class of 500 students and the average dropout rate over the past few years for that school has been around 15 percent, the school could estimate that 75 of this class of 500 students would eventually drop out. The school would then develop a dropout prevention program to work with 75 students, selected based on student scores on the Gleason-Dynarski model using 40 9th grade variables. Based on this model and its 42 percent accuracy of prediction, however, the school can expect that only about 32 of the 75 students served by the program would eventually drop out, while the other 43 students estimated to drop out would not have been served at all. Even if half of the students—16 students—served who were going to drop out don’t because of the program, it would only reduce the dropout rate for the class from 15 percent to 11.8 percent.

Not only was prediction of dropouts problematic, there was also no clearcut group of factors that make the “best predictors.” Although grades or some measure of achievement, retention, absences, and family SES were found in many analyses to impact dropout, the identification of these factors was not universal. There was also no universal means of measuring factors and no agreement as to the grade or school levels at which factors were most important.

Differences across subgroups of dropouts. There was evidence across several studies that there are different subgroups of dropouts, with differing risk factors linked to their dropping out. There is evidence of a “traditional” dropout group that is consistent over time and share some common traits: come from low SES families (Wehlage & Rutter, 1986), have poor grades (Barrington & Hendricks, 1989; LeCompte & Dworkin, 1991; Wehlage & Rutter, 1986), have low test scores (Barrington & Hendricks, 1989; Wehlage & Rutter, 1986), were retained at some point (Wehlage & Rutter, 1986); have discipline and truancy problems (LeCompte & Dworkin, 1991; Wehlage & Rutter, 1986), and high absenteeism (Barrington & Hendricks, 1989). Many of these students can be identified early in elementary school. Wehlage & Rutter (1986) found that academic factors distinguished these dropouts from graduates.

Several studies, however, described other groups with characteristics both similar and dissimilar to traditional dropouts that, although they usually graduate, are prime candidates for dropout. Wehlage & Rutter (1986) found a group of students that they called “stay-ins” in their sample that graduated but did not plan on going on to college. This group was the hardest to predict because they included students with such a wide variety of background characteristics, behaviors, and experiences (Wehlage & Rutter, 1986). They had many similar characteristics and academic experiences as dropouts. What distinguished them were school-related factors—“stay-ins” felt more positive about how their education was going, were more interested in school, and had fewer disciplinary problems. In addition, “stay-ins” had lower self-esteem than dropouts, which remained lower than that for dropouts even after dropouts left school.

Another group of dropouts are similar to graduates in that they have average grades and test scores but end up dropping out for a variety of reasons other than academic failure. These “able” (LeCompte & Dworkin, 1991) or “capable” (Elliott & Voss, 1974) dropouts may leave school because of run-ins with the school on discipline or as a result of school policy. They also might leave because of factors outside of school, such as finding a job, getting pregnant or married (Elliott & Voss, 1974), or because of social activities and connections to friends (Ekstrom et al., 1986).

Some students also stay in school long enough to graduate but never actually finish. Barrington and Hendricks (1989) found groups of “nongraduates,” students that stayed in high school four or five years, up to one year past their expected graduation date, and still did not receive their diploma. Unlike traditional dropouts, these students are similar to graduates on achievement tests and absences throughout elementary school. Where they begin to diverge from graduates is in middle school, when their absences begin to increase over time, along with failing grades and problem behaviors.

Dropouts then, are not a homogeneous group. Some exhibit risk factors early in school, while others not until middle or high school. Factors do not influence all students in the same way—some may have multiple risk factors and not drop out while others have one factor and leave school early.

Differences in timing of dropout. The timing of dropout may also be as important as other factors, with variations showing up in different populations. National trends suggest that the risk of dropout increases throughout high school, with most students dropping out in the 11th or 12th grades (Neild & Farley, 2004; Wagner et al., 1993). However, studies of specific populations have often found the opposite pattern. Forty-two percent of students in a Philadelphia study left in 9th grade (Neild & Farley, 2004), 40 percent of female dropouts and 35 percent of male dropouts in a Chicago sample left before spring of 10th grade (Ensminger & Slusarcick, 1992), and 61 percent of dropouts in a Baltimore sample left before completing 10th grade (Alexander et al., 2001).

There is also evidence that there are differences in predictive factors between early and late dropouts (Goldschmidt & Wang, 1999). For example, Goldschmidt & Wang (1999) found retention to be the strongest predictor of early dropout and misbehavior to be the strongest predictor of later dropout.

This evidence points to the need to collect data before high school and to compare factors for early and late dropouts to get the most accurate picture of who drops out and why.

Factors Cross Domains: Push and Pull Factors

The types of reasons given by dropouts for leaving school emphasize the importance of examining factors across a number of domains. There are two major categories of reasons: push factors, where students leave school due to something in the school environment, or pull factors, where students leave school because of events or circumstances outside of school (Jordan, McPartland, & Lara, 1999; Lehr et al., 2004). Push factors emanate from something about schools themselves, such as policies or the school’s climate or structure, that alienate and/or frustrate students so they end up leaving before graduation. For example, some school policies that may exacerbate problems include giving failing grades after a certain number of absences, frequent use of suspensions and expulsions for misbehavior, and grade retention (Jordan et al., 1999). These practices may slowly alienate students, causing them to disengage and later drop out.

Pull factors are influences, events, and experiences outside of school that may pull a student’s interest away from school and result in detachment from school and eventual dropout. These could be individual, family, or community/peer factors. Students may become parents or find employment that doesn’t require a high school diploma. Some pull factors are peer-related, such as having friends who have dropped out;

and some are family-related, such as having to care for a family member or needing to get a job to contribute money to the family (Jordan et al., 1999).

When asked why they dropped out, dropouts have consistently reported more “push” than “pull” factors as the primary reasons for leaving (Jordan et al., 1999; Lehr et al., 2004). As summarized in Table 1, in three separate surveys from 1980 to 2005, dropouts gave similar school-related factors as their primary reasons for leaving school. Dropouts didn’t like school, were often failing or missing too many days, or couldn’t get along with teachers.

In terms of pull factors, in a 1988 survey, only 7 percent of dropouts left school to care for a family member, 12 percent because of parenthood, and 17 percent because they had to get a job (Jordan et al., 1994). In a 2005 survey, more dropouts reported these types of pull factors, where 32 percent left to get a job to make money; 26 percent became a parent; and 22 percent had to leave to care for a family member (Bridgeland et al., 2006). But these factors were still less likely to be reported than school-related reasons.

No single reason for dropping out emerged across all students in any of the studies. Nor did dropouts generally report just one reason for leaving before graduation (Lehr et al., 2004).

Complex Interactions Among Factors

A major problem in searching for primary causes of dropout is that so many factors are interrelated, it is difficult to discern causality (Gaustad, 1991; Jimerson et al., 2000; Rumberger, 2001). Even though a factor is related to dropout, it does not mean that it *causes* dropout. The same problem has been noted for other educational outcomes (Rumberger, 2001).

In order to identify independent relationships between interrelated predictor factors and dropout, multiple factors need to be controlled through the use of multivariate statistics (Wagner et al., 1993). For example, both SES and race/ethnicity have been shown not only to be related to dropout but also to each other. In a national study in 1988, significant differences in the chances of dropping out were found by race/ethnicity, where Hispanic and Black students were over twice as likely to drop out as Whites (Kaufman et al., 1992). Significant differences were also found by family SES, where the lower the income, the less likely a student was to graduate. When controls were introduced and students with similar SES backgrounds were compared, the differences between race/ethnic groups became insignificant (Kaufman et al., 1992). Family background in this study was the key to dropout, not race/ethnicity. Other studies have found similar relationships between race/ethnicity, SES, and dropout (Hauser et al., 2004). A few studies have even found that when family background is held constant, minority students are *less* likely to drop out than White students (Hauser, Simmons, & Pager, 2004; Teachman et al., 1996).

Life-course Perspective on Dropping Out

All of the above suggests a complicated interaction of factors that may or may not impact students at different points in their school careers. Longitudinal studies of cohorts of students offer the best opportunity to untangle all of these factors and understand more about what happens to students at school that may lead them to drop out.

Jimerson and colleagues (2000) followed an at-risk sample of youth from birth up to age 19 to assess the impact of early home environment, caregiving, and parent involvement at school, along with a number of family and individual, student achievement, and problem behavior factors on school dropout. They found a long pathway to dropout. Psychosocial factors early in development in the family, including the home environment, the quality of caregiving, and maternal attachment, were powerful predictors of high school status at the age of 19. The strongest predictors in their analysis included being male; poor quality of early

caregiving; problem behaviors and low achievement in 1st grade; low parent involvement in 6th grade; and poor peer relations, problem behaviors, and low achievement at age 16.

Based on their findings, they argue that dropping out is a developmental process with significant markers on a pathway to dropping out (Jimerson et al., 2000). They found that patterns seemed to be set by 3rd grade and that early events interact with later events to change progress on this pathway. Early caregiving starts the process and failing grades or discipline problems in elementary or middle schools should be seen as “midcourse markers,” while truancy or failing grades in high school should be viewed as “advanced markers” on this pathway.

In another longitudinal study, Alexander and several colleagues followed a cohort of Baltimore elementary school students until after their expected graduation date (Alexander et al., 1997; Alexander et al., 2001). They examined dropout from what they called a life-course perspective, which takes into account the process of development and the impact of contextual influences of peers, family, school, and community on dropout (Alexander et al., 2001). Their analysis focused on a variety of predictors, including demographics, family context measures, children’s personal resources and school experiences, and their relationship to dropout (Alexander et al., 1997; Alexander et al., 2001).

