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Indicators, Trends and Promising Interventions in Dropout Prevention: A Review of Literature

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**Indicators, Trends and Promising Interventions
in Dropout Prevention:
A Review of Literature**

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Preface

This is the final report of a review of literature on Indicators, Trends and Promising Interventions in Dropout Prevention sponsored by The Metropolitan Educational Research Consortium (MERC). The literature review was initiated to provide information to school divisions about current trends and interventions in reducing dropout rates. Specifically, this review presents key indicators of potential dropouts; current trends in dropout prevention research; and intervention strategies such as developing tracking systems to more clearly identify students who may later drop out of school, several targeted interventions for use with individuals or groups of identified students at risk of dropping out, as well as effective school wide strategies. Recommendations for working with some special populations of students and strategies for addressing truancy are also included.

This project was designed and implemented by Donna J. Dockery, with the assistance of Risha Berry, a doctoral candidate. This report reflects findings in the literature interpreted by the authors, and does not constitute official policy or positions by MERC or Virginia Commonwealth University.

Indicators, Trends and Promising Interventions in Dropout Prevention:

A Review of Literature

One challenge facing public education today is preparing all students for postsecondary education, work, and life after high school; however, too many students graduate poorly prepared for adulthood while others leave school without earning a diploma. A number of school divisions are seeking ways to more clearly identify students who might be susceptible to dropping out and are looking for effective interventions to implement in support of these students. Although many dropout prevention strategies may involve communities, families, and other agencies, school personnel must recognize their important *in loco parentis* role and how essential school efforts are to the successful retention and graduation of students.

The focus of this review of literature is dropout prevention and promoting retention of students at the secondary level. Brief background information is presented summarizing the history and current state of dropouts in the United States, including graduation and dropout rates and how these rates are calculated. Several of the most significant factors associated with students who dropout are described, in order to assist schools identify students who may be at risk for dropping out. Current trends in dropout research are reviewed, as well as recommended interventions.

Several intervention strategies which are thought to be key components of effective programs are described, including developing tracking systems to more clearly identify students who may later drop out of school, using targeted interventions that would be implemented for individuals or groups of identified students at risk for dropping out, and several school-wide strategies. The recommended strategies are not intended to operate in isolation; rather, most effective dropout prevention programs utilize a variety of targeted interventions to fit the specific needs of identified students as well as some equally important school-wide strategies that may impact the entire school population or climate. Recommendations for working with some special populations of students and strategies for addressing truancy are also included.

In order to begin this literature review, searches were conducted using Academic Search Complete, Education Research Complete, ERIC, PsychARTICLES, PsychINFO, and Psychology and Behavioral Sciences Collection for research articles published from 1998-2010; using keywords such as dropout, dropout prevention, truancy, and graduation rates. The reference lists of significant articles were reviewed for additional sources of information. For brevity and due to time constraints, the primary focus was on meta-analyses of prior research on dropouts and effective interventions, as well as on information from national organizations including the U.S. Department of Education Institute of Education Sciences (USDOE IES) What Works

Clearinghouse, National Dropout Prevention Center/Network (NDPC/N), and the Office of Juvenile Justice and Delinquency Prevention (OJJDP).

Empirical data from high-quality experimental and quasi-experimental designs, with an emphasis on those that have been replicated, are the focus of the meta-analyses reviewed for this paper. It is important to note, however, that these studies often analyze interventions that include a number of different strategies, and that the intervention or program is the unit of analysis. Therefore, it is difficult to determine which of the various strategies most contribute to the success of a dropout prevention intervention program. In addition, the body of research support for dropout interventions continues to grow, and several promising practices are suggested that have only limited empirical support at the present time.

Although a number of research studies indicate the importance of early interventions in preschool or in elementary settings as cost-effective ways to enhance student engagement and potentially reduce later dropouts, the focus of this review is on interventions and recommendations at the secondary level. This review of the literature does not address incentive programs that provide financial rewards for students who remain in school, recovery programs used to encourage dropouts to return to school or to earn their General Education Development (GED) certificate, or strategies such as increasing the legal age at which students are able to withdraw from school. Rather, the focus of this review is to suggest strategies and practices that are major components of effective or promising programs that reduce dropout rates.

School Dropouts: A National Crisis

Over a million high school freshmen entering high school fail to graduate with their class four years later (Digest of Educational Statistics, 2008). Almost seven thousand students drop out of high school each day (Alliance for Excellent Education, 2009a). Unlike several generations ago, students who leave high school without a diploma today dramatically reduce their access to higher education and face limited opportunities for well paying employment. In addition to the significant challenges facing individual dropouts, there are social and financial costs at the national and state levels, as well as in local communities where dropouts reside.

The Alliance for Excellent Education (2009a) reports that students who leave school without a diploma will earn a quarter of a million fewer dollars during their careers compared to high school graduates. Earnings lost due to reduced wages over their lifetime for dropouts from the class of 2008 are predicted to be more than \$319 billion nationally. In addition, dropouts contribute fewer dollars to the local, state, and federal tax base and rely on public assistance and social services to a larger degree than those who graduate from high school.

High school graduates report greater life satisfaction than do those who drop out of school, live an average of a decade longer, and engage in civic responsibilities such as voting and volunteering at higher rates than do dropouts (Alliance for Excellent Education, 2009b). High school graduates use food stamps, public assistance and government health care at lower rates than do dropouts. In addition, children of parents who earn diplomas are healthier and are more likely to graduate from high school than are children of dropouts. If schools are not able to significantly reduce dropout rates in the near future, as many as 13 million students are expected to drop out in the next decade, reducing national revenue by as much as \$3 trillion (Alliance for Excellent Education, 2009b).

Perhaps because of these and other concerns, there is national interest in improving high school graduation rates and reducing dropout rates. Federal requirements of *No Child Left Behind* (2001) support this effort, although research regarding dropout prevention is severely underfunded, compared to the federal dollars allocated to increasing academic achievement and improving standards. "One of the unintended consequences of the No Child Left Behind Act and its narrow emphasis on test score results was to encourage high schools to quietly ignore those dropping out – or even actively push out students who would lower the test scores for which schools were being held accountable" (Maclver & Maclver, 2009, p. 4).

Historical Dropout and Graduation Rates

Historically, it was the norm for large numbers of students to drop out of school before graduation. In the 1940s fewer than half of individuals aged 25 – 29 earned high school diplomas (Shannon & Blysmas, 2003). During the later half of the twentieth century, as more students graduated and earning a diploma was expected, national interest regarding reducing dropout rates increased. Reports such as *A Nation at Risk* (1983), the National Goals 2000 (1998) initiative, and *No Child Left Behind* (2001) legislation have focused attention on increasing graduation rates and reducing dropouts. Despite increased attention on dropout prevention nationally and at the state and local levels, the United States dropout rate has remained fairly constant over the last few decades (Digest of Educational Statistics, 2008).

Although early studies focused on the individual characteristics and conditions that might be used to predict which students would drop out of school (Shannon & Blysmas, 2003), research has expanded to investigate a number of additional home, community, and school-based factors that might impact the likelihood that students will graduate from high school. Current emphases also include generating empirical data regarding effective interventions to reduce dropout rates and developing longitudinal tracking systems to better detect students who might be at risk for dropping out.

Calculating Dropout Rates

Currently there is no universal definition of dropouts, although typically dropouts are described as those who leave school without a diploma and who do not transfer, die, move out of the country, or become incarcerated (Digest of Educational Statistics, 2008). Dropout rates may be determined in a variety of ways, including

- calculating how many leave school in a given year (annual dropout rate),
- comparing how many members of a ninth grade class drop out before the end of their senior year (cohort dropout rate), or
- documenting the percentage of 16- to 24-year-olds who have not earned a diploma (status dropout rate) (Stillwell, 2010; Digest of Educational Statistics, 2008).

Because the exact status of many students who leave school is unknown and other students remain enrolled despite failing to graduate on time, reported rates are only estimates. In addition, disagreement exists regarding the status of students earning a General Education Development (GED), certificate of program completion, or exceptional education diploma, which further confounds the issue of determining accurate dropout rates.

Current Reported Graduation and Dropout Rates

The reported national dropout rates range from about 4% (annual rate) to about 20% (cohort rate). The Averaged Freshman Graduation Rate (AFGR) has remained fairly constant for the last 30 years, ranging from 79% in 1960 to a low of 71% in 1996 (Digest of Educational Statistics, 2008).

Annually, more than a half a million young adults drop out of high school (Dynarski et al., 2008). According to the National Center for Education Statistics (NCES) Common Core of Data, the AFGR for 2008 was about 75%, ranging from a low of 51.3% in Nevada to 89.6% in Wisconsin (Stillwell, 2010). Nationally, about 90% of Asian/Pacific Islanders graduated in 2008; followed by Caucasian students at about 80%; with American Indian, Hispanic Americans, and African American students graduating at rates closer to 60% (See Table 1). During the 2007-2008 school year over 4% of students dropped out of grades 9 through 12, ranging from 3% of freshmen nationally to more than 6% of students in grade 12 (Stillwell, 2010). Asian/Pacific Islanders dropped out at the lowest rate nationally, followed by Caucasian students, while rates for other ethnic groups were over 6%. Males dropped out at higher rates than females in every state (See Table 2) (Stillwell, 2010).

