Special Education Teacher Retention and Attrition:

A Critical Analysis of the Research Literature

Bonnie S. Billingsley, *Virginia Polytechnic Institute and State University*

The lack of qualified special education teachers threatens the quality of education that students with disabilities receive. Attrition plays a part in the teacher shortage problem, and efforts to improve retention must be informed by an understanding of the factors that contribute to attrition. Specifically, the author provides a thematic analysis of studies investigating factors that contribute to special education teacher attrition and retention. She addresses four major themes: teacher characteristics and personal factors, teacher qualifications, work environments, and teachers' affective reactions to work. Following this thematic review, a critique of definitional, conceptual, and methodological approaches used to study special education attrition is provided, as are priorities for future research.

One of the most important challenges in the field of special education is developing a qualified workforce and creating work environments that sustain special educators' involvement and commitment. For more than two decades issues related to special education teacher shortages and attrition have been of concern to policymakers and administrators who work to recruit and retain special educators (Council for Exceptional Children, 2000; Morsink, 1982; Smith-Davis & Billingsley, 1993; Smith-Davis, Burke, & Noel, 1984).

The supply of and demand for special educators are influenced by varied and complex factors. McLeskey, Tyler, and Flippin (this issue) provide a comprehensive analysis of the broad range of factors that influence the special education teacher shortage. However, even a comprehensive analysis of available data may not fully illustrate the extent of the teacher shortage problem in special education. School districts may reduce services to students with disabilities or raise class size limits to cope with the lack of qualified teachers (Billingsley, 1993; Darling-Hammond & Sclan, 1996).

The shortage problem has serious and far-reaching implications for students with disabilities. The consequences of the shortage include inadequate educational experiences for students, reduced student achievement levels, and insufficient competence of graduates in the workplace (Darling-Hammond & Sclan, 1996).

Although the causes of the shortage problem are complex, teacher attrition is clearly a major contributor. Recent evidence suggests that special education, math, and science are the fields with the highest turnover and that special education teachers are more likely to depart than any other teacher group (Ingersoll, 2001). McLeskey et al. (this issue) provide an analysis of the research on special education attrition rates and suggest that a greater proportion of special educators than general educators leave. As Ingersoll observed, the shortage will not be solved by recruiting thousands of new people into teaching if many leave after a few short years.

There are different types of attrition (e.g., leaving the teaching profession, transferring to other teaching and educational positions). It is of interest that the field of special education loses many teachers to general education, with a significantly higher proportion of special educators transferring to general education than the reverse (Boe, Cook, Bobbitt, & Weber, 1998). Schnorr (1995) reported that of teachers who plan to leave special education, 12% want to transfer to general education. General education teaching is obviously a draw for many special educators, while others leave to escape what they view to be the poor work conditions in special education (Billingsley & Cross, 1991).

Efforts to reduce attrition should be based on an understanding of factors that contribute to special educators' decisions to leave the field. Billingsley (1993) and Brownell and Smith (1992) reviewed the attrition research through the early 1990s. In the present article, the author extends their initial findings by synthesizing research since 1992. Specifically, she provides (a) a thematic synthesis of studies investigating factors that contribute to special education teacher attrition and retention; (b) a critique of definitional, conceptual, and, methodological approaches used to study special education attrition; and (c) priorities for future research.

Literature Review Results

For this article, electronic databases (i.e., ERIC and Psychological Abstracts) were searched using terms such as *special education teacher attrition, retention, turnover,* and *transfer.*

Address: Bonnie S. Billingsley, Dept. of Teaching and Learning, School of Education, Virginia Polytechnic Institute and State University, 309 War Memorial Hall, Blacksburg, VA 24061-0313; e-mail: billing@vt.edu

Studies prior to 1992 were not included because they had been previously reviewed (Billingsley, 1993; Brownell & Smith, 1992). Drafts of reports were excluded, as well as dissertations and presentations. Moreover, research papers directed primarily at personnel supply and demand, attrition rates, job satisfaction, stress, burnout, and general education attrition were used only to provide a context for the findings in this article. Table 1 provides a summary of the research-based articles and reports that meet the criteria outlined above.