By looking at factors over the life course, these researchers found that decisions made in high school result from events, decisions, and experiences that predate high school (Alexander et al., 2001). Family changes in 1st grade impacted student decisions to drop out in high school and SES was important from 1st grade onward. Although SES was always important, its effects were tempered by family structure, family stress, and mother’s employment status (Alexander et al., 2001). Retention at all school levels was a primary factor predicting dropout, while student attitudes did not become important until 9th grade. Having data on 9th-grade factors was not as good a predictor of dropout as having data on factors from 1st grade onward.

Based on their findings, Alexander and his colleagues (2001) argue that high school dropout is really the culmination of a long process of disengagement from school that starts early and builds over time. An example of this disengagement process can be seen in patterns in absences uncovered in their Baltimore sample. As illustrated in Chart 3, average annual absences for dropouts start much higher than for graduates and the gap continues to grow over time. Two keys to this disengagement process are the “timing” of events or experiences and “turning points,” such as the transition between middle and high school (Alexander et al., 2001).

Process of Disengagement

These studies provide evidence that dropping out of school is not a single event but rather a long process of progressive disengagement from school that includes markers or warning signs along the path before dropout occurs. Dropouts themselves offered some insights into this process in a recent survey (Bridgeland et al., 2006). Students who dropped out reported that they felt increasingly alienated from school from one up to three years before they decided to drop out (Bridgeland et al., 2006). Seventy-one percent lost interest in school in 9th or 10th grade, over a third (33-45 percent) reported missing class often the year prior to dropping out, and a majority (59-65 percent) reported missing class often the year they dropped out (Bridgeland et al., 2006). “Students described a pattern of refusing to wake up, missing school, skipping class, and taking three-hour lunches—and each absence made them less willing to go back” (Bridgeland et al., 2006, p. 8).

Implications for Local Programs

The studies reviewed above give insights into the dropout process. There are a number of risk factors that are related to dropout and not all of these factors impact all students in the same way. Dropout is more a

process than a single event. From a life-course perspective, dropout is the result of a long-term process of academic and social disengagement from school, which is influenced by the intersection of a variety of academic, personal, and family experiences and resources (Alexander et al., 2001).

There are a number of implications of this research for schools and communities as they grapple with finding solutions to the problem of school dropout. First, although the prediction that any particular student will drop out is problematic, there are some discernable patterns. Second, these patterns can be uncovered by tracking various factors over the course of students' school careers. Third, it is worthwhile spending time and resources on collecting these data so that prevention programs can be developed to target identified students and issues. Guessing at who might drop out without looking at these types of data is inefficient (Gleason & Dynarski, 2002) and not cost effective (Jerald, 2006). Fourth, patterns vary across subgroups, regions, and locations, making it essential to collect *local* data to best predict who will drop out in a particular locality and identify the major contributing factors.

A recent report by Achieve, Inc., after a similar review of current research, argues that there is enough information on dropout that the most cost-effective way of preventing dropout is for local school systems to invest in the development of an "early warning system" of data collection on which to base the development of interventions (Jerald, 2006). The report recommends that local school districts carry out longitudinal studies of at least two cohorts of students from grade 5 up through one year past when the cohort should have graduated. It recommends starting with a relatively large pool of indicators to find the best ones covering social background, academic performance, and educational engagement.

This review is designed to assist local CIS Affiliates by identifying a subset of risk factors that are highly likely to predict dropout and that can be mitigated through Affiliate programs. This subset could also be used by interested CIS Affiliates in the development of an "early warning system" as described in the Achieve, Inc. report.

Key Risk Factors for School Dropout

Identification of Risk Factors From Selected Studies

Study Selection Criteria

The 44 studies identified in the literature search that were used to examine major trends in risk factors were further analyzed and the review for risk factors was then limited to those sources that met *all* of the following criteria:

- (1) Direct analysis of data source. Selected sources were those that included original analysis of one of 12 data sources. Sources that reviewed other researchers' analyses or summarized available literature were not included.
- (2) School dropout and/or high school graduation as dependent variable for analysis. Factors found to be significant in analyses are highly dependent on the types of factors studied, how they are measured, and what types of statistics or models are used. To limit the variation somewhat, only those studies focusing on explaining dropout or graduation rates were selected. Studies using other types of educational outcomes as the focus for analysis, such as academic achievement or grade retention, were excluded from the review.
- (3) Longitudinal data collected over a period of at least two years. If, in fact, dropout is a process and not an event and occurs after a number of factors interact over time, factors key to dropout will need to be analyzed over an extended period of time or at least some time prior to dropping out to best capture the dynamics of this process. Given that few studies to date have collected data for extended periods, studies selected for inclusion had to at least measure factors two years prior to the follow-up check on school status.
- (4) A variety of types of predictors in several domains (individual, family, school, and/or community), including student demographic data. Research suggests that factors in several domains impact school dropout and it is important to compare the impact of factors in each domain to best understand what increases the risk that a student will drop out. Selected studies measured predictors in several domains and all studies included at least individual and family predictors.
- (5) Multivariate statistical techniques or models, such as logistic regression, that simultaneously controlled for independent relationships between student demographic and other individual factors, factors in at least one other domain, and the dependent variable, dropout or high school graduation. A large number of factors have been identified that might impact dropping out of school and many of these factors are interrelated. It is important to be able to see what relationship each factor has directly on dropout regardless of the effects of other influential factors (Rumberger, 2001). For example, students who are poor are more likely to have low grades and are also more likely to drop out. Is it because they make low grades that poor students are more likely to drop out or are they more likely to drop out regardless of the grades that they make? Multivariate statistics help explore these types of interactions by controlling for the effects of a number of factors while assessing the strength of the relationship of each one factor with dropping out independent of the others. It will not be possible to prove which factors cause dropout through these techniques but it will be possible to speak in relative terms about which factors are better predictors of dropping out than other factors (Rumberger, 2001).

- (6) A sample size of 30 or more students classified as dropouts. Samples of students need to be large enough so that the subsample of those who drop out is large enough to meet requirements of multivariate statistics. For this analysis, the subsample size for dropouts was 30 or more students.

21 studies from 12 data sources. Based on the above criteria, 21 studies that included analyses from 12 different data sources were identified for review. A list of the 21 studies appears in Chart 4 by data source and timeframe for data collection. As illustrated in the chart, studies were published between 1974 and 2002, with data collection carried out in varying time periods, from the mid-1960s until the mid-1990s. Although a few studies included national samples of students (High School and Beyond, NELS, and NLTS), most were based in specific communities or school districts.³ The studies not only span different time periods but also diverse communities (rural, suburban, and urban) as well as demographically diverse groups of students (SES, race/ethnicity, and gender).

Overview of Risk Factors From Literature Review

To give CIS staff an idea of the range of factors found in the literature and to narrow down the search for key factors to only those domains and categories of factors that CIS Affiliates are most likely to target, sample matrices were developed for each of the four domains from the broader literature review and the 21 selected studies. These matrices included risk factor categories and examples of risk factors under each category. These sample matrices are included in Tables B-1 to B-4 in Appendix B.

Key Risk Factor Domains and Categories

CIS staff reviewed the sample matrix of risk factor categories for each of the four domains. Staff members then rated the relevance and importance of each of the risk factor categories from “1” to “3,” with “1” indicating factors with the lowest relevance/importance and “3,” those with the highest relevance/importance. The average ratings for each of the factor subcategories appear in Table B-5 in Appendix B.

As a result of the CIS staff ratings and further discussions with NDPC/N staff about trends in the risk factors, the search for significant risk factors in these studies was limited to those relating to all of the risk factor categories of the family and individual domains, and the school environment category of the school domain. Future reviews may incorporate factors from other categories in the school domain and from the community domain.

Initial Risk Factor Matrix Development

The review generated a long list of factors significantly linked to school dropout. The initial matrices of factors are Tables C-1 to C-3 in Appendix C. All of the data sources analyzed identified one or more significant individual risk factors and the greatest number and variety of significant factors was found in this domain. All but one source identified significant family risk factors. Four studies from one data source identified significant school risk factors in the school environment category.

For ease of review, factors from the sample matrices were grouped into various categories and subcategories of factors, such as non-school related attitudes, values and behaviors, and school-related psychological engagement (see Tables B-1 to B-4 in Appendix B).

Many of the factors in the initial matrix were simply different ways to measure the same characteristic and the decision was made to collapse similar factors into a single factor. For example, some studies used grades as a means of measuring student achievement while others used achievement test scores or class failure. Grades, achievement test scores, class failure, and other measures for achievement were collapsed into “low grades and/or test scores.”

Significant Risk Factor Identification

Not only was there a wide range of factors and ways to measure them, but also a wide range of populations sampled, sample sizes, timeframes for data collection, and statistical/analytic methods for data analysis. To introduce at least some measure of control for this variation, factors were pared down to only those found to be

- (1) Significantly ($p \leq .10$) related to school dropout in multivariate analysis
- (2) Significant in at least *two* data sources

Identified Risk Factors

The resulting 25 significant risk factors across eight factor categories appear in Tables 2 and 3. Approximately 60 percent of the factors making the final list were individual factors and the remaining 40 percent were family factors. No school factors made the final list since school risk factors were found to be significantly linked to dropout when controls were introduced for other factors in only one data source. Possible reasons for this lack of significant school factors will be discussed later in this section.

Tables 2 and 3 also summarize the number of data sources where each factor was found to be a significant predictor of dropout. Four risk factors were found to be significant predictors in at least half of the data sources, including two school performance factors—*low achievement* and *retention/overage for grade*; one measure of school engagement—*low educational expectations*; and one family background factor—*low socioeconomic status* (SES).

Brief descriptions of some of the research on each of the identified risk factors are given below. More detailed descriptions, as well as indicators and exemplary programs addressing each risk factor, are included in Appendix D.