Table 1

2008 U.S. and Virginia Averaged Freshman Graduation Rates (AFGR) by Ethnicity

2008 Cohort Graduation Rates	United States	Virginia
Pacific Islanders/Asian Americans	91.4%	99.1%
Caucasian Americans	81.4%	80.8%
Native Americans	64.2%	55.2%
Hispanic American	63.5%	70.0%
African American	61.5%	65.3%
Total 2008 cohort	74.9%	77.0%

Source: Summarized from *Public School Graduates and Dropouts from the Common Core of Data: School Year 2007–08* (NCES 2010-341) by R. Stillwell, 2010, National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, DC.

Table 2

2008 U.S. and Virginia Annual Dropout Rates by Grade and Gender

2008 Annual Dropout Rates	United States	Virginia
9 th	3.0%	2.1%
10 th	3.6%	2.3%
11 th	4.0%	2.7%
12 th	6.1%	3.7%
Total for grades 9 – 12	4.1%	2.7%
Males in grades 9-12	4.6%	3.1%
Females in grades 9-12	3.5%	2.2%

Source: Summarized from *Public School Graduates and Dropouts from the Common Core of Data: School Year 2007–08* (NCES 2010-341) by R. Stillwell, 2010, National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, DC.

In 2008, the NCES reported that Virginia graduated 77,369 students resulting in a graduation rate of 77%, which is just above the 76.4% median for all states (Stillwell, 2010). This rate has been fairly constant over the last five years, ranging from a high of about 80% in 2003 to a low of about 74% in 2006. Similar to national trends, lower percentages of American Indian, African American, and Hispanic students graduated in comparison to Caucasian students, while over 99% of Virginia's Asian American students graduated (See Table 1) (Stillwell, 2010). The event dropout rate for Virginia students in grades 9-12 in 2008 was about 4%, with about twice as many seniors dropping out of school than freshmen (See Table 2) (Stillwell, 2010).

Despite recent efforts in improving graduation rates and reducing dropout rates, the numbers have changed little, and determining which interventions are most effective with different groups of students remains a challenge. "The United States is the only industrialized country in the world in which today's young people are less likely than their parents to have graduated high school" (Habash, 2008, p. 1).

Characteristics of Dropouts

Early research focused on the characteristics of individual students who dropped out of school, including a number of demographic and social factors such as socioeconomic status, race and ethnicity, gender, and disability status. Living in poverty at the elementary, middle and/or high school levels is one of several factors significantly correlated to dropping out of school (Hammond, Linton, Smink, & Drew, 2007). Young adults aged 16 to 24 from the highest socioeconomic backgrounds are seven times more likely to have graduated than those from the lowest socioeconomic quartile. Students who are African American, Native American, or Hispanic American; male; English language learners; or who have been diagnosed with learning disabilities also drop out at significantly higher rates compared to their peers. Although it is important to be aware of these and other fixed demographic characteristics, some of these individual factors cannot be altered and are beyond the control of the school. Using these indicators to help identify students who may be at risk for dropping out and who might benefit from targeted services, however, is recommended (Hammond et al., 2007).

The National Dropout Prevention Center and Communities in Schools partnered to analyze 44 empirical studies of dropout prevention conducted from the 1960s to the mid-1990s, and found 25 individual and family risk factors that were found to be significantly related to school dropouts, as well as a number of school and community factors (Hammond et al., 2007). The authors note that fewer than 30% of the factors significantly correlated to dropping out were fixed factors that could not be changed. Over 70% of the identified factors might be altered by some type of intervention, which could significantly impact dropout rates.

Several of the risk factors were significant in more than one study and across elementary, middle and high school levels. Low academic achievement, being retained or over-age, and poor attendance are other significant factors at all school levels. Because these factors are readily identifiable and may be targeted using school interventions, they will be discussed further while a more complete list of significant factors is listed in Table 3.

Academic Concerns, Behavioral Issues, and Poor Attendance as Indicators

Students' experiences in school impact whether or not they will graduate from high school, and academic performance and engagement in school are major indicators of potential dropouts (Hammond et al., 2007). Poor academic performance, as measured by low grades, failing courses, or low test scores, is one predictor of dropping out (Alexander, Entwistle, & Kabbani, 2001; Battin-Pearson et al., 2000). A number of studies have also found the combination of failing core academic classes, poor attendance, and earning poor behavioral marks from teachers linked to later dropping out of school. For example, sixth-grade students from Philadelphia who failed math or English, were absent from school 20% or more days of the year, and who earned failing marks for behaviors had less than a 10% chance of graduating on time in one study (Balfanz, Herzog, & MacIver, 2007). Many of the students who later dropped out had either academic difficulties in middle school or were disengaged from middle school, but most did not indicate problems with both academics and engagement at the same time. Kennelly and Monrad (2007) recommend intervening with middle school students who are performing academically but who have poor engagement, behavioral issues, and/or poor attendance as one way to reduce later dropouts.

Fewer than 25% of eighth graders who failed math or English and were absent more than 20% of the time graduated on time in another study (Neild & Balfanz, 2006). These two factors were better predictors of dropping out than gender, age, ethnicity, or test scores. Allensworth and Easton (2005) found that more than 85% of ninth-grade students who received failing semester grades in one or more core academic class and who were not promoted to tenth grade failed to graduate on time (Allensworth & Easton, 2005). The Chicago Consortium used these factors to establish an "On-Track Indicator" for freshmen and found that students who are "on-track" at the end of freshman year are 3.5 times more likely to graduate on time, compared to those who are "off-track" (Allensworth & Easton, 2005). In these studies, failing grades and poor attendance were better predictors of dropping out than were test scores. Evidence also indicates that poor attendance as early as the first grade impacts dropping out, and that poor attendance becomes a pattern for many dropouts.

Bridgeland, Dilulio, and Morison (2006) surveyed high school dropouts who reported not being able to catch up academically after missing too many days as the second most

Table 3

Indicators Linked to Dropping Out

Indicator Type	Description
Academic	
Low academic achievement ^{a,b}	Failing core academic classes, earning few credits towards graduation, low scores on math and/or reading standardized tests
Retained or overage for grade ^a	Held back in elementary, middle, or high school
Absenteeism ^{a,b}	High rates of absenteeism in elementary, middle, or high school
Transition to high school ^b	Drop in motivation and increased disengagement from school during/after transitions
Demographic	
Gender	More male than female
Race/Ethnicity	More African American, Hispanic and Native American students than Caucasian or Asian American students
Language Acquisition	English Language Learners
Exceptional Education	Students with learning disabilities or emotional disturbances
Adult Responsibilities	Working 20 or more hours each week, pregnancy, parenting, or married
Social	
School Engagement ^b	Low educational expectations, little effort, no extracurricular involvement, low commitment to school
Discipline/behavior ^b	Students with disciplinary infractions, behavioral issues, early aggression, or involvement with the juvenile justice system
Social Belief/Behaviors ^b	High risk peer group, high risk behaviors, or highly social outside of school

^aFound to be significant linked to dropping out at elementary, middle and high school levels

^bMay be altered by appropriate interventions.

Source: Summarized from *Dropout Risk Factors and Exemplary Programs* by C. Hammond, D. Linton, J. Smink, J. and S. Drew, 2007, National Dropout Prevention Center/Network and Communities in Schools, Clemson, SC.

Table 3 (cont.)

Indicators Linked to Dropping Out

Indicator Type	Description
Family	
Family Background	Large number of siblings, family disruption/stress, child abuse/neglect, single parent homes, placement in foster care, Non-English speaking household, financial/health issues, parents with low levels of education, having sibling who dropped out
Socioeconomic Status ^a	Students more likely to dropout, risk even higher for those residing in impoverished communities
Mobility	Students who move are more likely to dropout than those who are consistently enrolled
Family Engagement ^b	Low educational expectations, few conversations about school, little contact with school, low sense of child's ability to do homework, low parental expectations regarding behavior at school, few study aids or reading materials at home
Family Dynamics ^b	Permissive parenting, little monitoring of child's activities
School	
Setting	Large schools, those with high student-teacher ratios, violence in surrounding neighborhood
Student Body	High percentages of low SES, racial/ethnic minority, ESL population, and exceptional education students; high rates of absenteeism; student mobility
Academic Procedures ^b	Ability tracking, high rates of failure to promote to next grade level, lack of differentiated instruction, little interactive teaching, raising academic standards without support
Discipline Procedures ^b	High rates of suspension, student perception of policies as unfair or unfairly applied, high rates of inappropriate behaviors
Environment ^b	Low teacher expectations, teachers perceived as not caring, negative school climate, little personal interaction with faculty, high numbers of at-risk peers, high rates of violence in school

^aFound to be significant linked to dropping out at elementary, middle and high school levels

^bMay be altered by appropriate interventions.

Source: Summarized from *Dropout Risk Factors and Exemplary Programs* by C. Hammond, D. Linton, J. Smink, J. and S. Drew, 2007, National Dropout Prevention Center/Network and Communities in Schools, Clemson, SC.

Table 3 (cont.)

