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School Characteristics Related to High School Dropout Rates

CHRISTINE A. CHRISTLE, KRISTINE JOLIVETTE, AND C. MICHAEL NELSON

ABSTRACT

Dropping out of high school culminates a long-term process of disengagement from school and has profound social and economic consequences for students, their families, and their communities. Students who drop out of high school are more likely to be unemployed, to earn less than those who graduate, to be on public assistance, and to end up in prison. The present study examined dropout rates in Kentucky high schools ($N = 196$), using both quantitative and qualitative procedures. Pearson product-moment correlation coefficients were computed to identify those school-level variables that showed strong relationships to dropout rates. A sample of 20 schools with the highest dropout rates was compared to a sample of 20 schools with the lowest dropout rates using a multivariate analysis of variance. Furthermore, 4 schools from each group were selected as case examples. Information gathered from administrator surveys, staff interviews, and on-site observations provided detailed descriptions of the characteristics of schools with high and low dropout rates. The findings of this study demonstrated that a number of school variables are differentially related to dropout rate. Implications of these findings for school reform are discussed.

DROPPING OUT OF HIGH SCHOOL IS A SERIOUS problem, not only for the individual, the school system, and the community, but also for society. Students who drop out of high school have fewer options for employment and, if employed, usually end up working in low-skilled, low-paying positions with fewer possibilities for advancement. According to a report on high school graduates in 2000, 56% of high school dropouts were unemployed, compared to 16% of high

school graduates (Stanard, 2003). Census Bureau estimates have placed the average income of a dropout in 2000 at \$12,400, compared to \$21,000 for a high school graduate (Campbell, 2003–2004). Students who drop out are more likely than students who graduate to experience health problems, engage in criminal activities, and become dependent on welfare and other government programs (Martin, Tobin, & Sugai, 2002). The Center for Democratic Policy, Institute for Educational Leadership, reported that dropouts comprise 52% of welfare recipients, 82% of the prison population, and 85% of juvenile justice cases (Stanard, 2003). Moreover, dropping out of school has been associated with a host of broader negative outcomes, including (a) forgone national income, (b) forgone tax revenues for the support of government services, (c) increased demand for social services, (d) increased crime and antisocial behavior, (e) reduced political participation, (f) reduced intergenerational mobility, and (g) poorer levels of health (Hayes, Nelson, Tabin, Pearson, & Worthy, 2002). Therefore, it is not surprising that dropping out of school generally is regarded as a national issue of great importance for students and for society.

Despite the importance of graduating from high school, the high school dropout rate has remained relatively stable over the past 30 years, currently at 10.9% (Kaufman, Alt, & Chapman, 2001). However, accurately determining dropout rates across states and school districts has been complicated by differences in data collection policies and practices. Moreover, there is no national standardized operational definition of dropout. Under the federal No Child Left Behind Act (NCLB) of 2001, states are required to report graduation rates

disaggregated by race/ethnicity, income status, disability status, English proficiency, gender, and migrant status. Two major methods of reporting dropout rate are *event* dropout rates (i.e., the percentage of students who left school in a particular year) and *status* dropout rates (i.e., the percentage of young adults between certain ages who left school, generally reported over a 4-year period). The actual dropout rate is likely to be much greater than the percentages reported, because the national data do not include students below 10th grade or those under age 16 (Hayes et al., 2002). Another source of inaccuracy in the U.S. Department of Education dropout figures is that students who are incarcerated are not counted, even though many of them do not finish high school (Smink & Schargel, 2004).

The National Center for Education Statistics (NCES; 1992) reported a national high school completion rate of 86.5% for the class of 2000, using a status dropout rate (i.e., the proportion of 18- through 24-year-olds who have left high school and earned a high school diploma or the equivalent, including a General Educational Development credential, or GED). On the other hand, Greene and Winters (2002) calculated the graduation rate at 69% for that year. Their method of calculating the graduation rate involved counting how many of those students who entered ninth grade in 1996 actually graduated 4 years later in 2000, as would be expected. The discrepancy between the two rates is due to the difference in methods of calculating the graduation rate and the fact that NCES counted GED certificates and other alternate credentials.

Despite the differences in reporting, consistent differences have been found between the types of students who drop out of high school and those who matriculate. Socioeconomic status (SES) bears a strong relationship to dropout, with students from low-income families being 2.4 times more likely to drop out of high school than middle-income students (Coalition for Juvenile Justice, 2001). The proportion of Black students who fail to graduate from high school is twice as high as the proportion of White students who do not graduate, and this proportion is even greater for Hispanic students (Dorn, 1996). According to Bellis (2003), the 2000–2001 dropout rate for all students with disabilities was 29%, with a range from 13% for students with some cognitive disabilities to as high as 53% for the subgroup of students with emotional disturbances.