Individual Risk Factors

Fifteen of the factors making the final list were related to a student's individual characteristics. Nine of these factors were school-related experiences, including factors related to school performance, school engagement, and school behavior.

School performance. Two school performance factors were found in a majority of the data sources to be linked to dropping out of school. One of these factors—*low achievement*—was found to be a major predictor in all 12 data sources. The impact of low achievement was found to start early and to continue throughout a student's school career. In one longitudinal study, all other factors being equal, low 1st grade achievement was one of the major predictors of dropping out by age 22 or 23 (Alexander et al., 2001). The relationship found in another study between 8th grade math achievement test scores and dropout illustrates the impact achievement can have and is graphically presented in Chart 5 (Ingels et al., 2002). Twelve years after being surveyed, 33 percent of the students scoring in the lowest mathematics achievement quartile in 8th grade, 15 percent of those scoring in the two middle quartiles, and 4 percent of those scoring in the highest quartile had not received a high school diploma.

Other indications that poor academic performance is a major factor in leaving school early come from dropouts themselves. "Got poor grades," "failing at school," or "couldn't keep up with schoolwork" were primary reasons given by dropouts for leaving school before graduating in two national surveys (Ekstrom et al., 1986; Jordan et al., 1994).

As was found for low achievement, *retention/overage for grade*, the other school performance factor, was found to be linked to dropout from 1st grade up through high school. Although correlated to achievement, retention had an impact on dropping out independent of academic performance, other school experiences,

and personal characteristics. Something about the experience of being retained and being older than grade-level peers increases the likelihood of dropping out.

Several studies also found that multiple retentions dramatically increased the chances that a student would leave school before graduating (Alexander et al., 2001; Cairns et al., 1989; Gleason & Dynarski, 2002). In one study, 80 percent of students who were retained two or more times before 9th grade left school without graduating, and 94 percent of students retained in both elementary and middle school dropped out (Alexander et al., 2001). The pattern in one study illustrates the progressive nature of retention's impact: the dropout rate for those students who had not failed a grade by 7th grade was 7 percent, for those failing one grade it was 27 percent, for two grade levels it was 57 percent, and for three grade levels it was 100 percent (see Chart 6) (Cairns et al., 1989).

School engagement. A large number of the school-related risk factors involve a student's engagement with school. These attitudes and behaviors are all warning signs that a student is detaching from school. One of the primary behaviors used as a gauge of school engagement is attendance, particularly when measured through absenteeism. Absenteeism was found in various studies to impact dropout at all school levels. Absences in the 1st grade were found to be significantly related to leaving school before graduation in a Baltimore study, where, regardless of other personal characteristics, with each additional day absent in a school year, a student's chance of dropping out increased by 5 percent (Alexander et al., 1997). Missing one week during a school year, then, would increase the chances that a student would drop out by 25 percent. Two weeks would increase their chances by 50 percent. In another study, 27 percent of students with high absenteeism in their 9th grade year had dropped out two or three years later (Gleason & Dynarski, 2002).

Other aspects of poor attendance were also found to be significantly linked to dropping out. Regardless of personal characteristics or school experiences, students in a national survey who cut classes once a week or more were about six times as likely to drop out as students who never cut classes (Kaufman et al., 1992). For students in that same survey who were tardy 10 or more times in the month before the survey, their chances of dropping out were almost seven times those of students who were never tardy (Kaufman et al., 1992). In an analysis of the dropouts surveyed in the High School and Beyond survey, Wehlage and Rutter (1986) found that among academically similar peers, one of the primary factors setting dropouts apart from students who graduated was the level of truancy among dropouts.

Another aspect of engagement involves the level of commitment a student has to school and education. General dislike of school is one of the primary indicators of low commitment to school that has been linked to school dropout. "Didn't like school" was one of the two primary reasons dropouts gave for leaving school early in a 1980 national survey (Ekstrom et al., 1986) and the top reason given for leaving by dropouts in a 1988 national survey (Jordan et al., 1994).

Other reasons given for leaving school prior to graduation other than not liking school offer some insight into other issues these dropouts had with school that might be related to their low commitment. Responses of dropouts to the 1980 survey included two school-related reasons—getting poor grades and not getting along with teachers and two nonschool-related reasons—taking a job and getting married (Ekstrom et al., 1986). In the 1988 survey, all of the top reasons for leaving given by dropouts were related to school. These dropouts reported leaving because they were failing or couldn't keep up, couldn't get along with teachers, and/or felt like they didn't belong at school (Jordan et al., 1994). Unfortunately, it is not possible to discern in either survey analysis the order in which these attitudes developed. For example, did low commitment come first and cause grades to drop, or, as a result of failing grades, did the student begin detaching from school, or did both occur because of some other factor or combination of factors?

For some researchers, commitment to school involves more than just a general dislike of school. Instead, commitment to school or education includes a set of related student attitudes and behaviors in addition to general feelings about school. For example, a longitudinal study of students in Baltimore analyzed students' commitment to school through a factor called "engagement attitudes" (Alexander et al., 2001). The measure encompassed a number of items related to commitment, such as their motivation for doing schoolwork or for getting good grades, with items changing as the students matured. The researchers found these attitudes significantly impacted school dropout in the 9th grade but not in earlier years.

Low educational expectations, another aspect of school engagement, was found to be significantly related to dropout in one-third of the data sources. The evidence was the clearest about the impact of these expectations in middle and high school. In one national study, regardless of other behaviors, attitudes, or characteristics, students with low expectations for school attainment in the 8th grade were twice as likely as other students to drop out before the end of 10th grade (Rumberger, 1995). Twenty-five percent of 9th graders in another study who expressed doubts about graduation, dropped out two to three years later (with a sample mean dropout rate of 15 percent) (Gleason & Dynarski, 2002). For inner-city males in a Chicago study, having high expectations for education significantly increased the chances that they would graduate, regardless of other personal characteristics, attitudes, or behaviors, and even if their mothers had less than a high school education (Ensminger & Slusarcick, 1992).

Another factor indicating disengagement linked to dropout was a lack of effort in school. In one national study, students who reported doing no homework per week or who were usually unprepared for class were eight times as likely to drop out as students who did homework or were usually prepared for class (Kaufman et al., 1992). Even coming to class prepared only infrequently significantly reduced chances of dropping out relative to those who never came to class unprepared, although students were still at risk.

School disengagement can also be a result of social isolation at school. One measure of social isolation is the level of involvement a student has in extracurricular activities. Extracurricular activities could include sports, clubs, chorus, or the school newspaper. One study found involvement in these activities to be important for keeping girls in school but not boys (Elliott & Voss, 1974), while another found this participation significant for both (Ingels et al., 2002).

A similar pattern was found for students with disabilities for participation in school or community groups during high school (Wagner et al., 1993). Not only did participation in these groups reduce the likelihood that these students would drop out, the effect of participation on reducing dropout *increased* from 9th to 12th grade. These researchers also found that being too involved socially outside of school in non-school-related activities had the opposite impact on dropout—highly socially active students were more likely to drop out than their less socially active peers. The researchers argue that being strongly affiliated with groups tied to school, rather than bonding with friends and activities not related to school, helps to keep students engaged in school (Wagner et al., 1993).

School behavior. School misbehavior was found to be a major predictor of dropout in five of the 12 data sources. One group of researchers found that the characteristics that best distinguished dropouts from their academically similar peers who stayed in school were problem behaviors like truancy and lateness (Wehlage & Rutter, 1986). Results of a national study that followed 8th graders through the 10th grade showed that students who had been sent to the office for misbehaving were more likely to drop out than students who had never been sent to the office. In addition, the chances of dropping out dramatically increased with the number of times they got into trouble (Kaufman et al., 1992). Students who had been sent to the office once or twice in their 8th grade year were three and a half times as likely to drop out between the 8th and 10th grades as those who never were sent to the office. Those sent to the office more

than twice during that year were six and a half times as likely to drop out between the 8th and 10th grades as those never sent to the office.

Longitudinal studies provided clear evidence that misbehavior was a key factor in middle or high school. Findings for the impact of misbehavior in the elementary grades were less consistent. One study found misbehavior in 1st and 10th grades to be significant for dropout (Jimerson et al., 2000), while a second study found 9th grade misbehavior significant but not 1st or 6th grade misbehavior (Alexander et al., 2001).

Early aggression was also linked to dropout in two studies, particularly for males. One study found that boys and girls who were rated as aggressive in the 7th grade were much more likely to drop out of school before completing 11th grade (Cairns et al., 1989). The groups of students *most* likely to drop out in this study were those who had very high aggression scores, low achievement, and were older than their peers. Eighty-two percent of boys with these traits and experiences and 47 percent of girls with these traits left school before receiving a diploma (Cairns et al., 1989). Another study found that boys who were rated as aggressive by their 1st grade teachers were significantly more likely to drop out (Ensminger & Slusarcick, 1992). They did not find the same direct relationship between aggression and dropout for girls.

Individual background characteristics. The only individual background characteristic of students found in this review to be a significant predictor of dropping out of school was whether or not the student had a learning disability or emotional disturbance. These students with disabilities were those evaluated and classified by their school or school district as being eligible to receive special education and related services under the Individuals with Disabilities Education Act (IDEA) due to these disabilities (see these and other disability categories as defined in the IDEA in Appendix D, in the section Individual Background Characteristics: Has a Learning Disability or Emotional Disturbance).

Data from two national surveys indicated that students with learning disabilities or with emotional problems were more likely than other students to drop out of school. Students with specific learning disabilities were over three times as likely to drop out as other students and students with emotional problems were over five times as likely to drop out of school.