Indicators Linked to Dropping Out

Indicator Type	Description
Community	
Location	More dropouts from Western and Southern states, more dropouts from urban settings
SES	More dropouts in communities of poverty, those with high rates of unemployment, low levels of adult education

^aFound to be significant linked to dropping out at elementary, middle and high school levels

^bMay be altered by appropriate interventions.

Source: Summarized from *Dropout Risk Factors and Exemplary Programs* by C. Hammond, D. Linton, J. Smink, J. and S. Drew, 2007, National Dropout Prevention Center/Network and Communities in Schools, Clemson, SC.

important factor in their decision to withdraw from school. Because poor attendance is strongly linked to academic failure and to later dropping out, carefully monitoring and quickly intervening with students who are frequently absent are recommended (Kennelly & Monrad, 2007). Students who dropped out of school frequently report poor academic achievement as another major reason for withdrawing from school. More than one third of dropouts shared concerns of failing classes, earning low grades, or falling behind academically as one of their major reasons for dropping out in three different surveys (Hammond et al., 2007).

Children and adolescents also demonstrate attitudes, beliefs and behaviors that may increase their likelihood of dropping out of school. A lack of school engagement is related to lowered academic achievement, although it is not clear whether disengagement precedes, follows, or occurs at the same time as poor academic performance (Hammon et al., 2007). Disengaged students may demonstrate their alienation from school academically, socially, behaviorally, or psychologically (Hammond et al., 2007) and are more likely to drop out (Alexander, Entwisle, & Horsey, 1997). In addition to high rates of absenteeism and truancy, other factors that indicate students' academic disengagement include coming to class unprepared, not completing homework, and cutting classes (Ekstrom, Goertz, Pollack, & Rock, 1986; Kaufman, Bradbury, & Owings, 1992; Wehlage & Rutter, 1986).

Students may also become psychologically disengaged from school as demonstrated by low expectations for graduating or lacking academic plans beyond high school. Common reasons dropouts give for failing to complete school include not liking school, difficulties in getting along with teachers, and feelings of not belonging (Ekstrom et al., 1986). Inappropriate behaviors at school may also indicate student disengagement, especially when such behaviors result in suspensions or expulsion from school. Disciplinary infractions in elementary, middle, and high school have been linked to dropping out, as have such antisocial behaviors as getting

in trouble with the police, violence, and substance abuse (Ekstrom et al., 1986; Wehlage & Rutter, 1986). Finally, students may disengage socially from school by not participating in extra-curricular activities, identifying with peers also at risk for dropping out, or having difficulty with social skills or getting along with others at school (Jimerson et al., 2000). Rumberger (2004) found that, even after controlling for student demographic characteristics and academic achievement, a lack of student engagement in school is significantly linked to dropping out.

Grade Retention as an Indicator

Owings and Kaplan (2001) cite a number of studies linking retention for one or more grade levels and later dropping out. Research findings, consistent for more than 75 years, indicate that retention does not have a positive effect on student achievement, that promoted students show higher achievement gains compared to retained students, and that retained students are significantly more likely to drop out of school and to experience more discipline problems in school (Owings & Kaplan, 2001).

Alexander, Entwistle and Horsey (1997) report that 63% of middle school students who were retained a grade and 64% of elementary school students who were retained later failed to earn a high school diploma. In their study of dropouts in Philadelphia, Neild and Balfanz (2006) found that over half of the dropouts were only classified as ninth- or tenth-graders when they withdrew from school, although most had been in high school for three or more years and were 17 or more years old. "Beginning in first grade, retention at any grade level has been found to impact the chances that a student will drop out" (Hammond, et al., 2007, p. 12). It is important to note that the effect of grade retention on dropping out is greatly magnified in students who must repeat more than one grade (Gleason, & Dynarski, 2002).

Goldschmidt and Wang (1999) suggest that grade retention and social promotion are failed strategies and are also expensive. The No Child Left Behind Act resulted in additional graduation requirements of meeting state standards through state-wide assessments. (Owings & Kaplan, 2001). Students who are unable to meet required standards will not graduate from high school. When students expect to fail these critical tests, they may drop out of formal education rather than risk failure.

Trends in Predicting Dropouts

Attempting to identify and track the more than 40 different risk factors linked to dropping out can be a daunting and confusing challenge for schools and divisions seeking to address dropout rates. Trends reported in meta-analyses of dropout research may assist schools in making sense of this complex issue. Analyzing multiple factors, rather than attempting to track only one or two characteristics, is one recommendation, and schools should

not focus only on student characteristics. Rather, they should include community, family, and school-related factors when attempting to determine who might be most at risk for school failure. In addition, several types of dropouts with differing characteristics and varying constellations of risk factors are identified. Schools should implement different programs and services to address the varying needs of these groups of students. Considering whether a student's decision to leave school is based on school-related push-out factors or on pull-out factors from outside school provides a better understanding of conditions that contribute to dropping out. Dropping out has been described by a number of researchers as an ongoing process rather than as a single event. Thus early interventions may be important; however, most dropout prevention strategies and services are implemented at the secondary level.

Dropping Out is a Process, Not a Single Event

Dropping out can be described as a process, rather than a single event, and is often the end result of a long period of disengagement (Alexander, et al., 1997; Ensminger & Slusarcick, 1992; Hammond et al., 2007; Jimerson, Egeland, Stroufe, & Carlson, 2000). Academic challenges, grade retention, disengagement from school, and problems with behaviors and attendance frequently begin in elementary school, compound over time, and are linked with dropping out in later years.

Longitudinal tracking of factors from first grade onward allowed researchers in one study to better explain patterns compared to analyzing factors only at a single point in high school (Alexander et al., 1997). Jimerson and colleagues (2000) followed a cohort of at-risk youth from birth until age 19 and concluded that dropping out is a developmental process with significant markers that might be identified as early as third grade. Later factors interact with and influence these earlier events to impact this pathway. The authors view early caregiving as an initial factor, disciplinary issues and failing grades in elementary and middle school as significant early factors, and failing classes and absenteeism as more advanced factors to consider during high school. Feedback from dropouts provides further support that dropping out is frequently a long process of progressive disengagement rather than a single event. Dropouts surveyed in one non-random sample reported missing class frequently and feeling alienated from school for one or more years prior to leaving school (Bridgeland, 2006).

Despite increased interest in and understanding of the importance of early interventions and support at the elementary school level for students at risk for later dropping out of school, much of the current research focuses on strategies at the secondary levels, when students actually leave school. It is important, however, to identify students and implement strategies as early as possible because it requires intensive effort to reverse years of academic failure or disengagement when interventions don't begin until students are in high school.

Analyze Multiple Factors

Although a number of factors significantly relate to dropping out, there is no single reliable factor that accurately predicts who will drop out. In addition, because many students who are able to successfully earn high school diplomas share similar characteristics to those who fail to graduate, potential dropouts are often difficult to identify. School personnel are encouraged to monitor several risk factors across family, community, and school domains to increase the likelihood of identifying those students most at risk for dropping out, rather than relying solely on individual student characteristics (Bohanon, Flannery, Mallory, & Fenning, 2009). Because all dropouts are not alike, it is important to use different combinations of risk factors to identify different subgroups of potential dropouts (Hammond et al., 2007).

One of the more effective models in predicting dropouts is based on an analysis of 40 different risk factors (Gleason & Dynarski, 2002). Although a large number of student and family characteristics have been linked with dropping out, using such factors to determine who will drop out has only successfully predicted about 40% of students who will later drop out (Gleason & Dynarski, 2002). There is a general consensus, however, that students with greater numbers of risk factors are more likely to drop out than students who have fewer risk factors (Ingels et al., 2002), which provides additional support for the importance of tracking multiple factors. For example, Gleason and Dynarski found that about one-fourth of students with 2 risk factors dropped out and about one-third of students with 3 risk factors failed to graduate. Even when using the regression model of all 40 risk factors to identify students at greatest risk of dropping out, 60% of these students successfully graduated. Because the best models only identify fewer than one-half of students who will later drop out, it may be difficult for schools with limited resources to determine which students to target for dropout prevention.

Identify Subgroups of Dropouts

Several different subgroups of dropouts have been described in the literature, each identified with different constellations of risk factors. For example, some students may be identified early in elementary school and share the characteristics which are most frequently linked to dropping out. In addition to demonstrating limited academic success based on low grades and test scores, these students have poor attendance and a history of behavioral problems (Barrington & Hendricks, 1989; Wehlage & Rutter, 1986). Many of these students come from limited socioeconomic backgrounds and may be described as “traditional” dropouts (Hammond et al., 2007).

A number of other groups of potential dropouts which vary from the more traditional dropout have also been described. Wehlage and Rutter (1986) identified students who shared

some characteristics and had academic challenges similar to traditional dropouts. This group of students, however, had more positive school-related factors. They generally had fewer behavioral problems, remained more interested in school, felt more positive about their school experiences than the traditional dropout, and more of them successfully graduated. Described by the authors as “stay-ins,” these students frequently left school without post-secondary plans and aspirations and reported lower self-esteem than did students who dropped out (Wehlage & Rutter, 1986).

Another group of students drop out for reasons other than academic failure. These “able” dropouts have average test scores and grades (LeCompt & Dworkin, 1991), but may leave school due to disciplinary issues, behavioral problems, or conflicts with school policies. Others may withdraw due to factors from outside the school, such as getting pregnant or married, gaining employment, or because of social pressure (Hammond et al., 2007).