Risk factors for dropping out of school exist in all life domains (i.e., individual, family, school, community, peer relations), and the likelihood of a student dropping out of school increases as these risk factors accumulate (Woods, 1995). However, most of the research on dropout has focused on the characteristics of individuals rather than on features of schools or the local community (Campbell, 2003–2004; Dorn, 1996). The relationship between school experiences and dropout has rarely been considered. The contribution of the larger community also has been overlooked as contributing to the risk of dropping out of school (e.g., a business leaving the

area, resulting in increased unemployment and poverty and a negative impact on local schools). The decision to drop out of school is influenced by social, political, and economic factors and is dependent on one's developmental history, educational experiences, and current circumstances (Campbell, 2003–2004). A 19-year longitudinal study found that dropping out of high school is determined by multiple factors, with early influences beginning in childhood, and involving family as well as individual factors. The study specifically found that cumulative individual and family stressors, together with lower sixth-grade school performance, lower high school achievement and motivation, and drug use, were associated with a higher probability of dropping out (Garnier, Stein, & Jacobs, 1997).

SCHOOL FACTORS INFLUENCING DROPOUT

Although little empirical research exists on school factors that may be associated with dropping out, a few studies have reported that dropout rates appear to vary widely depending on school factors. For example, early school failure may act as a starting point in a cycle that weakens a student's attachment to school and eventually leads to dropping out (U.S. General Accounting Office, 2002). Griffin (2002) examined students' ability to identify with academics (i.e., their self-reports on the importance of academic achievement) relative to their remaining in school or withdrawing.

Alexander, Entwisle, and Kabbani (2001) collected data on students in 20 Baltimore schools from 1982 to 1994. Their study included measures of sociodemographic risks and resources versus school risks and resources. The school variables included test scores, grade retention, special education services, and engagement behaviors. Their findings indicated that engagement behaviors, even from first grade, rivaled academic scores in forecasting future dropout rates. Alexander et al. found that retention in grade also showed a strong relationship to dropout, particularly when it occurred at the middle school level. They concluded that dropping out of high school culminates a long-term process of disengagement from school.

The Center for Social Organization of Schools at Johns Hopkins University studied the contextual factors contributing to dropout by identifying high schools with severe dropout problems as well as the states, cities, and neighborhoods in which they were located (Balfanz & Legters, 2004). They identified locations with high schools having poor promoting power (i.e., 50% of the first-year students did not graduate 4 years later) and weak promoting power (i.e., 40% of the first-year students did not graduate 4 years later) for a total of 2,000 of the 10,000 schools examined. Poverty appeared to be the strongest correlate of low promoting power, indicating less resources and lower per-pupil expenditures than high-promoting schools. The study pointed out that in many locations, the concentration of weak-promoting schools

is such that there is little choice but to attend a school where graduation is not the norm. Thus, for many students, the school they attend may be the strongest determining factor in their completing versus dropping out of school.

Schools are active, dynamic settings that may unwittingly help or hinder student success. Thus, the school characteristics that affect student outcomes are important variables to examine. To this end, the present study investigated school characteristics and student outcome data related to dropout rates in Kentucky high schools to identify differences between schools reporting low versus high rates of student dropout. The variables studied included (a) school demographics, environment, policies, and disciplinary procedures; (b) classroom environment and instruction; (c) administrator characteristics, philosophies, attitudes, and behaviors; (d) staff characteristics, beliefs, attitudes, and behaviors; and (e) student characteristics and behaviors.

METHOD

Level of Analysis

Data for this study were collected and analyzed at the school level, and only data that could be obtained on individual schools were examined. Quantitative data for two consecutive academic years were obtained from the annual reports submitted by the Kentucky Department of Education (KDE) and the Kentucky Center for School Safety (KCSS) to provide more confidence in the accuracy of secondary source information.

Only those high schools in Kentucky that included Grades 9, 10, 11, and 12 for the two consecutive academic years 2000–2001 and 2001–2002 were selected for the present study, resulting in a sample of 196 high schools. A student who had dropped out was defined as an individual who (a) was enrolled in school at some time during the previous school year but not enrolled at the beginning of the current school year; (b) had not graduated from high school or completed a state- or district-approved educational program; (c) had not transferred to another public school, state-, or district-approved education program; (d) was not absent due to suspension; or (e) was not deceased. According to the KDE, high schools in the state averaged a 3.91% dropout rate (per 100 students) over the 2-year period of the study, with a range from 0% to 13%. Data were not available from KDE on the students with disabilities at the school level. However, the statewide data indicated that the average dropout rate during the same 2-year period for students with disabilities ages 16 to 21 was 15.5%. Using both quantitative and qualitative procedures, a three-stage analytic process was used to determine whether certain school characteristics were differentially related to dropout rate and to identify factors or characteristics of high schools with low dropout rates compared to high schools with high dropout rates.

Stage 1

In addition to dropout rate (i.e., the total number of dropouts divided by the total school enrollment for the academic year), 12 school variables were chosen for examination based on previous research of risk factors for dropout, focus group recommendations, and the availability of these data at the school level. The school variables examined in this study are defined operationally in Table 1. During Stage 1, a correlation analysis was conducted with data from two academic years (2000–2001 and 2001–2002) using the aforementioned school variables. This first stage provided information on the school characteristics that were differentially related to dropout rate for high schools in Kentucky.

Stage 2

During Stage 2, dropout rate was used to select a purposive sample of 40 high schools that represented the extreme cases of dropout—that is, the 20 schools reporting the lowest dropout rates (LDOS; $M = 0.82$) and the 20 schools reporting the highest dropout rates (HDOS; $M = 8.26$). A between-groups multivariate analysis of variance (MANOVA) was used to determine whether the two groups differed significantly on any of the 12 selected school variables. A test of main effects was performed between the groups, followed by individual ANOVA tests between groups on each dependent variable. This stage of analysis addressed how Kentucky's high schools with the lowest dropout rates differed from those high schools with the highest dropout rates.