Wagner and her colleagues (1993), analyzing data from a national study of the school performance of students with disabilities, found that dropout rates varied widely by type of disability. Students identified as seriously emotionally disturbed were significantly more likely to drop out than students with other types of disabilities, with 48 percent dropping out before completing high school. Students with learning disabilities were also more likely than other students with disabilities to drop out, as were students who were mentally retarded (28 percent and 30 percent respectively).

Social attitudes, values, and behavior. Involvement in high-risk or antisocial behavior, such as substance use, violence, or theft, was found to significantly increase the risk that a student will leave school early. One study found that, regardless of how well they were performing in school, students involved in antisocial behavior were much more likely to leave school before the end of the 10th grade than other students (Battin-Pearson et al., 2000). Two studies found links between substance use and dropout: one for heavy use of marijuana (Ensminger et al., 1996) and the other for smoking cigarettes (Kaufman et al., 1992). A third study found a link between being in “serious trouble with the law” and dropping out of school for both males and females (Wehlage & Rutter, 1986).

Researchers have also found that affiliating with high-risk peers who drop out or engage in various types of antisocial behavior increases the risk of dropping out. One study found that students with close friendships to antisocial peers at age 14 were much more likely to leave high school early, regardless of how well they were doing academically at that age (Battin-Pearson et al., 2000). Other researchers found

the same to be true of those who were close friends with peers who had dropped out (Cairns et al., 1989; Elliott & Voss, 1974).

The amount of time students spent with friends outside of school was found to be related to dropping out in two studies. Regardless of other characteristics, students who had a high level of involvement with friends outside of school were more likely to leave school before graduating than students who were less involved with friends. This was the case for students with disabilities (Wagner et al., 1993) as well as students without disabilities (Janosz et al., 1997).

Early adult responsibilities. Taking on adult responsibilities, such as becoming a parent or being employed, was shown to have a detrimental impact on school completion. One national study found that both marriage and parenthood dramatically increased the likelihood that female students of all racial/ethnic groups dropped out of school (Barro & Kolstad, 1987). Forty percent of all female dropouts were married, had children, or were married with children. Married female students with children, regardless of race/ethnicity, were six times as likely to drop out of school as single, childless female students. Marriage and parenthood also significantly impacted the dropout rate for White and Hispanic males but not for Black males.

In another study analyzing data from secondary schools in four cities, the dropout rate among high school students who had a child was 32 percent, while the average rate for all high school students in the sample was 15 percent (Gleason and Dynarski, 2002). This was the highest dropout rate for any one risk factor analyzed in the study, including high absenteeism (27 percent) and being overage for grade more than two years (28 percent).

In two national studies, working more than 20 hours or more a week on a job was found to increase the likelihood that a student would drop out of school (Barro & Kolstad, 1987; Goldschmidt & Wang, 1999). In one of these studies, working 22 hours or more a week almost doubled the dropout rate for a student (Barro & Kolstad, 1987). The other national study found that working 20 hours or more a week was a significant predictor of dropping out of school, particularly for students in middle school (Goldschmidt & Wang, 1999). In addition, employment status was detrimental to completing school regardless of socioeconomic status. Goldschmidt and Wang (1999) concluded that getting early experience in the labor market did not provide benefits after high school to students surveyed and only served to increase the chances that they did not graduate.

Family Risk Factors

Ten family risk factors in the categories of family background characteristics and family engagement/commitment to education made the final list.

Family background characteristics. A student's family SES is one of the family background factors most consistently found to impact a variety of student educational outcomes. Across a variety of measures, a family's SES was a major risk factor for dropping out of school in 10 of the 12 data sources. Researchers analyzing data from a national student survey found that 82 percent of all dropouts who left school between the 8th and 10th grades were from families with below-average SES levels (Jordan et al., 1994). The interaction between family SES and dropout was clearly illustrated in the pattern of dropouts in a longitudinal study of students in Baltimore (Alexander et al., 2001). As shown in Chart 7, 60 percent of youth from families in the lowest SES level dropped out, 30 percent of those in the middle level, and 15 percent of those in the highest SES level dropped out.

SES level was also found to be a more powerful influence than other factors that might prevent dropout, such as good school performance. In analyzing predictors of early dropout (leaving before the 10th grade),

several researchers found that coming from a family in poverty significantly increased the likelihood that a student would drop out of school, even if they made good grades (Battin-Pearson et al., 2000). There were similar findings for inner-city Chicago poor female students (Ensminger & Slusarcick, 1992).

Parental education level is one of the most consistent family background factors examined in relation to student educational outcomes. Although related to a family's SES, it was found to have an effect on dropout independent of SES and other family and student characteristics, in four of the reviewed data sources (Barro & Kolstad, 1987; Ensminger et al., 1996; Goldschmidt & Wang, 1999; Janosz et al., 1997). The higher the level of education of a student's parents, the less likely the student was to drop out (Barro & Kolstad, 1987; Goldschmidt & Wang, 1999). In the High School and Beyond (HS&B) survey of 10th graders, an additional four years of schooling of a parent increased the chances of a student's graduation by 15 percent (Barro & Kolstad, 1987). Six additional years of schooling for either parent increased the chances of graduating by 25 percent.

There were mixed results from data on inner-city students in Chicago on the impact of mothers' education on dropout. In one analysis of the impact of neighborhood factors on dropping out, researchers found that a mother's education had a significant impact on dropout for both males and females (Ensminger et al., 1996). Students whose mothers had lower levels of education were more likely to drop out. In another analysis of the same students that focused more on student performance and family characteristics, researchers found only an indirect impact of mother's education on dropout for males. In this case, mother's education impacted dropout through its influence on early grades and adolescent expectations (Ensminger & Slusarcick, 1992). Males whose mothers had higher levels of education were more likely to make good grades in 1st grade and more likely to have higher expectations for education, both of which increased the likelihood that they would graduate. The researchers found no effect in the second analysis of mother's education on dropout for girls (Ensminger & Slusarcick, 1992).

High family mobility that results in a number of residential moves and changes in schools can cause major disruptions in the lives of children and youth. A study of students in inner-city Chicago schools found a link between moves and the chances that a female student would drop out. Researchers found that a family move between 1st grade and adolescence significantly increased a female's chances of dropping out but not a male's (Ensminger et al., 1996). Females whose families had moved were three times as likely to drop out as female students who had not moved.

Changing schools, often the result of a family move, was found in several studies to have a significant impact on the likelihood that a student would leave school before graduation (Gleason & Dynarski, 2002; Kaufman et al., 1992; Rumberger, 1995; Teachman et al., 1996). In the National Education Longitudinal Study (NELS) data, regardless of other family and personal characteristics like SES, changing schools even one time significantly increased the likelihood that a student would leave school before graduating (Kaufman et al., 1992). In addition, the chances of dropping out increased steadily with each successive school change. The likelihood that a student who had changed schools once before 8th grade would drop out was almost twice that of a student who had not changed schools. Changing schools three times increased the chance of dropping out to about three times that of students who had not changed schools and changing schools five or more times increased the chances of dropping out to eight times that of those who had not changed schools (Kaufman et al., 1992).

A number of studies found that students living in households without one or both of their natural parents were more likely to drop out than students living with both natural parents. Studies found that students living in single-parent households (Barro & Kolstad, 1987; Kaufman et al., 1992; Rumberger, 1995), in stepparent families (Rumberger, 1995; Teachman et al., 1996), with a divorced mother (Teachman et al., 1996), or without both natural parents (Barro & Kolstad, 1987) had higher dropout rates. In one study, for

example, students who lived in a single-parent family in the 8th grade were more than two and a half times as likely to drop out of school as a student who lived with both parents (Kaufman et al., 1992).

There were indications from several studies of the data from the 1988 National Education Longitudinal Study (NELS) that single- or stepfamily structures may impact dropout because they increase the chances that the student will have to change schools (Rumberger, 1995; Teachman et al., 1996) or that the student will be retained (Rumberger, 1995). One of these studies found evidence that the impact of this family structure on dropout was *not* due to differences these changes may cause in parent-school interactions or parent-child interactions about school within these household structures (Teachman et al., 1996).

There were also some important differences between racial/ethnic groups on the impact of living in stepfamilies on dropout in one of the NELS studies (Rumberger, 1995). For White students, living in a stepfamily significantly *increased* their odds of dropping out, while for Black students, it significantly *decreased* their odds of dropping out. Living in a stepfamily had no significant impact on the odds that a Hispanic student would drop out.

The number of siblings a student had was linked to dropping out in two studies (Barro & Kolstad, 1987; Lloyd, 1978). Dropping out was linked to the number of siblings a student had independent of other factors such as SES, family structure, religious affiliation, and religiosity (Barro & Kolstad, 1987). Both studies found the risk factor for males and females and one study found that risk increased with each additional sibling (Barro & Kolstad, 1987).

Family disruption during the 1st grade or at some time during secondary school was found to be linked to dropout. Alexander and his colleagues (Alexander et al., 1997; Alexander et al., 2001), while examining factors that impacted dropout in a sample of students in Baltimore, found that the number of family changes during the 1st grade had a significant impact on dropping out. Regardless of later school experiences and performance, and family SES, the more family changes that students experienced during their 1st grade years, the more likely they were to later drop out. Family changes included divorce, marriage, a family move, illness or death, or other adults coming into or leaving the household. A study of two cohorts of Canadian students found a similar connection between family disruption and dropout in middle and high school (Janosz et al., 1997).

Family engagement/commitment to education. As was found for students, family commitment to education was found to significantly impact school dropout. One indication of family commitment is whether other family or household members dropped out of school. In the NELS survey, regardless of other family and personal characteristics like SES, having an older sibling who dropped out significantly increased the likelihood that a student would leave school before graduating, and the risk increased as the number of sibling dropouts increased (Kaufman et al., 1992). Eighth-grade students with one older sibling who had dropped out were more than one and a half times as likely to later drop out of school and those with two or more dropout siblings were twice as likely to later drop out than students without dropout siblings (Kaufman et al., 1992).