Barrington and Hendricks (1989) describe “non-graduates” as students who remain in high school for four or even five years but never graduate. In elementary school these students share similar characteristics with students who later graduate, are academically successful, and attend school regularly. Their differences tend to emerge in middle school where they begin to demonstrate academic failure, low grades, poor attendance, and disciplinary problems.

Schools and school divisions may need to track a number of factors over time in order to best determine various groups of students who might be at risk of dropping out. Because different groups of students may dropout for various reasons, a number of different interventions should be designed or adopted and implemented to address identified student behaviors and needs, rather than expecting that implementation of a single strategy will be effective for all students. “There are many reasons why students drop out of school, and therefore it requires more than a single solution to prevent it from occurring” (Reese, 2005, p.18).

Identifying Push-Out Versus Pull-Out Factors

Another way to conceptualize the complex factors that influence a student’s decision to drop out of school is to identify push-out and pull-out factors. Jordan and colleagues (1999) described pull-out factors as experiences outside of school that influence a student’s decision to drop out of school. Pull-out factors include community, family and peer influences, in addition to student characteristics. Some students face increasing family responsibilities, demands to work, pregnancy, or getting married and decide to leave school, for example. Other students become detached and lose interest in school because of peer influence.

Push-out factors are those factors from within the school that encourage some students to leave school, such as policies and procedures, school structure, or school climate and

environmental issues that alienate students (Lehr et al., 2004). For example, some school personnel may find it more practical and/or convenient to remove challenging students from school even if they are still officially enrolled (Ross Epp & Epp, 2001). These students are commonly considered dropouts, but critics suggest that many of them are pushed out of school because of inflexible administrative and school policies. For example, enforcing zero-tolerance attendance or behavior policies frequently provides difficult students with the impetus to leave school.

The majority of students who leave school before graduation do not disappear suddenly or unexpectedly (Ross Epp & Epp, 2001). At-risk students are often suspended before being expelled and are likely to have spent time in alternative education situations. "If school officials were genuinely interested in keeping at-risk students in school, they would not subject them to ordeals in which the suspension becomes just a stopping place on the way to expulsion" (Ross Epp & Epp, 2001, p. 236). Alternative programs have been developed to provide additional institutional interventions for at-risk students; however, such programs may not be effective in reducing chronic issues if they utilize the same school policies as the regular school program. The authors point out that "it is not coincidental that many students who fade out of school also exhibit what the school system sees as 'problem behaviors' (e.g. truancy, acts of delinquency, or disruptive behavior). Once students are old enough to legally withdraw from school, the schools can expel them entirely for miscellaneous reasons such as smoking marijuana, chronic absenteeism, failing grades, and fighting" (Ross Epp & Epp, 2001, p. 237).

Students are keenly aware of the push-out process and cite push-out factors as their primary reasons for leaving school more frequently than pull-out factors (Jordan et al., 1999; Lehr et al., 2004). One student said "Those who go astray are pushed aside and made to feel it is their fault or some personal weakness in character. There is not serious effort to find out why some of us behave contrary to what is expected of us" (Ross Epp & Epp, 2001, p. 237). Several surveys of dropouts found similar push-out factors to be critical to their decision to leave school, including not liking school, failing academically, excessive absenteeism, or having difficult relationships with teachers (Bridgeland et al., 2006; Jordan et al., 1994; Ekstrom et al., 1986). Pull-out factors are also important to a significant number of students; however, and one 2005 survey found that as many as one third of dropouts reported pull-out reasons such as needing to work, caring for family members, or pregnancy as important factors impacting their decision to withdraw (Bridgeland et al., 2006). Ross Epp and Epp (2001) also discuss Fine's comparison of students who stayed in school and those who dropped out. Students who left school were significantly less depressed, more resilient, and more critical of their constrained economic opportunities compared to those who remained in school.

Recommendations to reduce the effects of push-out factors on at-risk students include developing alternative programming policies which enable schools to act on their commitment to compulsory education, using flexibility in scheduling, and incorporating alternative methods of discipline that don't use behavior and attendance policies to control students (Ross Epp & Epp, 2001). Successful alternative schools are able to maintain social control by developing norms for behavior rather than imposing rules and regulations that may be seen as unfair or arbitrary.

Focus on Secondary School Levels

Middle school is seen as a critical time for identifying and tracking students who might potentially drop out and for intervening appropriately. Georgia, in an effort to reduce the 41% dropout rate, provided funding for graduation coaches in all middle and high schools across the state in 2006 (Ziomek-Daigle & Andrews, 2009). In addition to providing prevention and intervention programs, the coaches prepared students for transitions and identified students who might be at-risk using a list of common risk factors. Promising interventions from early analysis include involving family and community members, forming collaborative graduation teams, addressing transition to middle school and high school effectively, and early identification and monitoring of students (Ziomek-Daigle & Andrews, 2009).

Secondary schools generally serve greater numbers of students in larger buildings than in elementary schools, and middle and high school teachers have more classes and more students to get to know. Halls are often divided by department, and there is less opportunity for staff to interact with those from other disciplines (Sato & McLaughlin, 1992). Students, however, need to bond with peers and staff and to develop a sense of belonging to school (Renihan & Renihan, 1995). Doll and Lyon (1998) report most secondary schools, unlike elementary schools, provide little affective support for students and regularly fail to recognize the importance of an appropriate school climate in fostering student growth and development. Many adolescents, perhaps responding to this lack of support, remain reluctant to ask adults in secondary schools for assistance, even for the most challenging problems (Forman & Kalafat, 1998). Adolescents are also looking for peer recognition, support, and ways to gain autonomy and have a voice regarding decisions affecting them. Opportunities to provide input in school policies, including school organization, discipline, programs, activities and academics, are important, and schools should consider ways to solicit and incorporate student input into the decision-making process, with a special effort on including those who are most often left out (Bohanon et al, 2009). In addition, because high schools have increased academic demands from a larger number of teachers, students may face academic challenges as they adjust to the rigors of their new school setting. Those students who become detached from school or who fail academically are more likely to drop out of school (Reyes, Gillock, Kobus, & Sanchez, 2000).

Dropout Prevention Recommendations from the Research

There are a number of recommendations to reduce dropout rates and promote graduation suggested in the research. Interventions include schoolwide reform strategies to enhance student engagement, targeted assistance to identified individuals or groups of students at risk for dropping out, providing support for students during transitions, and using diagnostic tracking systems to identify student factors and school issues that impact dropout rates (Dynarski et al., 2008). Several of the most common strategies from promising dropout prevention programs are reviewed; see Table 4 for a more complete list of recommendations.

Early Intervention

Initial research supports early interventions with identified students in elementary schools as cost effective; however, the scope of this report is limited to recommendations for middle and high school. Interventions at the secondary level may need to be more intense, targeted and long-term, as some high school students at risk for dropping out may be several years behind their age level peers academically.

Recommendations from What Works Clearinghouse

Despite decades of concern regarding high rates of dropping out, the empirical research regarding effective strategies to reduce dropout rates is limited and small in scope. The U. S. Department of Education Institute of Education Science (USDOE IES) What Works Clearinghouse reviewed more than 80 studies of more than 20 dropout prevention or recovery interventions and found fewer than 30 studies that met Clearinghouse standards for review. The Clearinghouse included interventions that addressed three outcomes: staying in school, progressing in school, and completing school. Four programs reviewed had either positive or potentially positive effects in two domains of staying in school and progressing in schools: *Accelerated Middle Schools*, *Achievement for Latinos through Academic Success (ALAS)*, *Career Academies*, and *Check & Connect*. Another eight interventions had potentially positive effects in one domain, while four interventions had no discernible effects in any of the three domains.

When initiating dropout prevention programs, schools and school divisions are reminded of the importance of implementing programs with fidelity, planning on long-term implementation, and evaluating and revising regularly (Dynarski, 2008). Professional development for faculty and full staff support for interventions is also important, as is recognizing that change will not be immediate; effective programs may take a number of years to reduce dropout rates.

Promising Practice: Implementing Longitudinal Tracking Systems

Although there is currently only limited empirical support for developing longitudinal tracking systems, experts recommend that states, schools, and school districts develop and maintain local data systems to assist in identifying potential dropouts (Dynarski et al., 2008; Kennelly & Monrad, 2007). While it is not possible to predict with any degree of accuracy whether a particular student will drop out, there are some patterns that may be identified when schools and divisions track a number of indicators over time. Because dropout rates are impacted by community, geographic and demographic factors, it is important to collect local data to better predict who will dropout. Initially each school or division should track a relatively large number of factors in order to determine the best indicators for dropping out in their community (Hammond et al., 2007).

Tracking systems should use unique student identifiers to allow for comprehensive, longitudinal tracking of individual students. Systems should minimally include a history of student absences, grade retention, low levels of academic achievement in core subjects, and disengagement from school beginning as early as fourth grade, as these factors have been significantly linked with an increased risk of dropping out (Kennelly & Monrad, 2007). Tracking systems may also be used to track current social and academic engagement and performance of students and may use automated alerts to identify students who might be experiencing social, behavioral, academic problems, or life challenges requiring interventions to remain on track for graduation (Dynarski et al., 2008). Other factors to monitor include individual student suspensions and expulsions, prior withdrawals from school, socioeconomic status, and other locally determined characteristics that have been linked to dropping out.