Stage 3

Stage 3 involved collecting and analyzing qualitative data on the characteristics of eight schools, four from each Stage 2 group (HDOS and LDOS). As recommended by Teddlie and Reynolds (2000), the present study used qualitative data as well as quantitative data to examine both process and effect variables (i.e., the ability of schools to affect student outcomes through the instructional, organizational, and social processes). Information was gathered through administrator surveys, staff interviews, and on-site observations to provide detailed descriptions of the characteristics and climate of these schools. The eight schools represented three types of geographic locales, including rural (five schools), small town (two schools), and urban fringe of a large city (one school). The enrollment of the eight schools ranged from 569 to 1,372, with an average of 840 students.

Three instruments were developed for the Stage 3 analyses to facilitate the studies of individual school characteristics. These included (a) an administrator survey, (b) a staff interview guide, and (c) a direct observation protocol. The administrator survey included 22 questions regarding administrators' experience, school policies, practices, school climate, student discipline, and dropout issues (see Appendix A). The staff interview guide contained 13 questions and was used to

TABLE 1. Definitions of School Variables Examined in this Study

Variable	Definition
Number of students enrolled	Total student enrollment reported on the Superintendent's Annual Attendance Report at year's end.
Gender composition of the student body	Percentage of male students enrolled at year's end.
Socioeconomic background of the students	Percentage of students enrolled in the federal Free and Reduced-Price Lunch Program (FRLP; membership based on family income lower than 130%–185% of the federal poverty level).
Ethnic background of the students	Percentage of students identified as White.
Academic achievement scores	The national percentile score for a school; the percentage of students in the national norm group who fell below the mean student score for the school on the full-battery <i>Comprehensive Test of Basic Skills</i> (CTBS).
Attendance rate	Annual aggregate days attended by students, divided by the total enrollment.
Retention rate	Percentage of students held back in a prior grade.
Suspension rate	A disciplinary sanction that requires the student to be excluded from the school building for a specified period of time.
Board of Education violation rate	Total student violations of school and district board policies that are not law violations and that result in a disciplinary action of expulsion, suspension, alternative placement, or corporal punishment, per 100 students.
Law violation rate	Total student illegal acts, on school grounds or at school-related activities, defined according to the FBI Uniform Crime Reporting Guidelines, against persons or property, or less serious acts that may result in arrest, which result in a disciplinary action of expulsion, suspension, or alternative placement, per 100 students.
Successful transition rate	Percentage of graduates the semester after graduation who are (a) enrolled as full-time students at a postsecondary school; (b) employed at least 30 hours per week in permanent positions; (c) caring for children or family; (d) performing community service or religious duties; (e) are active members of the U.S. military; or (f) are involved in any work–school combination totaling at least 30 hours per week.

gather information from various school personnel (e.g., classroom and specialty teachers, instructional assistants, librarians, guidance counselors, and office personnel) regarding school policies, practices, school climate, student discipline, and dropout issues (see Appendix B). The direct observation protocol was used to study school climate variables in common areas and classrooms and included ratings for the school's physical appearance, adult and student appearance, staff–student and student–student interactions, strategies to encourage students' behavioral compliance, instructional strategies, and safety concerns (see Appendix C). The school climate variables were chosen after consulting with focus groups of Kentucky educators and after reviewing variables from previous research. The accompanying instruments were developed after reviewing instruments used by organizations such as the Education Trust (2007), the Charles A. Dana Center at the University of Texas at Austin (2004), the National

Study of School Evaluation (n.d.), and the Association for Effective Schools (2002).

A team of three trained observers made one-day visits to these schools. The team consisted of the first author and two other professionals who were trained by the first author in a local high school. The author worked one on one with each observer, practicing the procedures for observing, interviewing, and completing the instruments. A minimum of 80% interobserver reliability was obtained with the author and each observer after practicing timed observations in common areas and in classrooms. These two team members were blind in regard to whether the school was an HDOS or an LDOS, and remained so until after data were collected from all site visits. During site visits, the team interviewed staff and independently gathered descriptive data in common areas throughout the school as well as in ninth-grade classrooms. Choosing one grade level at which to observe classroom characteristics

added to the consistency of analyses across schools. During the site visits, each observer spent time in common areas, such as the cafeteria, noting the physical appearance of the area, the characteristics of students and adults, and their interactions, behaviors, and routines. For example, while sitting in the cafeteria for a 30-min period, observers continuously scanned the area and documented interactions between staff and students and among students. The observers then coded these interactions as to the inferred type (e.g., authoritative, cooperative, respectful). Each observer also spent a class period in two different ninth-grade classrooms and rated the physical arrangements, transition routines, instructional activities, teacher–student interactions, and student behaviors. Information gathered from the administrator surveys, staff interviews, and observation protocols was tallied and compared across HDOS and LDOS. The information from Stage 3 provided an in-depth picture of how four Kentucky high schools with low dropout rates differed from four high schools with high dropout rates.