Another study found that having siblings as well as one or more parents who dropped out significantly increased the chances that a student would drop out (Elliott & Voss, 1974). The researchers found that this exposure to dropout at home, based on the factors they analyzed, explained the connection between SES and dropout in their sample. It appeared to them that lower-class youth were more likely to have a family member who had dropped out which increased their own chances of dropping out (Elliott & Voss, 1974).

As was found for student's expectations, parental expectations for education attainment for their children were important predictors of a student leaving school before graduation. Two studies using the NELS data found that, regardless of other family and personal characteristics like SES, low parental expectations for their child's education significantly increased the likelihood that the child would leave school before graduating (Kaufman et al., 1992; Rumberger, 1995). Eighth-grade students whose parents did not expect them to graduate from high school were almost 14 times as likely to later drop out of school as students whose parents expected them to receive at least some college education. Even students whose parents expected them to receive at most some college education were significantly more likely to drop out than students whose parents expected them to get a four-year degree—they were 40 percent more likely to drop out (Kaufman et al., 1992).

Ensminger & Slusarcick (1992) found a similar relationship between mother's educational expectations and their adolescent daughter's graduation status in their analysis of students in inner-city Chicago schools. The same relationship was not found between mother's expectations and graduation status for their adolescent sons. They also found that mothers' expectations were linked to their children's expectations—students were more likely to have high expectations if their mothers also had high educational expectations for them (Ensminger & Slusarcick, 1992).

Another aspect of family engagement is the amount of contact parents or guardians have with the school about their child's academic progress or problems, academic program, or behavior problems. Two studies found a significant relationship between this type of family engagement and leaving school prior to graduation (Jimerson et al., 2000; Rumberger, 1995). Rumberger (1995) found that students whose parents had not contacted the school or teacher about their child's performance or behavior during their 8th grade year, regardless of other family and personal characteristics like SES, were significantly more likely to drop out. While analyzing the impact of a variety of factors across students' school careers on dropout, one group of researchers found that parent involvement in the 6th grade was the most important predictor of dropping out by age 19 (Jimerson et al., 2000).

Several studies explored the impact of parent-child conversations about school on dropout. Eighth-grade students in the NELS survey who had never talked with their parents about high school plans were almost six times as likely to drop out as students who regularly had conversations with their parents about high school plans (Kaufman et al., 1992). In addition, only rarely having conversations about school activities or plans with their parents reduced the likelihood that students would drop out to almost the same level as students who had more frequent conversations with their parents about school. Gleason & Dynarski (2002) found a similar significant connection between parent-child discussions about what was being studied at school and dropout for middle and high school students.

No Single Factor Best Predictor

Although all of the above individual and family factors were found to be significantly related to dropout, no study concluded that any one single factor was a reliable predictor of who would drop out of school. Instead, the best way to predict those most likely to drop out was to track multiple risk factors across several domains or to develop a model based on a combination of factors (Cairns et al., 1989; Gleason & Dynarski, 2002; Ingels et al., 2002; Wehlage & Rutter, 1986). As was described earlier, one group of researchers analyzing the NELS data, found that the higher the number of risk factors, the greater the likelihood that a student would drop out (see Chart 2) (Ingels et al., 2002). The best predictor of dropout for other researchers was Gleason & Dynarski's "regression risk factor" described earlier, that was based on 40 student characteristics and risk factors found in their analysis to be directly or indirectly related to school dropout (see Chart 3) (Gleason & Dynarski, 2002).

Studies also described dropping out of school as more of a process—rather than an event—that begins early in childhood and continues throughout a child’s school experience (Alexander et al., 1997; Ensminger & Slusarcick, 1992; Jimerson et al., 2000; Jordan et al., 1994). Risk factors are interconnected and it is often hard to discern causal connections. Factors also interact over time and have a cumulative effect. Analysis of longitudinal data from students in Chicago schools found that there was an additive quality to factors over time—factors across years were better able to explain patterns in dropout than were factors from a single timeframe (Alexander et al., 2001). Knowledge of a student’s risk factors in the 9th grade was not as good a predictor as knowledge of factors from 1st grade onward.

No School Risk Factors Identified in Two Data Sources

At the request of CIS, the search for school risk factors was limited to only those relating to the school’s environment. No school environment factors made the final list of significant factors because significant results were found in only one data source, the 1988 National Education Longitudinal Study (NELS). From those data, three studies found several school environment factors that significantly increased the likelihood that a student would drop out of school (see Table C-3 in Appendix C). Absenteeism (Goldschmidt & Wang, 1999); percentage of the student body misbehaving (Goldschmidt & Wang, 1999); a moderate to high level of school problems with attendance, violence, and abuse of teachers (Kaufman et al., 1992); high percentage of the students rating discipline as unfair (Rumberger, 1995); and low ratings of teacher support of students (Rumberger, 1995); all were found in the NELS data to impact dropout. One study also found that having a high-risk incoming class in high school (based on a number of family, individual school experiences, and performance factors) significantly increased the school’s dropout rate (Goldschmidt & Wang, 1999). But as these factors came from a single data source, they were not included in the final list of risk factors.

Two other studies reviewed examined school environment factors in their analyses but did not find that they significantly impacted dropout. Wagner and her colleagues (1993) analyzed whether having a climate conducive to learning impacted the likelihood that students with disabilities would drop out and found that it was not significantly related. Wehlage and Rutter (1986) compared the perceptions of dropouts and noncollege-bound graduates of several school climate factors to see if these perceptions helped to distinguish between the two groups. They found the climate ratings of the two groups to be very similar and consistently negative. At least half of both groups rated as “poor” or “fair” their teachers’ interest in students, the effectiveness of discipline, as well as the fairness of discipline at their school. College-bound students also gave similar low ratings on fairness of discipline.

The lack of significant findings on school environmental factors does not necessarily indicate that these factors have no impact on dropout. First, nonsignificant findings in the two studies above may be more of a methodological problem than a substantive one. School, family, and individual factors that impact dropout are all highly correlated. These correlations make outcomes highly sensitive to how factors are measured and how they are analyzed. The result is that some factors may be significant in one study and not in another due to study methodology, not because there is no substantial relationship between the factors and dropping out. Rumberger (2001) points out that one of the major methodological problems with examining the impact of individual and school factors in the same analysis is that it requires measuring factors at two different levels and until recently, no statistical techniques were available to address this problem.

Second, only studies that met the review criteria were analyzed. Some prior studies that focused on school level factors did not meet one or more of the criteria necessary for inclusion in this review. The recent study by researchers at Johns Hopkins (Balfanz & Legters, 2004) on the promoting power of high schools, for example, did not use dropout as the dependent variable for analysis nor did it use the type of

multivariate statistics with variables across several domains required for inclusion. Another study (Bekuis, 1995) on the safety level of schools and its impact on dropout was excluded for similar reasons.

Finally, until recently, studies on dropout have tended to focus more on family and individual factors than school or community factors. If there was a focus on school factors, it was more likely on student body composition or school resources rather than climate, policies, and practices. An increasing emphasis on high-risk settings and context in addition to high-risk individuals in education, psychology, and prevention research (Rumberger, 2001) will hopefully result in more quality information on the impact of school environment and other school-level factors on dropout.

Identification of Risk Factors by School Level

When CIS Affiliates provide Level Two resources and services, they assist students by assessing their needs and then linking students to individualized services to address these needs. Because these students are at different school levels, it would be helpful if staff knew if certain risk factors were more influential at particular school levels than others and could target efforts accordingly. For example, making low grades is a major risk factor for dropping out of school. But are low grades a significant factor at the elementary, middle, *and* high school levels or at only some levels?

Inclusion Criteria. To address this, NDPC/N developed matrices by school level for individual risk factors and for family risk factors relying on data available from the selected studies. Two groups of matrices were developed. The first set of matrices (Tables C-8 and C-9 in Appendix C) contained information by level from one data source and to be included the factor had to be:

- (1) Measured at a specified grade or school level for the analysis⁴
- (2) Found at that level to be significantly ($p \leq .10$) related to school dropout through multivariate analysis

A second set of matrices (Tables C-10 and C-11 in Appendix C) required that the factors meet the above criteria in at least *two* data sources. The results of findings of the first and second matrices are included in Tables 4 and 5. In these tables, a ✓ in the table cell indicates that the factor was found to be significant in one data source at that particular school level. A ✓* in the table cell indicates that the factor was found to be significant in *two* data sources at that school level.

As seen in the tables, all but one of the risk factors was identified in at least one school level by a single data source. All of the risk factors were identified at either the middle or high school levels. Eighteen of the 25 risk factors were identified in at least two data sources at either the middle or high school level. Fewer factors were identified at the elementary level.

Factors Across All School Levels. Four factors were found in at least two data sources to significantly impact dropout at all three school levels. Three of these four factors are individual ones and include *low achievement*, *retention/overage for grade*, and *poor attendance*. Finding this consistency across levels in these factors is not surprising given the additive quality of these factors. A student's status on these factors in one year is highly predictive of his or her status on it the next year. In addition, the impact of these factors may also multiply over time as was described earlier for retention.

The fourth factor found to be significant across all school levels was the family factor of *low socioeconomic status (SES)*. Family SES level has been tied in numerous studies to other educational outcomes at all stages of a student's school career and its appearance at all levels in predicting dropout is consistent with this pattern.