Once a longitudinal tracking system has been established, it is important that data be collected and monitored regularly, especially prior to transitions, such as when students move from elementary to middle school or from middle to high school (Dynarski et al., 2008). Focusing on academic concerns, behavioral problems, and attendance issues prior to and during the freshman year may be critical to identifying those students most at risk for dropping out. Neild and Balfanz (2006) recommend intervening with freshmen who miss 10 or more days

Table 4

Dropout Prevention Interventions and Strategies

Intervention	Strategy
Academic Interventions	Tutoring, academic support, afterschool programming, service learning, accelerated credit accumulation, extra classes
Psychosocial Support	Behavioral interventions, structured extracurricular activities, life skills development, counseling, anger management, conflict resolution, addressing transitions
Family Interventions	Engaging, strengthening and/or therapy with families
Targeting High Risk Behaviors	Probation, monitoring truancy and attendance, pregnancy, teen parenting, substance abuse prevention/intervention
Adult Support	Mentoring, case management, court advocates, service coordination
School Structure and Programming	School environment, classroom climate, school reorganization, freshmen academies, professional development, systemic/policy renewal
School Curriculum	Differentiated teaching, student-focused instruction, interactive instruction, culturally or linguistically relevant instruction, high academic standards and rigorous curriculum for all students, link to career development, job training, workforce readiness

Source: Summarized from *Dropout Risk Factors and Exemplary Programs* by C. Hammond, D. Linton, J. Smink, J., and S. Drew, 2007, National Dropout Prevention Center/Network and Communities in Schools, Clemson, SC.; *Fifteen Effective Strategies for Improving Student Attendance and Truancy Prevention* by J. Smink and M. Reimer, 2005, National Dropout Prevention Center/Network; and "The School Counselor's Role in School Dropout Prevention" by S. White and D. Kelly, 2010, *Journal of Counseling and Development*, 88, p. 227-235.

during the first month of high school, as even moderate absences of one or two weeks per semester have been linked with a lower likelihood of graduating (Allensworth & Easton, 2005).

Also, monitor the first quarter grades of entering freshmen and intervene immediately with all freshmen who fail core subjects (Kennelly & Monrad, 2007). Track fall semester failing grades for freshmen and develop individual intervention plans for identified students. First term failures indicate students who are not on track in courses required for graduation and, in one study, better predicted who would not graduate than excessive absences (Allensworth & Easton, 2005). Monitor freshmen who fail core courses for the year and intervene with those who do not earn enough credits to become sophomores as Kennelly and Monrad found grades better predicted who would graduate than test scores in another investigation. Being held back for one or more grades is considered to be one of the most powerful indicators of later dropping out (Alexander et al., 1997).

Some schools fail to graduate significant numbers of students. These schools could implement longitudinal tracking systems to monitor the effectiveness of school-wide interventions and systemic changes on reducing dropout rates (Dynarski et al., 2008). School-wide climate surveys and information about student-teacher interactions can be analyzed to determine additional areas for improvement in school safety, student engagement, student/staff relations, etc., and to determine the effectiveness of recent interventions.

In order to effectively assess the success of any dropout prevention interventions at the individual, group or school-wide level, schools and school divisions must have current and accurate data regarding their students who drop out. At the state level, unique identifiers may be used to follow students who may transfer into and out of public, private, charter, or home-schooling settings, and from one district to another in order to get a more accurate picture of actual graduates and dropouts across the state (Dynarski et al., 2008). Transfer students should have their enrollment in another setting verified before being assigned this code. In addition, efforts should be made to document why dropouts are leaving school in order to better target prevention practices (Dynarski et al., 2008). Data on withdrawals should be more accurately reported and regularly audited for accuracy via the central office. Longitudinal, integrated data systems are being developed that operate in real-time and can automatically flag students at risk. These data systems may be used at the district and school levels to provide current and accurate data on individual students as they progress through grades and make transitions between schools. The What Works Clearinghouse Dropout Prevention Practice Guide suggests that such monitoring systems can also be used to determine whether interventions that have been implemented to reduce dropout rates have been effective and, if so, with which students (Dynarski et al., 2008).

Pinkus (2008) described schools and school districts in Chicago, Philadelphia, New York, and Boston that track information to identify and intervene with those students at greatest risk for dropping out. Recommended strategies include collecting current information on attendance, grades, and behavioral concerns at the school level to identify students off track for meeting graduation requirements. Other approaches include reviewing school records of past dropouts to determine the greatest risk factors to monitor, establishing college readiness goals and tracking progress towards these goals (Pinkus, 2008).

Chicago's On-Track Indicator.

Allensworth and Easton (2005) report that Chicago's diagnostic tracking system, implemented in the late 1990s, assists parents and educators in better determining the likelihood of students' graduating from high school. The Chicago system identifies freshmen who are on-track and off-track for graduation based on their performance during their first year of high school. The Chicago on-track indicator has been found to be a better predictor of high school graduation than background characteristics of students or their test scores.

In the 2003-2004 freshman class, for example, of the students who entered with very high eighth grade test scores, almost one-quarter were off-track by the end of their freshman year. On the other hand, of the students who entered high school in 2003-2004 with very low eighth grade test scores, more than 40 percent were on-track by the end of the freshman year (Allensworth & Easton, 2005, p. 5).

The authors note that the transition to high school is a critical time for students, and successful adjustment to high school isn't based solely on skills measured by academic achievement. Other social, academic, and behavioral adjustments must be made in order for students to be successful in high school. The on-track indicator is also used to determine district trends as well as to compare on-track rates for different high schools in Chicago. The authors point out that the climate, structure, and support of various schools in the district also impact students' ability to be successful in high school (Allensworth & Easton, 2005).

Targeted Interventions

Using adults as advocates.

A moderate level of empirical support exists for programs that use trained advocates to work with targeted students in middle and high school settings (Dynarski et al., 2008). Adult advocates do much more than mentor at-risk students and are expected to provide substantial support, including aligning services to address academic and social concerns, advocating for the student, communicating with parents and school personnel, and meeting frequently with the student. Having sustained and meaningful relationships with caring adults is one way to

promote student engagement in school and has been shown to reduce risky behaviors and absenteeism while promoting communication, social, and academic skills (Dynarski et al., 2008). These positive results are found in programs where adults are trained and work intensively as case managers meeting daily with selected at-risk youth.

Recommendations from the What Works Clearinghouse to improve the effectiveness of adult advocates include carefully selecting advocates, establishing regular meeting times, and providing training (Dynarski et al., 2008). Identified students and their advocates should be purposefully matched. Advocates should be based at school and should be assigned a limited number of students with whom they clearly commit to working with academically, behaviorally, and socially. Finding enough interested adults might prove challenging for some schools, requiring them to partner with outside agencies or faith-based organizations. In other schools, staff may view this type of intensive support as the job of the school counselor and might not support advocates for at-risk students. Because financial support for advocates might be limited, it is important that schools clearly define the students most in need of such intense support (Dynarski et al. 2008).

Time to meet with students individually should be scheduled weekly, or even daily for more challenged students, in order to develop trust, effectively communicate, work towards goals, and form positive relationships. Such scheduling requires commitment and flexibility from school administrators. Training in advocacy and communication skills; mentoring; and working with families, school staff, and students are also recommended for advocates, as is ongoing support to prevent burnout. In addition, advocates might need support when targeted students resist meeting or working towards success (Dynarski et al., 2008).

Check & Connect intervention.

Check & Connect is one recommended dropout prevention program that closely monitors school performance through adult advocates providing individualized attention to students by program staff who partner with school faculty, family members, and community members (USDOE IES, 2006c). Relying primarily on student support systems, *Check & Connect* uses mentoring, case management, and continual monitoring of student progress and performance indicators, particularly focusing on behavioral, academic, and attendance issues. The “Check” component emphasizes closely monitoring student performance and engagement by tracking several progress indicators such as class grades, course credits, attendance, and disciplinary infractions. The “Connect” component involves program staff and other school, family, and community members providing mentoring support to participating youth. Additional areas of focus include frequent family outreach, problem-solving, social skills development, academic support, recreation, and community service (USDOE IES, 2006c).

The What Works Clearinghouse reports that *Check & Connect* has either positive or potentially positive effects in the two domains of staying in school and progressing in schools (USDOE IES, 2006c). Only 9% of ninth graders who participated in *Check & Connect* had dropped out of school at the end of the year, compared to 30% of non-participating control group. Participating students also earned significantly more credits towards graduation than the non-participants. In addition, 39% of participants had dropped out by the end of senior year, while 58% of the control group had dropped out. However, no significant difference was found in on-time graduation rates for participants and non-participants (USDOE IES, 2006c).

Academic support and enrichment.

Using effective strategies to enhance academic success and engage students is another recommendation from the IES Dropout Prevention Practice Guide (Dynarski et al., 2008). Such academic interventions focused on enhancing student achievement may be offered through tutoring; homework assistance programs; or more intense academic support either as a part of the regular school day, after school, during the summer, or on weekends. These strategies may improve student engagement, increase academic skill development, and enhance learning. A moderate level of empirical support is reported for these academic interventions, as results indicating clear impact on reducing dropout rates varied (Dynarski et al., 2008). More successful programs offered additional core classes for struggling students, remediated reading, provided opportunities for credit recovery, or provided tutoring for four days a week.