RESULTS

Stage 1 Correlation Analysis

Pearson product-moment correlation coefficients were computed for each pair of variables, and the Bonferroni approach was used to control for Type I error across 13 correlations. A p value of less than .004 (.05/13 = .004) was required for significance. The correlations between dropout and the 12 school variables are displayed in Table 2. Significant positive correlations were found between dropout rate and 5 of the 12

variables for school characteristics (i.e., retention rate, SES, law violation rate, suspension rate, and board violation rate). Significant negative correlations were found between dropout rate and academic achievement, school attendance rate, rate of successful transition to adult life, and percentage of students of White ethnic background. The gender, school size, and expulsion rate variables were not significantly correlated with dropout rate for the 196 high schools in this study.

Stage 2 Multivariate Analysis

Based on a rank ordering of reported dropout rates, the 20 schools with the highest dropout rates (HDOS; $M = 8.26$) and the 20 schools with the lowest dropout rates (LDOS; $M = 0.82$) per 100 students were identified. The between-groups MANOVA comparison of these two groups of schools revealed that the combined dependent variables were significantly affected by dropout rate, Wilks' $\Lambda = .056$, $F(1, 38) = 33.53$, $p < .05$, partial $\eta^2 = .94$. An ANOVA test on each dependent variable was conducted as follow-up to the MANOVA. The results of this stage suggest that the group of 20 LDOS differed significantly from the group of 20 HDOS on seven of the school characteristics. Academic achievement, attendance rate, and successful transition to adult life rate were significantly higher for the LDOS than for the HDOS. Percentage of students from low socioeconomic backgrounds, retention rate, suspension rate, and board of education violation rate were significantly higher for HDOS than for LDOS. The two groups did not differ significantly on law violation rate, ethnic background of the student body, enrollment, expulsion rate, or gender. Table 3 lists the means and standard deviations for each variable by group.

TABLE 2. Means, Standard Deviations, Pearson Product-Moment Correlations, and Coefficients of Determination Between Dropout Rate and Each School Variable

Variable	<i>M</i>	<i>SD</i>	<i>r</i>	<i>r</i> ²
CTBS-NP total score	37.27	37.13	-.680*	46.2%
Attendance rate	92.83	6.09	-.679*	46.1%
Retention rate	6.71	11.83	.630*	39.7%
Percentage FRLP	38.88	35.98	.576*	33.2%
Successful transition rate	95.01	3.05	-.401*	16.1%
Law violation rate	1.64	7.31	.395*	15.6%
Suspension rate	21.90	25.75	.362*	13.1%
Board violation rate	19.75	61.53	.284*	8.1%
Percentage White	90.03	55.18	-.246*	6.1%
Percentage male	50.90	10.16	.187	3.5%
Enrollment	823.00	729.00	-.154	2.4%
Expulsion rate	0.20	0.00	-.045	0.2%

Note. $N = 196$ schools. CTBS-NP = *Comprehensive Test of Basic Skills* (CTB/McGraw-Hill; 1989) national percentile; FRLP = Free and Reduced-Price Lunch Program.

* $p < .004$.

TABLE 3. Means and Standard Deviations for Two-Year Combined School Variables by Group

Variable	LDOS ^a		HDOS ^a	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Dropout rate	0.82	0.53	8.26*	1.90
Percentage FRLP	19.51	14.19	59.27*	12.61
CTBS-NP total score	64.92	11.93	35.36*	8.17
Retention rate	2.25	1.81	11.18*	4.62
Attendance rate	94.64	1.80	89.52*	2.47
Suspension rate	12.27	9.14	34.63*	17.51
Successful transition rate	97.83	2.43	92.28*	5.12
Board violation rate	11.95	8.94	28.56*	16.19
Law violation rate	0.99	0.80	2.70	2.79
Percentage White	90.47	10.84	82.00	22.80
Percentage male	50.77	3.23	52.76	3.59
Enrollment	929.28	519.75	709.95	276.41
Expulsion rate	0.16	0.28	0.08	0.16

Note. LDOS = schools with lowest dropout rates; HDOS = schools with highest dropout rates; FRLP = Free and Reduced-Price Lunch Program; CTBS-NP = *Comprehensive Test of Basic Skills* (CTB/McGraw-Hill; 1989) national percentile.

^a*n* = 20.

**p* < .004.

Stage 3 Case Analyses

Administrator Surveys. Four major differences emerged between the HDOS and LDOS from the administrator surveys, including administrative experience, school climate, family involvement, and indication of dropout as a school problem. First, administrators (i.e., principals and assistant principals) in the HDOS had less administrative experience ($M = 4.2$ years) than the administrators in the LDOS ($M = 8.5$ years). Moreover, administrators in the HDOS had been at their current schools fewer years ($M = 3.6$ years) than administrators in the LDOS ($M = 9.25$ years). Second, all of the HDOS administrators reported poor family involvement at their schools, compared to only one LDOS administrator. Third, none of the HDOS administrators described their school climate as good, whereas three LDOS administrators described their school climate as good. Fourth, all of the HDOS administrators expressed the need to reduce dropouts at their schools, whereas only two of the four LDOS administrators expressed the need to reduce dropouts at their schools.