Three factors were found to be significant across all school levels in one data source, including *misbehavior, low education level of parents, and not living with both natural parents.*

Cautionary note. Only tentative conclusions can be drawn from these tables, however, because of the inconsistent evidence available on factors. Research needed to meet the criteria for this report, analysis of risk factors across several domains using multivariate statistics, is sparse. The fact that a specific factor is not mentioned in the chart at a specific level does not necessarily mean that it is not significant at that level. In some studies, it was the case that factors were analyzed at multiple levels but not significant at all levels. But it was more likely the case that data was not available for that factor by level.

Other aspects of the studies selected for review also made it difficult to discern factors by level. Many of the studies did not measure factors at all school levels and compare their relative impact on dropout. This is particularly the case for factors at the elementary school level. Many studies focusing on factors impacting dropout do not examine risk factors at that early level. Instead, the primary focus has been on factors at the secondary level, particularly high school, because these are closer to the time when students actually drop out of school.

The variation in selection and measurement of factors also made it difficult to find the same factors to compare across studies. Even those using the same data source did not look at the same factors. For example, one analysis from longitudinal data from schools in the Chicago area focused on the impact of neighborhood factors on dropout (Ensminger et al., 1996) while another using the same dataset analyzed the impact of school experiences and family background on dropout (Ensminger & Slusarcick, 1992).⁵

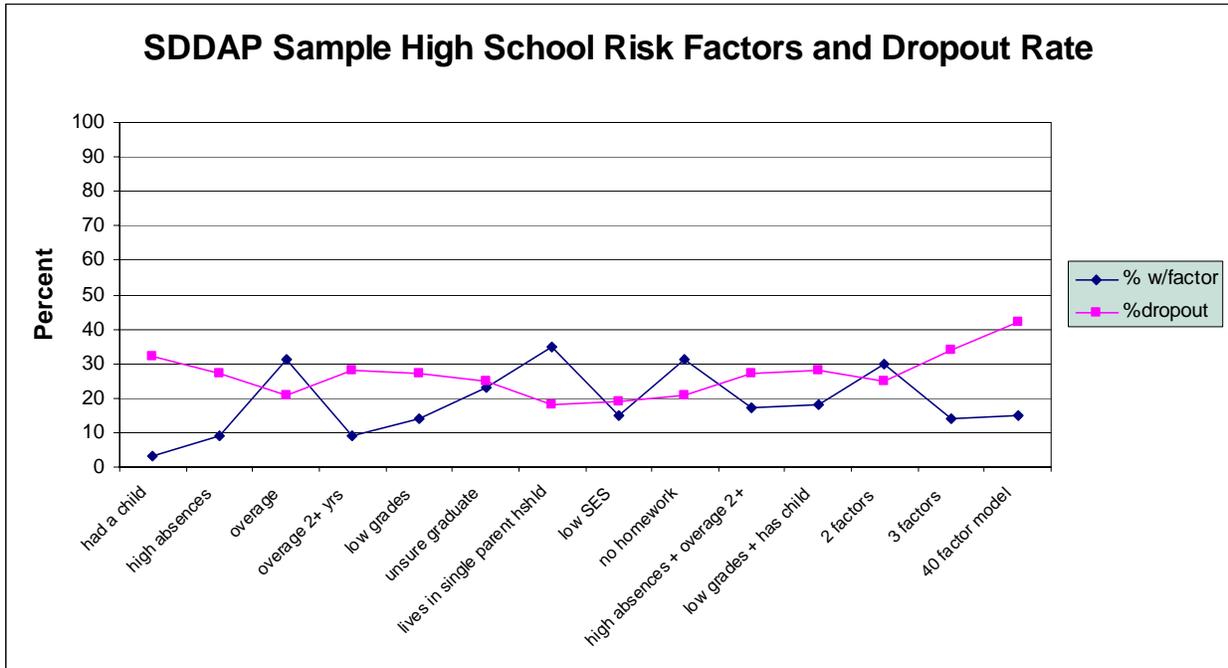
Given this lack of consistent quality information on risk factors by school level, there is a higher level of confidence in conclusions about impact at a particular level when the factor is found to be significant at that level in two studies rather than in a single study.

Status and Alterable Risk Factors

Lehr and her colleagues (2004) note that factors can be categorized by the degree to which they can be addressed and changed through prevention or intervention strategies in the hope of reducing the likelihood that a student will drop out. Status factors, such as low parent education or family mobility, are ones that are very difficult, if not impossible, to change, particularly for school-based programs. Seven of these types of factors were found in this analysis: the individual background characteristic of having a disability, and the six family background factors of SES, family mobility, low education of parents, large number of siblings, not living with both biological parents, and family disruption. The other identified factors are alterable factors, such as low educational expectations and high-risk social behavior, where change is possible through different types of strategies.

As illustrated in Chart 8, the majority of factors identified in this review are *alterable* ones, offering opportunities for intervention and prevention programs.

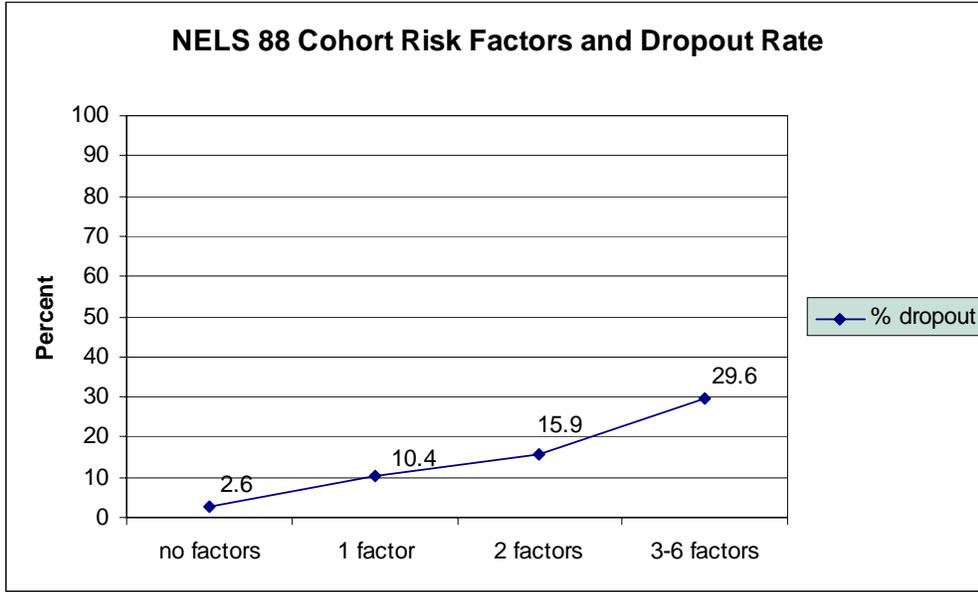
Chart 1.



Note: Risk factors include: high absenteeism, being overage for grade, low grades, having a child, having a sibling who has dropped out, having previously dropped out, being unsure of graduating from high school, and spending less than one hour per week on homework (Gleason & Dynarski, 2002, p. 32).

Source: Data from Table 2, p. 36, P. Gleason & M. Dynarski, 2002, Do we know whom to serve? Issues in using risk factors to identify dropouts, *Journal of Education for Students Placed at Risk*, 7(1), 25-41.

Chart 2.



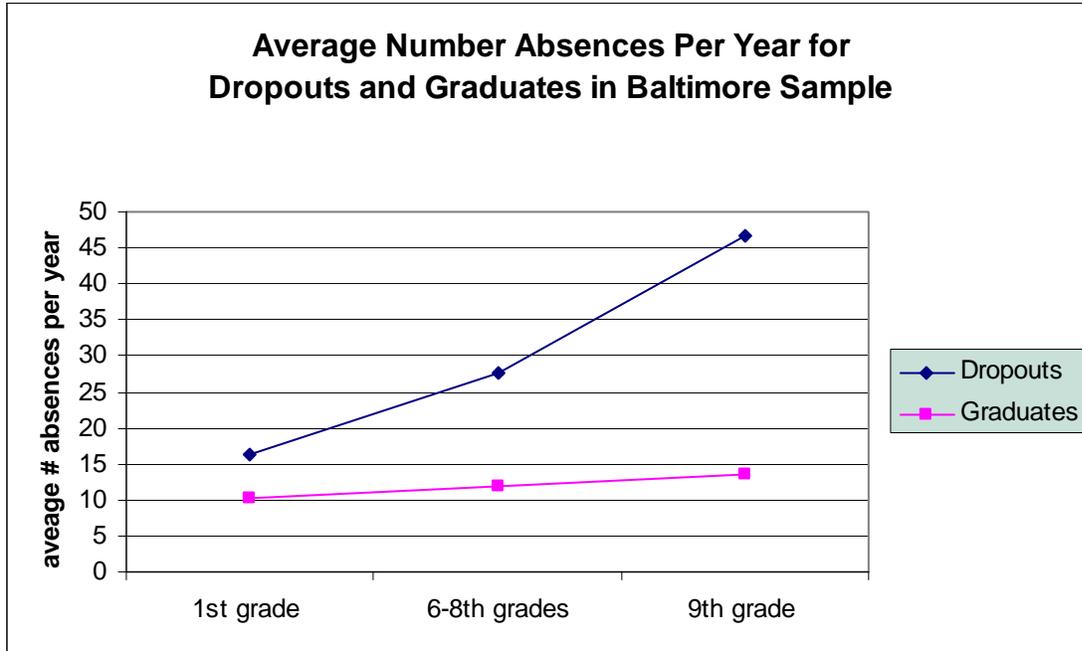
Note: Risk factors include single-parent household, parents without a high school diploma, older sibling dropped out, three or more hours home alone in afternoon after school, limited English proficiency, and low-income family.