Implementation strategies include offering small group or individual interventions focused on study skills, specific academic development, test-taking strategies, and offering enrichment courses during the school day. One challenge may be finding enough time during the day to provide these resources without interfering with other academic requirements. Schools might consider offering these classes as electives or using an advisory time for implementation because targeted students may not wish to spend their lunch or free time working on academics. Offering afterschool, weekend, and summer programs provides additional opportunities to help students enhance academic skills, increase their engagement, or make up required courses, and don't conflict with regular school day programs (Dynarski et al., 2008). In addition, schools may have to partner with community organizations, parent groups, local universities or businesses, or use faculty to meet needs for tutors.

Accelerated Middle Schools intervention.

Accelerated Middle Schools are self-contained academic programs that focus on helping middle level students who are one or two years behind grade level catch up academically (USDOE IES, 2008). Students focus primarily on core academic subjects at an accelerated pace with minimal electives so that they can complete an additional year of material during the year

or two they are enrolled in the program. Offered as separate schools or within traditional middle schools, the programs studied shared common elements, including instructional themes across the curriculum, smaller class sizes, experiential learning, and academic and social supports, such as tutoring, monitoring of attendance, and family and counseling services (USDOE IES, 2008).

The What Works Clearinghouse reports that *Accelerated Middle Schools* has either positive or potentially positive effects in the two domains of staying in school and progressing in schools (USDOE IES, 2008). In one of three studies reviewed, significant differences were found in the dropout rates of participating students compared to non-participating students in the control group. The second study found that only 6% of participating students had dropped out compared to 14% of control group students, which had a substantial effect size despite being a non-significant difference. All three *Accelerated Middle School* studies demonstrated statistically significant and substantial effect sizes on progressing in school two years later (USDOE IES, 2008).

Promoting social skill development.

Assisting students in developing effective social skills, such as effective communication and problem-solving skills; identifying, understanding, and regulating emotions; goal-setting; and conflict resolution are also recommended by the IES Dropout Prevention Practice Guide (Dynarski et al., 2008). Current research provides only low levels of empirical support for targeting social skills to improve graduation rates, as reviewed studies varied in their emphasis on social skill development and on their impact on decreasing dropout rates (Dynarski et al., 2008). Research supports a connection between disruptive behaviors and dropping out (Rumberger & Palardy, 2005). Developing appropriate behaviors through social skills education can enhance students' sense of affiliation and identification with school; and maintaining student engagement has also been linked to persistence in school (Rumberger & Larsen, 1998). Students who are involved in social skills training learn to effectively manage personal, family, and social issues; form more positive relationships with teachers and peers; and are more involved in school activities (Marsh & Kleitman, 2002). Students with disabilities who worked on real and imagined problem-solving scenarios regularly with mentors earned more credits towards graduation and remained enrolled in school at higher rates than peers who did not participate in the program (Sinclair, Christenson, & Thurlow, 2005).

Implementation recommendations include using adult advocates to assist students in setting realistic and attainable academic and social/behavioral goals. Appropriate problem-solving and life skills instruction can be incorporated into existing curricula, offered to small groups of students, or implemented through teacher advisory programs (Dynarski et al., 2008). Recognition and awards should be developed to acknowledge student accomplishments and

progress towards their goals. Professional development opportunities may help staff more effectively address the behavioral and social needs of at-risk students through a specialized curriculum or via modeling appropriate behaviors and incorporating skills in existing course content. In addition, schools and staff should not allow students with behavioral difficulties to drop out, but should help address factors underlying their inappropriate behaviors (Rumberger, 2004). Partnerships should be formed with local agencies in order to more effectively support student who are challenged by family and community factors (Dynarski et al., 2008).

Achievement for Latinos through Academic Success (ALAS) intervention.

ALAS (Spanish for “wings”) is an intervention strategy that uses mentors/counselors to support targeted students by monitoring their attendance, academic achievement, and behaviors (USDOE IES, 2006a). In addition to providing immediate feedback on attendance and weekly feedback on academics, behavior, and homework, the mentor/counselor coordinates other community and social services resources for the teachers and family, as well as for the student. Social skills training in assertiveness, problem-solving, and self-control are emphasized with the students. Training parents to participate in school activities, communicate with school staff, and to assist their children in problem-solving and using appropriate behaviors are other program components. Opportunities for social activities, bonding with peers and adults, and recognition for success are other components of *ALAS*. Students participating in a 10-week problem-solving and self-control course through *ALAS* were more likely to remain in school compared to their peers (USDOE IES, 2006a).

The What Works Clearinghouse reports that *ALAS* has either positive or potentially positive effects in the two domains of staying in school and progressing in schools (USDOE IES, 2006a). In one reviewed study, 98% of *ALAS* participants were enrolled in school at the end of the freshman year, compared to 83% of the control group, a significant difference. Two years later 75% of *ALAS* students were still enrolled as juniors, compared to 67% of non-participants, a non-significant difference. A second reviewed study found 86% of *ALAS* sophomores enrolled in school compared to 69% of the control group; however, this difference was also not significant. *ALAS* students were significantly more likely to be on track for graduation at the end of ninth grade when compared to their control group peers in two studies, and a higher percentage of students were on track at the end of junior year in this research, although this difference was significant in only a single study (USDOE IES, 2006a).

Addressing transition to freshman year.

Students make transitions frequently in school as they move from one grade to the next, return to school after an illness or suspension, after moving, or for a number of other reasons. Students are at greater risk for failure or disengaging from school during transitional years, such

as when moving from middle school to high school. The importance of assisting students with successfully negotiating transitions, especially from middle school to high school, is emphasized in the literature, as freshmen in high school frequently demonstrate a decline in academic achievement and attendance (Isakson & Jarvis, 1999). "The ninth grade year is often considered a critical make-it or break-it year when students get on- or off-track to succeed in high school" (Kennelly & Monrad, 2007, p. 5).

Students fail the ninth grade at higher rates than any other high school grade, and a disproportionate number of students who later drop out are retained in ninth grade (Herlihy, 2006). In addition, Neild and Balfanz (2006) found that about two-thirds of the Philadelphia students who dropped out in their study were classified as ninth-graders, based on accrued credits towards graduation, despite being enrolled in high school for several years. Ninth-grade enrollments experience a bulge, as many students enter high school poorly prepared for increased academic demands and fail to be promoted to sophomore standing. Balfanz and Ledger (2006) found that, in cities with the highest dropout rates, up to 40% of freshmen must repeat their freshmen year, and that fewer than 15% of these students go on to graduate from high school.

Allensworth and Easton (2005) also found that academic success in ninth grade is a better predictor of successful graduation than academic achievement in earlier grades or demographic factors. The American College Testing Program agrees that too many eighth-graders move to high school ill-prepared for the academic demands of high school, adding: "Too many [students] are arriving at high school so far behind academically that, under current conditions, they cannot become ready for college and career" (2008, p. 9). Unfortunately, many schools do not have the support structures in place to assist ninth-graders in successfully navigating their freshmen year.

Talent Development High Schools intervention.

Talent Development High Schools is a model of school reform based on restructuring large high schools faced with high numbers of dropouts, low student achievement, and difficulties with attendance and discipline (Kemple & Herlihy, 2004). Including both structural and curriculum reforms, *Talent Development High Schools* form small learning communities in efforts to reduce isolation and alienation of students. Students in grades 10 through 12 participate in career academies, while first-year students are enrolled in ninth-grade academies. The ninth-grade academy is based on the school-within-a-school model where a team of teachers work with the same group of entering students. Freshmen are enrolled in double mathematics and English classes for remediation, with the expectation that those who are behind academically will catch up during their first two years of high school. Another component of the ninth-grade academy is instruction regarding effective strategies to address

the academic demands of high school during a required one semester seminar. This freshman seminar “is a study and life skills course that provides in-depth lessons using a variety of techniques to help students practice the studying, note-taking, time management, and social relations skills required in their academic subjects and lives outside of school” (Kemple & Herlihy, 2004, p. 13).

What Works Clearinghouse found that *Talent Development High Schools* demonstrates potentially positive effects on staying in school, although the analyzed evidence was small (USDOE IES, 2007). Students enrolled in *Talent Development High Schools* earned an average of 9.5 credits during the first two years of high school, compared to the 8.6 credits earned by the comparison group. In addition, 68% of participating students were promoted to the tenth grade, compared to 60% of the comparison group. Both of these results were statistically significant (USDOE IES, 2007).

School-Wide Interventions

In addition to implementing diagnostic tracking systems to identify students with risk factors associated with dropping out, and providing targeted academic, social and transitional support and interventions for identified individuals and groups of students, interventions implemented at the school level may impact student success and reduce dropout rates. School wide interventions may include addressing instruction and the learning process; adjusting the school climate; as well as consideration of faculty, staff, and leadership factors.

Cotton (2000) identified fifteen effective contextual and instructional schooling attributes that impact student success in school. Most of these attributes may be implemented without significant new expenditures and may be readily addressed by school personnel. Recommended instructional attributes include the following:

- careful orientation to lessons,
- clear and focused instruction,
- effective questioning techniques,
- feedback and reinforcement, and
- reviewing or re-teaching as needed.