Staff Interviews. The staff interviews resulted in differences in responses from LDOS and HDOS regarding academic expectations for students, school climate, family involvement, and indication of dropout as a school problem. First, 23 of the 24 LDOS staff who were interviewed stated that administrators and staff at their schools had high expectations for student academic achievement, whereas 20 of the 24 staff interviewed at the HDOS reported high expectations.

Second, 18 LDOS staff described their school climates as *good*, with none of them saying *poor*; 16 staff in the HDOS described their school climates as *good*, with 3 saying their climates were *poor*. Third, 14 of the HDOS staff indicated that the level of family involvement at their schools was poor, whereas only 3 LDOS staff indicated poor family involvement. Fourth, 12 of the LDOS staff members responded that dropout was a school problem. Conversely, 22 of the HDOS staff indicated that dropout was a problem at their school.

Observations. Differences between LDOS and HDOS also were evident from the on-site school observation ratings (see Table 4). Overall, observers rated the LDOS as being in better physical condition than the HDOS. Observers noted marked differences between LDOS and HDOS regarding the cleanliness, condition, and orderliness of student restrooms. Staff and student characteristics differed between the two groups of schools. For instance, observers indicated that LDOS staff dressed more professionally (e.g., male staff wearing ties) than HDOS staff. More LDOS students were noted as smiling than were students in the HDOS. No adversarial interactions were observed between students in the LDOS; however, eight adversarial student interactions were noted in the HDOS. Observers recorded lower ratios of staff to students in the LDOS common areas, indicating a higher level of adult supervision than in the HDOS. Staff members at the LDOS were observed to act more authoritatively than staff at the HDOS; in fact, one LDOS staff member was ob-

TABLE 4. Schoolwide and Common Area Observer Ratings on School Context and Climate Characteristics Combined by Group

Characteristic	LDOS			HDOS		
	Total	Possible	%	Total	Possible	%
Building						
Cleanliness	12	12	100	12	12	100
Condition	31	36	86	27	36	75
Order	33	36	92	33	36	92
Grounds						
Cleanliness	12	12	100	12	11	92
Condition	27	36	75	27	36	75
Order	28	36	78	29	36	81
Restrooms						
Cleanliness	12	12	100	6	12	50
Condition	30	36	83	25	36	69
Order	31	36	86	25	36	69
Common areas						
Accessibility	48	48	100	48	48	100
Adequacy	48	48	100	48	48	100
Noise level	68	144	47	75	144	52
Staff						
Appearance	133	144	92	103	144	72
Facial expression	124	144	86	119	144	83
Students						
Appearance	113	144	78	101	144	70
Facial expression	129	144	90	114	144	79
Staff–student ratio						
Halls	4/95	—	1/24 ^a	4/213	—	1/53 ^a
Cafeteria	4/172	—	1/43 ^a	4/153	—	1/38 ^a
Staff–student interactions						
Number of interactions	67	144	47	65	144	45
Staff authoritative interactions	6	12	50	4	12	33
Student adversarial interactions	0	12	0	1	12	8
Clear expectations	124	144	86	101	144	70
Verbal prompting	4	12	33	8	12	67
Verbal praise	4	12	33	7	12	58
Yelling	1	12	8	0	12	0
Behavior incidents	10	12	0	0	12	0
Safety concerns	1	12	8	0	12	0
Overall impression	122	144	85	107	144	74

Note. LDOS = schools with lowest dropout rates; HDOS = schools with highest dropout rates.

^aμ ratio.

served yelling as a means to promote compliance. Observers reported that behavioral expectations for students did not seem as clear in HDOS as they did in the LDOS, and HDOS staff used more verbal prompting and verbal praise than LDOS

staff. Observers gave higher ratings to the LDOS than to HDOS in their overall impression of the school.

Observers found the average staff–student ratio in LDOS classrooms to be higher than in the HDOS classrooms,

yet they noted more teacher interactions with students in the LDOS. Teachers in the LDOS were rated as using more instructional strategies than teachers in HDOS, and student engagement was rated higher in LDOS. Observers also rated the LDOS higher than HDOS on general mood and overall impression. Table 5 provides a summary of classroom observer ratings.

DISCUSSION

Our study demonstrated that a number of school characteristics are differentially related to dropout rates. Furthermore, schools reporting low dropout rates differed considerably from schools reporting high dropout rates in several areas. The findings of this study support the previous literature on school dropout and offer several new insights. Few studies have addressed school characteristics that are directly related to dropout. However, as researchers from Johns Hopkins University found, the school that a student attends may be the deciding factor in whether he or she graduates or drops out of school (Balfanz & Legters, 2004). The present study examined several levels of data to provide a deeper understanding of the school variables contributing to dropout. The present study also provides information on how schools reporting high dropout rates differ from schools reporting low dropout rates. These insights notwithstanding, there were several limitations to the present study.

Limitations

One limitation of this study was the use of secondary source information. The first two stages relied on data supplied by school personnel and organized into data files by state personnel. Therefore, inconsistencies in the data reporting cannot be easily verified. To increase the probability that the data were accurate, we analyzed data from two consecutive annual reports.

Another limitation was the availability of certain data. Previous research has documented that students who have disabilities disproportionately drop out of school (Bellis, 2003; Bullis & Cheney, 1999; Wagner, D'Amico, Marder, Newman, & Blackorby, 1992). However, school-level data were not available from the KDE on the percentage of students having identified disabilities; therefore, this variable could not be included in our analysis. Future research on school factors related to dropout should include data on students with disabilities.