Source: S. J. Ingels, T. R. Curtin, P. Kaufman, M. N. Alt, & X. Chen, 2002, *Coming of age in the 1990s: The eighth-grade class of 1988 12 years later*, (NCES 2002-321), Washington, DC: National Center for Education Statistics, U.S. Department of Education.

Table 1. Top Five Reasons Given by Dropouts for Leaving School

1980 High School and Beyond 10 th grade cohort dropouts (Ekstrom et al., 1986)	1988 National Education Longitudinal Study 8 th grade cohort dropouts (Jordan et al., 1994)	2005 Nonrepresentative Sample of Dropouts (Bridgeland et al., 2006)
<ul style="list-style-type: none"> ▪ Didn't like school (33%) 	<ul style="list-style-type: none"> ▪ Didn't like school (51%) 	<ul style="list-style-type: none"> ▪ Classes were not interesting (47%)
<ul style="list-style-type: none"> ▪ Poor grades (33%) 	<ul style="list-style-type: none"> ▪ Were failing school (44%) 	<ul style="list-style-type: none"> ▪ Missed too many days and could not catch up (43%)
<ul style="list-style-type: none"> ▪ Offered job and chose to work (19%) 	<ul style="list-style-type: none"> ▪ Couldn't get along with teachers (34%) 	<ul style="list-style-type: none"> ▪ Spent time with people who were not interested in school (42%)
<ul style="list-style-type: none"> ▪ Getting married (18%) 	<ul style="list-style-type: none"> ▪ Couldn't keep up with schoolwork (31%) 	<ul style="list-style-type: none"> ▪ Had too much freedom and not enough rules in my life (38%)
<ul style="list-style-type: none"> ▪ Could not get along with teachers (15%) 	<ul style="list-style-type: none"> ▪ Felt like they didn't belong at school (25%) 	<ul style="list-style-type: none"> ▪ Was failing in school (35%)

Chart 3.



Source: K. L. Alexander, D. R. Entwisle, & N. S. Kabbani. (2001, October). (p.762). The dropout process in life-course perspective: Early risk factors at home and school. *Teachers College Record*, 103(5), 760-822.

Chart 4. References for Risk Factors by Data Source and Timeframe of Data Collection

Approximate Date of Data Collection	Data Source Reference Name on Charts	References
Life Course Data Collection		
1966-1993	Chicago schools	Ensminger et al. (1996); Ensminger & Slusarcick (1992)
1970s to 1990s	At-risk sample	Jimerson et al. (2000)
1982-1996	Baltimore schools	Alexander et al. (2001); Alexander et al. (1997)
Other Longitudinal Data Collection		
1960s	Sixth grade cohort	Lloyd (1978)
1963-1967	California study	Elliott & Voss (1974)
1974 & 1985	Canadian study (two cohorts)	Janosz et al. (1997)
1980-1982	High School and Beyond (HS&B)	Barro & Kolstad (1987); Ekstrom et al. (1986); Wehlage et al. (1986)
1983-1988	Three-community study	Cairns et al. (1989)
1985-86 & 1990-91	National Longitudinal Transition Study of Special Education Students (NLTS)	Wagner et al. (1993)
1985-1993	Seattle Social Development Group data	Battin-Pearson et al. (2000)
1988-1990 & 1992	National Education Longitudinal Study (NELS) 1988	Goldschmidt & Wang (1999); Ingels et al. (2002); Jordan et al. (1994); Kaufman et al. (1992); Rumberger (1995); Teachman et al. (1996)
1991-1995	School Dropout Demonstration Assistance Programs (SDDAP)	Gleason & Dynarski (2002)

NOTE: For full references, please see reference list at end of section.

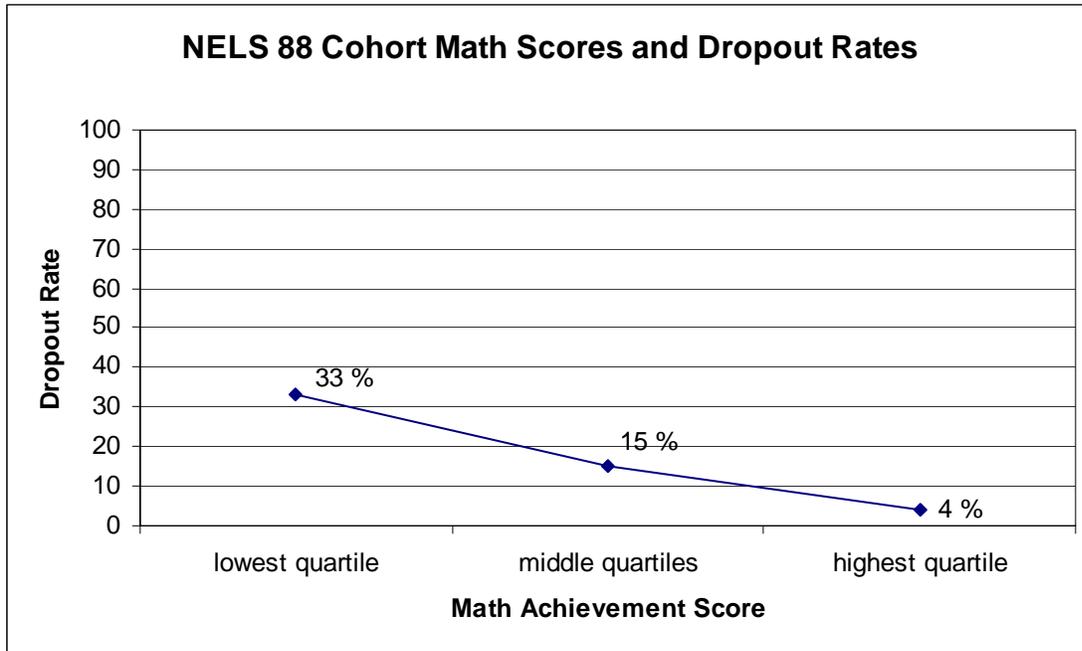
Table 2. Significant Individual Risk Factors for School Dropout

Risk Category and Risk Factor	Number of Data Sources Where Factor Significant (Total of 12 Data Sources)	Percent of Data Sources Where Factor Significant
Individual Background Characteristics		
• Has a learning disability or emotional disturbance	2	16.7
Early Adult Responsibilities		
• High number of work hours	2	16.7
• Parenthood	3	25.0
Social Attitudes, Values, & Behavior		
• High-risk peer group	3	25.0
• High-risk social behavior	4	33.3
• Highly socially active outside of school	2	16.7
School Performance		
• Low achievement	12	100.0
• Retention/overage for grade	7	58.3
School Engagement		
• Poor attendance	6	50.0
• Low educational expectations	4	33.3
• Lack of effort	2	16.7
• Low commitment to school	5	41.7
• No extracurricular participation	3	25.0
School Behavior		
• Misbehavior	5	41.7
• Early aggression	2	16.7

Table 3. Significant Family Risk Factors for School Dropout

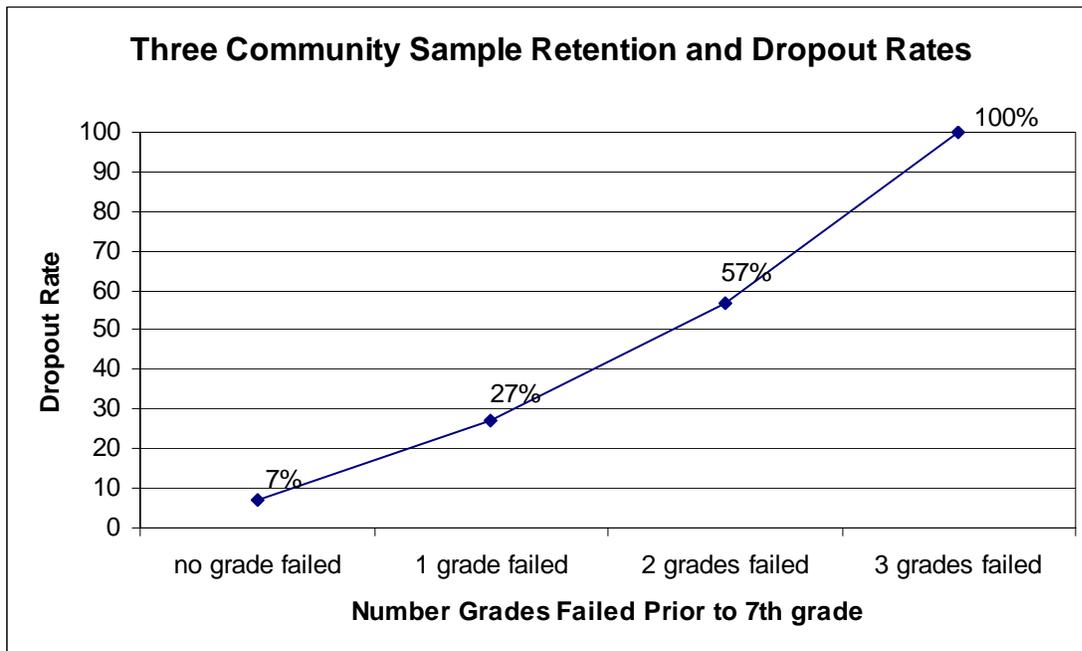
Risk Category and Risk Factor	Number of Data Sources Where Factor Significant (Total of 12 Data Sources)	Percent of Data Sources Where Factor Significant
Family Background Characteristics		
• Low socioeconomic status	10	83.3
• High family mobility	3	25.0
• Low education level of parents	4	33.3
• Large number of siblings	2	16.7
• Not living with both natural parents	3	25.0
• Family disruption	2	16.7
Family Engagement/Commitment to Education		
• Low educational expectations	2	16.7
• Sibling has dropped out	3	25.0
• Low contact with school	2	16.7
• Lack of conversations about school	2	16.7

Chart 5.