According to the What Works Clearinghouse, there are several best-practice instructional strategies related to these areas. Schoolwide efforts in making the most of instruction should focus on several key factors, including providing quality professional development, addressing different learning styles/multiple intelligences, effective use of instructional technologies, and individualizing instruction (Reese, 2005).

Offer rigorous, relevant, student-focused instruction.

Reese (2005) identified a number of promising instructional strategies implemented by career and technical education programs in efforts to reduce dropout rates. For example, effective programs increased the external reward structure for academic achievement by focusing on basic skills first with students, followed by other offerings once basic skills have been mastered. Sweet (2004) reported several elements of effective practice that were related to instruction including developing and maintaining a focus on learning, creating appropriate and high expectations for all students, and monitoring progress at all levels. Reese (2005) also identified that effective schools had a clear instructional purpose focusing on the following elements:

- a cohesive learning environment, achieved by adjusting philosophies, curricula and teaching approaches to the needs of their students;
- service learning opportunities that included focus on college preparation and career related opportunities;
- individualized instruction;
- effective classroom management; and
- small class sizes.

Other recommendations include using effective verbal communication and affirmation, and expansion of educational opportunities for students. Extended day options and special programs were additional elements that reflected the priorities of effective schools (Sweet, 2004). The research also recommends using student-centered learning approaches and incorporating a variety of views and perspectives in instruction. Howard (2002) argues that this must become an integral component of efforts to reform schools so all students receive equitable opportunities for academic success.

Steinburg and Allen (2002) report that school-wide efforts to establish learning centers are another effective way to reduce dropouts. School personnel should create a schedule that supports personalizing instruction for students, increasing collaboration for teachers, and developing a process for continual review and improvement. They suggest combining youth development approaches with contextual and authentic learning to create effective learning environments. Recommendations include:

- fostering caring relationships;
- addressing students' cognitive challenges;
- creating a culture of support;
- valuing community contribution, voice and leadership; and
- forming connections to high-quality post-secondary learning and career opportunities (Steinburg & Allen, 2002).

Dynarski and colleagues encourage faculty to teach students relevant skills while engaging them in learning. They report that “Career Academies, focus schools, and curricula that permits students to choose majors ensure that students gain relevant career and technical skills without sacrificing academic preparation that is necessary for college” (2008, p. 35).

Career Academies.

Career Academies are school-within-a-school programs operating in high schools. They offer career related curricula based on a career theme, academic coursework, and work experience through partnerships and local employers. The What Works Clearinghouse found that Career Academies have potentially positive effects on both staying in school and progressing in school (USDOE IES, 2006b). In one reviewed randomized controlled study of over 1700 youth from eight urban areas in six states, the 474 Career Academy students most at-risk for dropping out of high school were significantly more likely to be enrolled in school compared to similar peers attending regular high school programs (USDOE IES, 2006b). At the end of their senior year, Career Academy youth had earned more credits towards graduation than comparison youth and 40 percent were able to graduate compared to 26 percent of the control group (USDOE IES, 2006b).

Address school environment and climate issues.

“School factors can account for as much as two-thirds of the differences in mean school dropout rates” (Goldschmidt & Wang, 1999, p. 715). School-wide interventions related to the school climate and environment play a key role in promoting effective school attributes. Schools that maintain a culture of success focus on such contextual factors as a safe and orderly school environment with strong leadership and effective involvement with parents and community agencies. Recommendations for effective classroom environments include developing supportive classroom climates focused on maximizing learning time and using flexible in-class grouping. Maintaining small class sizes and using heterogeneous assignment to classes are additional recommendations.

Improve effectiveness of faculty and staff.

One of the most significant factors impacting student achievement is the teacher (Haycock, 1998). Strong verbal and mathematics skills, extensive knowledge of course content and effective teaching skills are among the most important characteristics of effective teachers. Lee and Burkam (2001) note that students are less likely to drop out of high schools where relationships between teachers and students are consistently positive, so interpersonal skills

and connections are also important. They also suggest that the impact of positive teacher-student relations depends upon an effective and positive school structure and organization.

Dynarski et. al (2008) found several effective dropout prevention interventions which included professional development training components for faculty and staff. One intervention provided on-site coaching for teachers related to the ninth grade curriculum. A second intervention provided training on innovative instructional practices in the classroom for all teachers.

Place effective leaders in administrative roles.

Effective teachers that are committed to high achievement for all students depend upon effective leadership from the school administration (Owings & Kaplan, 2001). The principal plays a key role in promoting success for all students and must structure opportunities for teamwork and collaboration. In addition, effective principals should

- develop and promote a shared vision with concrete goals,
- identify several strategies to support achievement and reduce failure, and
- provide an organization structure that allows faculty and other shareholders to work together towards solutions.

Efforts to improve student achievement may require changes such as modifying schedules, improving teaching methods, promoting relationship development, adjusting curriculum, providing ongoing assessment and feedback, and engaging parents as partners. These factors may help to foster a school climate that promotes each student's high achievement (Owings & Kaplan, 2001).

Recommendations regarding effective and promising strategies to promote student success and reduce dropout rates include developing tracking systems to more effectively identify students at risk for dropping out and providing targeted assistance to identified students to support their academic achievement, promote positive social development, provide caring adult advocates, and assist with transitions, especially to high school. Individual and targeted interventions do not address larger school issues, so it is imperative to also develop additional school-wide interventions. It is important to note that these recommendations are some of the many components of effective programs and interventions, each of which includes a number of strategies. Thus, it is important for school personnel to carefully consider the needs of the students most at risk for school failure, and to select or design a variety of interventions that target the areas of identified needs. "[F]or a particular district or school, any one intervention is appropriate only for some of its students... multiple interventions are

needed to provide the appropriate help for the range of at-risk students" (Dynarski & Gleason, 2002, p. 44).

Special Considerations

Two additional areas for special consideration when identifying needs, selecting interventions, and supporting those at risk for dropping out are truancy prevention efforts and working with special populations of students.

Truancy Prevention

Truancy is one of the primary indicators of students who are disengaged from school and may be at risk for dropping out. "Unexcused absence is our first, best symptom of student problems that lead to poor outcomes. If we are to re-engage students, the trajectory that begins with truancy (office referral, suspension, expulsion, dropout, and delinquency) must be broken" (Gonzales, Richards, & Seeley, 2002, p. 2). A number of promising practices may impact truancy rates. Assigning an adult advocate at school to monitor students and provide support may help motivate students to attend school (Gonzales et al., 2002). This case management model is a common component of truancy reduction programs.

Developing a Student Attendance Review Board (SARB) is another recommendation. The SARB is a multi-disciplinary team that reviews the records of chronic truants at risk of failing, meets with the youth and family, and determines what needs to be done to rectify the truancy problem. The SARB requires the family to sign an agreement that the child will attend school. SARBs are also used to divert the youth from court (Gonzales et al., 2002).

Another promising practice is teen court, where youth are judged by a jury of peers for first-time minor offenses, such as chronic truancy, and consequences such as community service, jury duty, or apologies are assigned. This intervention is recognized as having a low implementation cost (Gonzales et al., 2002).

Truancy centers are also an option. They provide a location for law enforcement officers to take youth found out of class during school hours. When diversions fail, a truancy petition, citation or ticket is filed with the court and harsher sanctions may be ordered by the judge or magistrate (Gonzales et al., 2002).

The importance of school attendance to achievement, engagement, and educational success has been neglected in most education reform and prevention initiatives. School discipline, zero tolerance, and school safety concerns have combined to produce strategies that are counterproductive by pushing the problem out of the school and into the community (Ross Epp & Epp, 2001). Attendance is the basis for school finance and school achievement. Making

school attendance a priority is sound fiscal and educational policy, and ensuring that each student in our schools will have at least one adult caring for them each day is also sound policy that aids in truancy reduction and suspension/expulsion prevention programs (Ross Epp & Epp, 2001).

Working with High Risk Schools and Special Populations

Schools with the lowest graduation rates across the country most frequently serve the most at-risk students. These 'dropout factories' are found in high poverty urban centers, have enrollments of more than 90% minority students, and generally have low academic performance (Finn, 2006). Balfanz and Ledger (2006) report that the most challenged 15% of high schools nationally generate half of the nation's dropouts annually. In these schools, the number of seniors enrolled is frequently 60% or fewer of those that entered as freshmen only three years earlier (Balfanz & Ledger, 2006). Recommendations for these and similar schools facing very high dropout rates may include the strategies suggested in this review, as well as complete restructuring, school closure, and other dramatic changes in order to make an impact on student achievement.

Analysis of truancy reduction demonstration programs also indicates that students served by in-school suspension programs are primarily youth of color (Gonzales et al., 2002). "In traditional schools, these students are legally suspended or expelled from school for disruptive behavior, habitual neglect of duty, or chronic absenteeism through policies that encourage the exit of difficult students rather than addressing their problems" (Ross Epp & Epp, 2001, p. 231). Behavior policies frequently provide the mechanism by which schools can disentitle non-conforming students, rather than addressing their issues.