The manner in which some of the school variables were operationalized was another limitation of this study. For example, the percentage of students enrolled in the Free and Reduced-Price Lunch Program can be misleading as a measure of the socioeconomic background of students. Future research should attempt to obtain more accurate socioeconomic background data from school records or directly from families.

The information gathered during the school visits cannot be generalized to the broader population due to the small

TABLE 5. Classroom Observer Ratings on School Climate Characteristics Combined by Group

Characteristic	LDOS			HDOS		
	Total	Possible	%	Total	Possible	%
Organization of space	59	72	82	55	72	76
Materials	24	24	100	21	24	88
Equipment	24	24	100	21	24	88
Rules posted	1	24	4	5	24	21
Staff-student ratio	5/93	—	1/23 ^a	4/66	—	1/17 ^a
Number of interactions	54	72	75	44	72	61
No. of instructional procedures ^b	50	72	69	39	72	54
Student engagement	62	72	86	54	72	75
Clear expectations	20	24	83	18	24	75
Clear consequences	6	24	25	5	24	21
Management plan	6	24	25	6	24	25
Verbal prompting	75			90		
Verbal praise	40			26		
Yelling	0			7		
Safety concerns	0	24	0	1	24	4
General mood	64	72	89	49	72	68
Overall impression	57	72	79	45	72	63

Note. LDOS = schools with lowest dropout rates; HDOS = schools with highest dropout rates.

^aμ ratio. ^bwhole-class instruction.

sample size and the limited observation period (i.e., one day). One disadvantage of using self-report measures such as the administrator surveys and staff interviews is the potential for reactivity. To counter reactivity and to elicit honest responses, the observers explained to the school personnel that the research was intended to help improve schools and not intended to evaluate them personally (Strangor, 2007). Information from the school visits did provide several insights into the possible differences between schools and suggested that future research is needed to investigate school characteristics and their effect on student outcomes.

Conclusions

Several of our findings have documented the dramatic impact of school failure on student dropout. Two direct measures of school success—achievement test scores (*California Test of Basic Skills* national percentile total score) and rate of retaining students in grade—clearly differentiated schools with high versus low student dropout rates, corroborating previous evidence that students who experience academic difficulties are more prone to dropping out (Alexander et al., 2001; Griffin, 2002). Not surprisingly, attendance rate was negatively correlated with dropout rate in this study. Next to academic achievement, the rate of school attendance showed the strongest relationship to dropout of any variable in our data analyses. This finding supports the observation that students who feel a sense of belonging and are connected to school are less likely to drop out of school.

Another indicator of school failure is the occurrence of maladaptive or undesirable student behaviors. The rates of student law and board violations reported by schools were positively related to dropout rate in our Stage 1 analysis. Consistent with other research findings, we also found a positive relationship between suspension rate and dropout. Schools that rely on exclusionary discipline practices—such as suspension—may actually be impeding the educational progress of students, perpetuating a failure cycle. Students who are excluded from school have fewer opportunities to gain academic skills and appropriate social behaviors.

A strong positive relationship between poverty and school failure has been documented in numerous studies, and our results corroborated this research. The demographic of poverty seems to create vast inequities in our public education system, from federal funding to employment of experienced teachers and administrators. For example, administrators in the HDOS had an average of 4 years' experience, compared to 9 years' experience for the LDOS administrators.

Like poverty, the variable of student ethnicity has a strong historical relationship to school outcomes (Leone et al., 2003). The ethnic background of the student body was related to dropout rate in this study: the higher the dropout rates, the lower the percentage of White students. The Center for Social Organization of Schools at Johns Hopkins University found

that across the nation, a school with a majority of minority students is five times more likely to have weak promoting power than a majority White school, and that 46% of Black and 39% of Hispanic students attend schools where graduation is not the norm (Balfanz & Legters, 2004).

Yet another indicator of school failure (or success) is the rate of successful transition to postschool experiences. All high schools in Kentucky are required to conduct follow-up surveys of students the semester following graduation as a basis for calculating the state's definition of successful transition rate (see Table 1). Although it is not surprising that successful transition rate was negatively related to school dropout rate, it begs the question what goals high schools set for their students. Whether students leave high school ready for postsecondary school or the labor market is highly associated with what happens within the school walls.

Additional implications emerged from the data collected in Stage 3 of this study, such as the importance of school climate and family involvement. Overall, the HDOS personnel described their school climates and their levels of family involvement as poor, in contrast to LDOS personnel. The characteristics and behaviors of the teaching staff also were related to dropout rate. Observers noted that LDOS staff dressed more professionally and seemed to supervise and interact with students more than staff in the HDOS. Moreover, teachers in the LDOS classrooms used more instructional strategies, and student engagement was higher than in HDOS. These factors may counteract the apparent tendency of staff in the LDOS to be more authoritative. The observation that LDOS staff interacted with students more than HDOS staff is consistent with the results of the High School and Beyond longitudinal study, in which dropouts perceived teacher interest in students as low (Jones, 2002). Croninger and Lee (2001) observed that teachers are an important source of social capital for students and that teacher-based forms of social capital reduce the probability of dropping out by half. Teachers are the most frequently encountered role models outside of the family, and the findings from the present study suggest that teacher behaviors and characteristics have a great deal of influence on student outcomes.