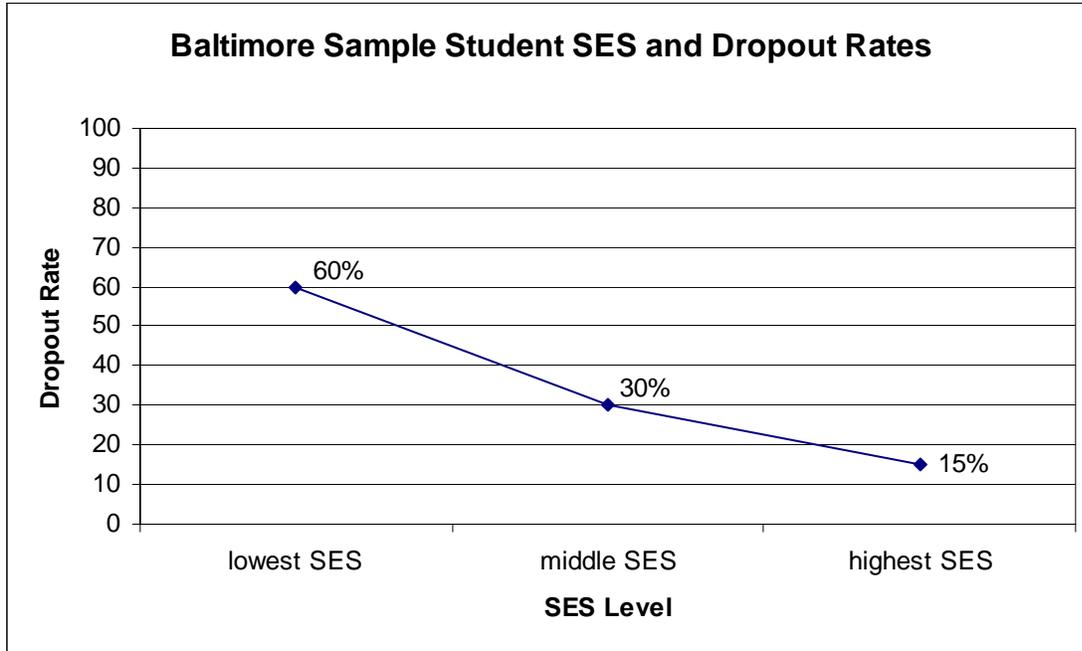
Source: Data from Table 1, p. 15, S. J. Ingels, T. R. Curtin, P. Kaufman, M. N. Alt, & X. Chen, 2002, *Coming of age in the 1990s: The eighth-grade class of 1988 12 years late*, (NCES 2002-321), Washington, DC: National Center for Education Statistics, U.S. Department of Education.

Chart 6.



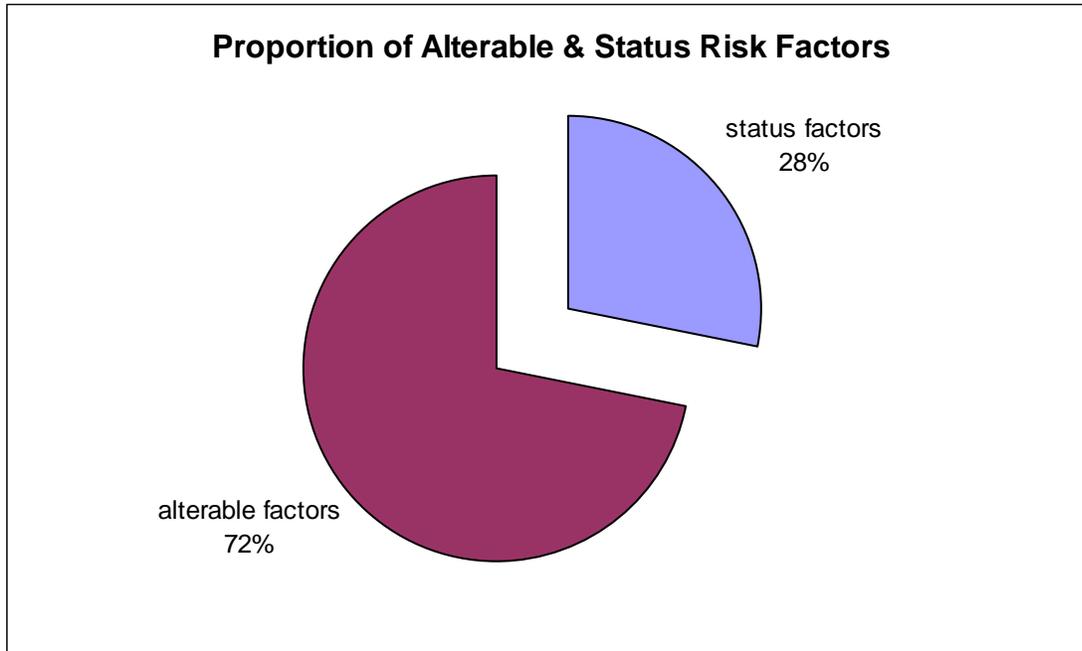
Source: Data from Table 3, p. 1443, R. B. Cairns, B. D. Cairns, & H. J. Neckerman, 1989, Early school dropout: Configurations and determinants, *Child Development*, 60, 1437-1452.

Chart 7.



Source: Data from Table 2, p.770, K. L. Alexander, D. R. Entwisle, & N. S. Kabbani, 2001, October, The dropout process in life-course perspective: Early risk factors at home and school, *Teachers College Record*, 103(5), 760-822.

Chart 8.



Source: CIS-NDPC/N study of risk factors for school dropout, 2006.

Table 4. Significant Individual Risk Factors by School Level*

Risk Category and Risk Factor	Elementary School	Middle School	High School
Individual Background Characteristics			
• Has a learning disability or emotional disturbance		✓	✓
Early Adult Responsibilities			
• High number of work hours		✓	✓*
• Parenthood			✓*
Social Attitudes, Values, & Behavior			
• High-risk peer group		✓*	✓
• High-risk social behavior		✓*	✓
• Highly socially active outside of school			✓
School Performance			
• Low achievement	✓*	✓*	✓*
• Retention/overage for grade	✓*	✓*	✓*
School Engagement			
• Poor attendance	✓*	✓*	✓*
• Low educational expectations		✓*	✓*
• Lack of effort		✓	✓
• Low commitment to school		✓	✓*
• No extracurricular participation		✓	✓*
School Behavior			
• Misbehavior	✓	✓	✓*
• Early aggression	✓	✓	

Key: ✓ indicates that the risk factor was found to be significantly related to dropout at this school level in one study. ✓ indicates that the risk factor was found to be significantly related to dropout at this school level in two or more studies.

Table 5. Significant Family Risk Factors by School Level*

Risk Category and Risk Factor	Elementary School	Middle School	High School
Family Background Characteristics			
• Low socioeconomic status	✓*	✓*	✓*
• High family mobility		✓*	
• Low education level of parents	✓	✓	✓*
• Large number of siblings	✓		✓
• Not living with both natural parents	✓	✓	✓*
• Family disruption	✓		
Family Engagement/Commitment to Education			
• Low educational expectations		✓*	
• Sibling has dropped out		✓	✓
• Low contact with school		✓*	
• Lack of conversations about school		✓*	✓

Key: ✓ indicates that the risk factor was found to be significantly related to dropout at this school level in one study. ✓ indicates that the risk factor was found to be significantly related to dropout at this school level in two or more studies.

Risk Factor Section Notes

1. Three documents that included relevant data/analyses that were published or became available after the December 31, 2005, deadline were also reviewed to ensure that no key study meeting the review criteria would be excluded due to this deadline. None of the three met the criteria for inclusion in the risk factor review, but information from each of the sources was included in the literature review summary. The three documents include (1) a PowerPoint presentation, *Keeping middle grades students on track to graduation: Initial analysis and implications*, by Balfanz and Herzog on an ongoing study of middle school students in Philadelphia, May, 2006; (2) *Identifying potential dropouts: Key lessons for building an early warning system* by Jerald for Achieve, Inc., June, 2006; and (3) *The silent epidemic: Perspectives of high school dropouts*, a report on a survey commissioned by the Bill and Melinda Gates Foundation, by Bridgeland and colleagues from Civic Enterprises, March 2006.
2. Christenson, 2002, as cited in Lehr et al., 2004, discusses academic, behavioral, and psychological engagement, while Rumberger, 2001, discusses academic and social engagement.
3. Although findings from analyses of the outcomes of the first cohort of the National Longitudinal Transition Study (NLTS; U.S. Department of Education, Office of Special Education Programs) of the achievement of students with disabilities are included in this review, findings from the second cohort (National Longitudinal Transition Study-2, NLTS2), begun in December of 2000, are not. Available analyses of the second cohort do not meet two of the primary criterion for inclusion in this review: (1) the use of dropout or high school graduation as the dependent variable for analysis; and (2) the use of multivariate statistical techniques, such as logistic regression, to simultaneously assess independent relationships between multiple independent variables and the dependent variable. Instead, available NLTS-2 analyses use various measures of student achievement as outcomes (Blackorby, Chorost, Garza, & Guzman, 2003; Wagner, Newman, Cameto, & Levine, 2006). If at a later date multivariate analyses of NLTS-2 using dropout as a dependent variable become available, findings will be added to the review.
4. One of the studies reviewed, by Janosz et al., 1997, had a sample that ranged in age from 12 to 16. It was therefore not possible to place their factors within specific grade or school levels.
5. The analysis on neighborhood factors is summarized in Ensminger, Lamkin, & Jacobson, 1996; and analysis of school experiences and family background is summarized in Ensminger & Slusarcick, 1992.