Establishing a strategy for systematically tracking alterable behaviors associated with dropping out, such as absences, course failures, or out-of-school suspensions, and assigning monitors a caseload of students are some best practices (Ross Epp & Epp, 2001). Other promising interventions for truant students include Restorative Justice initiatives, character education, training in social skills development and anger management, and community advocate programs that assist students and families with concerns impacting school attendance or behavior (Gonzales et al., 2002).

Whiting (2009) recommends a primary goal of establishing a "scholar identity" when attempting to improve at-risk students' academic self-perceptions and attitudes about learning and success. Students are encouraged to see themselves as intelligent, capable, and competent and educators should foster this positive identity. Essential elements for creating a scholarly identity include helping students to establish a strong self-efficacy and develop a future orientation, which includes a willingness to make sacrifices. Students who developed a "scholar

identity" were also found to have an internal locus of control, an increased self awareness, and a future orientation (Whiting, 2009).

In an effort to support the need for comprehensive school-based interventions along the continuum from early intervention to intensive treatment, the literature review revealed that students of color and those living in poverty need tailored approaches. According to Whiting (2009), despite the national efforts towards improved student outcomes in graduation rates, school achievement, and test scores, even when legislated, too many students fail to persist in school, often dropping out rather than graduating. In an effort to identify ways to engage students of color in an educational setting, characteristics of highly effective schools were identified.

Sweet (2004) found schools with a family-like atmosphere, a strong sense of community, and a clear instructional purpose were more effective in engaging students of color. Schools that were effective with students of low socioeconomic status were those that promoted high educational expectations and hired principals who were initiators and wanted to make changes in the schools (Sweet, 2004).

Cultural, social, and economic diversity awareness and training components should be implemented in all schools; but are particularly important in schools with high percentages of students of color or from limited economic means. Staff and faculty who are sensitive to these potential differences are less likely to inadvertently allow such issues to become barriers to building effective relationships with students (Wimberly, 2002). Teachers also report that enhancing their knowledge of the students, their families, the geographic areas, and the community circumstances in their school settings helped them focus on meeting the unique needs of students (Sweet, 2004).

Conclusion

National interest continues to focus on improving high school graduation rates and reducing dropout rates. Despite this concern, graduation rates have been fairly constant over the last 30 years and too many students continue to leave high school without a diploma and ill-prepared for work or post-secondary education. Early research focused on identifying individual characteristics of dropouts while current prevention efforts recognize there are additional family, community, and school related factors impacting students' decisions to drop out of school. Although more than 40 factors have been linked to dropping out of school, there is no single factor or set of indicators that can accurately predict who will drop out, thus it is important to analyze multiple risk factors.

Because dropping out has been described as an ongoing process rather than a single event, schools and school systems should track potential drop-outs over time using a variety of

indicators. Several of the most cited indicators such as low academic achievement, behavioral issues, poor attendance, and being retained for one or more grades are significant at the elementary, middle and high school levels. Thus, developing longitudinal tracking systems to monitor these and other factors is one promising practice. Early intervention is also important, as implementing dropout prevention programs at the secondary level may require more intense, targeted, and long term strategies for students who may be far behind academically or who may have been disengaged from school for a long period of time.

School systems are encouraged to develop, adopt, implement, and evaluate dropout prevention efforts to meet the specific needs of identified groups of students. In addition to developing longitudinal tracking systems, promising practices targeted at the student level include using adults as advocates, addressing academic needs by providing both remediation and enrichment opportunities, and promoting social skill development and support. Monitoring students and addressing immediate needs during transitions is also critical, especially when students are moving from one school level to another.

In addition to providing targeted assistance to identified groups of students, research indicates that school-wide reform efforts are also important. Key recommendations include creating a school climate that provides a safe and supportive environment for all students; providing instruction that is relevant, rigorous, and student-directed; providing support and professional development to enhance the skills of faculty and staff; and providing critical leadership from school administrators. Effective schools with a clear instructional purpose, a cohesive learning environment, service learning opportunities, individualized instruction, and effective classroom management increased educational opportunities for students and improved effectiveness of faculty and staff. Truancy prevention efforts and addressing the needs of special populations of students were also found to be effective in linking the importance of school attendance to achievement, engagement and educational success.

Although many dropout prevention efforts focus on either targeted interventions with individual students or more comprehensive school-wide reforms, research indicates that it is important to combine effective strategies from both approaches (Maclver & Maclver, 2009). "Comprehensive reforms focused on school practices needs to address the problems of absenteeism, behavioral problems, and course failure for the majority of students, while additional, individually focused efforts will be necessary for students with more intensive needs" (Maclver & Maclver, 2009, p. 10).

As the body of research support for dropout interventions continues to grow and promising practices emerge, the importance of initiating dropout programs with fidelity becomes paramount to schools and school divisions (Dynarski, 2008). In addition, schools should monitor, evaluate, and modify dropout prevention efforts to maximize opportunities for

success for vulnerable students while providing a supportive school climate and academically appropriate program for all students in school.

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Appendix

Table 5 is a compilation from the National Dropout Prevention Center / Network (November, 2009) that identified Model Programs that have strong evidence ratings in Dropout Recovery/Retrieval. The table depicts several types of educational settings including nontraditional high schools, parents and youth training systems, charter schools and alternative schools as well as specific interventions such as developing capacity building, delivering online instructional content, and conducting staff development. It is our intent that the variety of programs depicted will provide a starting point for your continued dropout intervention efforts.

Table 5

Model Programs with a Strong Evidence Rating in Dropout Recovery/Retrieval

Program	Program Type	Program Focus
Academy of Creative Education	Non-traditional	High school
Communities and Schools for Success (CS-Squared)	Capacity building ^a	Massachusetts based educational initiative
Creating Lasting Family Connections	Parents and youth training	Parents and youth training
Destination Graduation	Capacity building ^a	Community awareness campaign to raise high school graduation rates to 100 percent
Exemplary Center for Reading Instruction	Staff development	Grades 1-12
Graduation Coach Initiative	Capacity building ^a	A state wide capacity building initiative in Georgia where secondary schools employ graduation coaches
High Schools that Work	School improvement initiative	Teachers and school leaders create an environment that motivates students to succeed
Job Corps	Education and training program	Free education and training program for adolescents at least 16 years old
Mountaineer Challenge Academy	National Guard	High school dropouts ages 16-18
Odyssey	Online instructional content	K-12 Software Based Curriculum tailored to support each students' learning style and level of achievement

^a Capacity Building – the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt and thrive in a fast changing world. Ann Philbin, Capacity Building in Social Justice Organizations, Ford Foundation, 1996 (as cited in Applegate, B.; Iliff, H. and Kloth, C, 2005).

Note: Data summarized from National Dropout Prevention Center/Network (n.d.) Model Programs Database. Retrieved from http://ndpc-web.clemson.edu/modelprograms/get_programs.php

Table 5 (cont.)

Model Programs with a Strong Evidence Rating in Dropout Recovery/Retrieval

Name	Program Type	Program Focus
Oklahoma statewide alternative academy program	State wide capacity building ^a	Alternative education model that focuses on academic improvement, attendance and truancy
Ombudsman Educational Services	Alternative education program	At risk students grades 6-12
Options Academy – Wokini	Alternative education program: educational credit recovery	Lakota High School Students grades 9-12
PHASE 4 Learning Center, Inc.	Alternative education program	Grades 7-12
Positive Action	Promotes character education, academic achievement, and social emotional skills to reduce disruptive and problem behavior	Grades K-12
Process Communications, Inc.	Process communication model	Educator training
Read Right	Consultant training/tutoring	Consultant training/tutoring designed to work with 5 students at a time
Reconnecting Youth	High school based curriculum	Ages 14-18
Ripple Effects Whole Spectrum Intervention System	Integrated-technology enabled system designed to address non-academic factors in school	Computerized training intervention to build personal strengths, change behavior and address personal problems

^a Capacity Building – the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt and thrive in a fast changing world. Ann Philbin, Capacity Building in Social Justice Organizations, Ford Foundation, 1996 (as cited in Applegate, B.; Iliff, H. and Kloth, C, 2005).

Note: Data summarized from National Dropout Prevention Center/Network (n.d.) Model Programs Database. Retrieved from http://ndpc-web.clemson.edu/modelprograms/get_programs.php

Table 5 (Cont.)

Model Programs with a Strong Evidence Rating in Dropout Recovery/Retrieval

Program	Program Type	Program Focus
SIAT Tech	Charter high school	Nonprofit 501 c3
Sarah Pyle Academy for Academic Intensity	Nontraditional high school	High school
Simon Youth Foundation Education Resource Centers	Education resource centers	Alternative school
Sinclair Community College Fast Forward Center	Dropout recovery	Ages 16-21
Union Alternative School	Alternative school	Grades 7-12
Valley High School	Federal government designated high achieving turnaround school	High school

^a Capacity Building – the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt and thrive in a fast changing world. Ann Philbin, Capacity Building in Social Justice Organizations, Ford Foundation, 1996 (as cited in Applegate, B.; Iliff, H. and Kloth, C, 2005).

Note: Data summarized from National Dropout Prevention Center/Network (n.d.) Model Programs Database. Retrieved from http://ndpc-web.clemson.edu/modelprograms/get_programs.php