Interesting enough, observers noted a marked difference in the physical condition of the school facilities. The LDOS were cleaner, in better condition, and more orderly than the HDOS. Although there are few standards for school facilities, spatial configurations, noise, heat, cold, light, and air quality may affect students' and teachers' ability to perform (Schneider, 2002).

Schools are part of a community, and the reciprocal relationship between them cannot be ignored, particularly as high schools offer the source of the local labor force. Several staff from the HDOS reported that the lack of post-high school opportunities in their communities was a factor in whether students completed or dropped out of their schools. For example, according to KIDS COUNT, the percentage of youth ages 16–19 who were not working or in school in 2000

averaged 17% for the HDOS counties and 7% for the LDOS counties (see Note 1).

Implications for Practice

Dropping out of school is a complex social problem for which there is no simple solution. This multifaceted analysis may facilitate the identification of strengths and areas for improvement for schools wishing to reduce their dropout rates. School personnel should use strategies that address the full range of school characteristics, including (a) school demographics, environment, policies, and disciplinary procedures; (b) classroom environment and instruction; (c) administrator characteristics, philosophies, attitudes, and behaviors; (d) staff characteristics, beliefs, attitudes, and behaviors; and (e) student characteristics and behaviors.

Although schools and school personnel cannot change the individual, family, and community factors that may put youth at risk for dropping out of school, they can provide protective factors that may reduce these risks by providing a positive and safe learning environment; by setting high, yet achievable academic and social expectations; and by consistently facilitating academic and social success, and thus keeping students in school. Comprehensive high school reform is needed in place of fragmented efforts (e.g., having same-sex classes) that only scratch the surface of the overall issue. High schools need to change their organizational structure to become student-centered environments that nurture all students. They need to reassess the relevance of all educational programs to reflect students' current and longer-term social and economic interests to continually promote school engagement.

High schools with the lowest dropout rates in the present study offered courses and school-sponsored activities that were geared to the needs and interests of students. The academic focus was pronounced and rigorous, with additional supports for students in need. Teachers in LDOS showed interest in the students, and administrators provided supports for teachers. School personnel in LDOS identified students who were at risk for dropping out, targeted interventions based on individual needs, and monitored their progress. School climate and positive relationships were high priorities in the LDOS and in the classrooms. Students who are attached to supportive schools in which personnel recognize their individuality and care about and promote their successes are prone to complete high school and make successful transitions to adult life.

Dropping out of school is not an impulsive action, but rather a cumulative process. Unsuccessful school experiences, such as academic failure, grade retention, absenteeism, behavior and discipline problems, and transfers from one school to another build on one another to eventually alienate the student from school (Martin et al., 2002). By identifying differences between high schools having high versus low rates of

dropout, this study suggests strategic actions that schools can take to engage students in their school and facilitate their success. ■

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NOTE

1. The Kentucky Youth Advocates provide a detailed county-by-county picture of the condition of children through the annual publication of the Kentucky *KIDS COUNT Data Book*, a project of the Annie E. Casey Foundation.

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(Appendices start on p. 336)

APPENDIX A

KENTUCKY HIGH SCHOOL ADMINISTRATOR SURVEY

RESPONDENT (Circle one): Principal Assistant Principal Other

Date _____ School Code _____

Please circle your answers or fill in the blanks to the following questions.

1. Principal's years of administrative experience _____
2. Principal's years at this school _____
3. Assistant principal's years of administrative experience _____
4. Assistant principal's years at this school _____
5. Does your school have a set of agreed-upon behavioral expectations for students (in writing)? Yes No
6. If yes to 5, are there specific strategies used to teach and enforce these expectations with students? Yes No
7. Does your school have a set of strategies for keeping students involved and connected to the school? Yes No
If yes, please list:

8. Do you and your staff have high expectations for student academic achievement? Yes No
Why or why not?

9. What is the level of family involvement with their children's education at your school? Good Satisfactory Poor
10. How would you describe the overall climate at your school? Good Satisfactory Poor
11. What are the top 3 student behavior problems at your school?

12. Are schoolwide data on behavioral incidents used to make decisions on modifying school rules, routines, and physical arrangements?
Yes No Explain:

13. Total number of disciplinary office referrals for the year (2002–2003) _____
14. Total number of student out-of-school suspensions for the year (2002–2003) _____
15. Total number of student court referrals for the year (2002–2003) _____
16. Total number of students who dropped out of school for the year (2002–2003) _____
17. Is student dropout a problem at your school? Yes No Explain:

18. If so, what are the top 3 reasons why students drop out of your school?

19. What strategies are in place at your school for students at risk of dropping out?

20. Are these measures effective? Yes No Explain:

21. What resources and strategies are needed at your school for students at risk of dropping out?

22. Other comments:

Thank you for your time and assistance!

APPENDIX B

KENTUCKY HIGH SCHOOL STAFF INTERVIEW GUIDE

Respondent position _____ Interviewer _____

Date _____ School Code _____

1. Does your school have clear, written behavioral expectations for students? Where are they? Yes No Explain:

2. How are behavioral expectations communicated to students and enforced? Yes No Explain:

3. What strategies does your school have for keeping students involved and connected to the school? Yes No Explain:

4. Are students at your school challenged in their schoolwork? Yes No Explain:

5. Do the staff and the administration hold high expectations for student academic achievement? Yes No Explain:

6. How would you describe the overall climate of your school? Good Satisfactory Poor
7. What is the level of family involvement with their children's education at your school? Good Satisfactory Poor
8. Are teachers and staff supported by the administration? Yes No Explain:

9. Is student dropout a problem at your school? Yes No Explain:

10. If so, what are three reasons why students drop out of school?
 (1) _____
 (2) _____
 (3) _____
11. What resources or strategies are in place at your school for students at risk of dropping out?
 (1) _____
 (2) _____
 (3) _____
12. Are these measures effective? Yes No Explain:

13. What resources and strategies are needed at your school for students at risk of dropping out?
 (1) _____
 (2) _____
 (3) _____
14. Other comments:

(Appendices continue next page)

APPENDIX C

KENTUCKY HIGH SCHOOL CLASSROOM OBSERVATION PROTOCOL—CLASSROOM

Observer: _____ Date: _____
 School Code: _____ Grade: _____ Room # _____ Type of Classroom _____

Length of Observation		Comments
Organization of Space	(-) 1 2 3 (+)	
Materials Adequate	Yes No	
Equipment Adequate	Yes No	
Accessible	Yes No	
Accommodations	Yes No	
Obstructions	Yes No	
Rules Posted	Yes No	
Positively Stated	Yes No	
# Adults # Students		
Adult/Student Interactions	(few) 1 2 3 (many)	
Instructional Delivery (% of time spent in each)	_____ whole class _____ groups _____ one-to-one _____ none	
Systematic Instructional Procedures Used Brisk pacing Review Clear explanations Guided practice Active responding Frequent feedback	(few) 1 2 3 (many) Questioning Examples/nonexamples Models/Demonstrations Smooth transitions High rates of correct responses	
Level of Student Engagement	(low) 1 2 3 (high)	
Independent activities (% of time spent in each)	_____ worksheets _____ centers _____ computer _____ others	
Behavioral Expectations Clear	(-) 1 2 3 (+)	
Consequences Clear Implemented	(-) 1 2 3 (+) Yes No	
Strategies to Promote Compliance VP (verbal praise) TR (tangible reinforcement) VPR (verbal prompt) PPR (physical prompt) EC (error correction) D (discussion)	P (punishment) I (ignoring) Y (yelling) TO (time out) VR (verbal reprimand) CP (corporal punishment) RC (response cost)	
Management Plan (observed or permanent product)	Yes No	
Safety Concerns		
General Mood of the Classroom	(-) 1 2 3 (+)	
Overall Impression	(-) 1 2 3 (+)	

KENTUCKY HIGH SCHOOL CLASSROOM OBSERVATION PROTOCOL

Observer: _____ Date: _____ School Code _____ Time: _____

Building	Clean Yes No	Condition (-) 1 2 3 (+)	Orderly (-) 1 2 3 (+)	Notes	
Grounds	Clean Yes No	Condition (-) 1 2 3 (+)	Orderly (-) 1 2 3 (+)		
Restrooms	Clean Yes No	Condition (-) 1 2 3 (+)	Orderly (-) 1 2 3 (+)		
Walls/Displays					
	Hallways	Cafeteria	Library	Gym	Outside/Other
Length of Observation					
Accessible	Yes No	Yes No	Yes No	Yes No	Yes No
Adequate Space	Yes No	Yes No	Yes No	Yes No	Yes No
Obstructions	Yes No	Yes No	Yes No	Yes No	Yes No
# of Adults					
# of Students					
Noise Level	(low) 1 2 3 (high)	(low) 1 2 3 (high)	(low) 1 2 3 (high)	(low) 1 2 3 (high)	(low) 1 2 3 (high)
Adult/Student Interactions	(-) 1 2 3 (many)	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)
Adult/Student Interaction Types-Evidence <u>Authoritative</u> <u>Supervisory</u> <u>Cooperative</u> <u>Caring</u> <u>Respectful</u> <u>Adversarial</u> <u>Other</u>	A/S S/A	A/S S/A	A/S S/A	A/S S/A	A/S S/A
Student/Student Interactions Types <u>Adversarial</u> <u>Cooperative</u> <u>Friendly</u> <u>Other</u>					
Staff Appearance Facial exp	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)
Student Appearance Facial exp	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)	(-) 1 2 3 (+) (-) 1 2 3 (+)
	Hallways	Cafeteria	Library	Gym	Outside/Other
Student Self-Grouping Gender Ethnicity Other					
Behavioral Expectations Clear	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)
Strategies to Promote Compliance VP (verbal praise) TR (tangible reinforcement) VPR (verbal prompt) PPR (physical prompt) EC (error correction) P (punishment) I (ignoring) Y (yelling) TO (time out) VR (verbal reprimand) CP (corporal punishment) RC (response cost) D (discussion)					
Behavioral Incidents (# of students/problem/adult action):					
Safety Concerns					
Notes					
Overall Impression	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)	(-) 1 2 3 (+)