Definitions of Attrition and Retention

Researchers studying attrition and retention have used varied definitions. Billingsley (1993) provided a four-category schematic representation of special education teacher retention, transfer, and attrition. In the first category, *retention* pertained to teachers who remained in the same teaching assignment and the same school as the previous year. The second category, "transfers to another special education teaching position," included those who stayed in special education teaching but transferred to another position (in either the same or a different district). The third category, "transfers to general education teaching," was of concern because this group reflected a loss to the special education teaching force (Billingsley, 1993). The fourth group, "exit attrition," included those who left teaching altogether—that is, retired, returned to school, stayed home with young children, or took nonteaching positions in education (e.g., counseling, administration). According to Boe, Bobbitt, and Cook (1997), "The most troublesome component of turnover is exit attrition, because it represents a reduction in the teaching force, requiring a compensating inflow of replacement teachers" (p. 377). Researchers often combine more than one type of attrition in a given study.

The above framework relates to what teachers actually *do* (i.e., stay, transfer, or exit). In studies of attrition behavior, Boe and colleagues used the National Teacher Follow-Up Survey data for their study of leavers (e.g., Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, & Weber, 1997). Other researchers have tracked special educators who left their positions (Billingsley, Bodkins, & Hendricks, 1993; Billingsley, Pyecha, Smith-Davis, Murray, & Hendricks, 1995; Miller, Brownell, & Smith, 1999; Morvant, Gersten, Gillman, Keating, & Blake, 1995). Determining the extent to which teachers exit and rearrange themselves in the workforce requires careful follow-up study that is difficult, time-consuming, and costly—an obvious drawback to studying teacher attrition.

Therefore, some researchers have not studied teachers' career behaviors; instead, they examine existing populations of current teachers to determine their *intent* to leave as a proxy for attrition (e.g., Billingsley & Cross, 1992; Cross & Billingsley, 1994; Gersten, Keating, Yovanoff, & Harniss, 2001; Littrell, Billingsley, & Cross, 1994; Singh & Billingsley, 1996; Westling & Whitten, 1996; Whitaker, 2000). The study of intent allows investigators to consider the relationship of teachers' career plans to a range of district and teacher variables,

without the expensive and time-consuming task of finding those who left.

The intent variable is controversial, with some questioning whether it is related to attrition behavior (Boe, Bobbitt, Cook, Whitener, & Weber, 1997; LeCompte & Dworkin, 1991). However, Boe, Barkanic, and Leow (1999) reported that "*plans to stay* in the same school next year are associated with *actual staying,* and plans to leave the school are associated with voluntary moving, voluntary leaving, and involuntary leaving" (p. 12). Future studies should consider the time frame for looking at whether those who intend to leave actually do leave. For example, Gersten et al. (2001) suggested that those who have criticized the intent variable consider a time frame that is too short—1 year or less. Gersten et al. reported that of 33 teachers who planned to leave within the 15-month period, 69% had actually left special education teaching (the use of intent as a variable is discussed in greater depth in the section critiquing definitions, models, and methodologies).

Conceptual Models

Two conceptual models provide a description of the wide range of factors that influence special educators' career decisions. Billingsley's (1993) schematic representation included three broad categories: external factors, employment factors, and personal factors. External factors (economic, societal, and institutional) are external to the teacher and the employing district and are hypothesized to have primarily an indirect effect on teachers' career decisions. This model focuses on employment factors (professional qualifications; work conditions and rewards; and commitments to school, district, teaching field, and teaching profession). Billingsley hypothesized that when "professional qualifications and work conditions are not as favorable, teachers are likely to experience fewer rewards and, thus, reduced commitment. Whether teachers actually leave depends on a host of personal, social, and economic factors" (p. 147). Personal factors include variables outside of the employment arena that may directly or indirectly influence career decisions, such as life circumstances and priorities.

The second model, proposed by Brownell and Smith (1993), is an adaptation of Bronfenbrenner's model that incorporates four nested, interrelated systems: the *microsystem* (the teacher's immediate setting and the interactions that occur as a result of student and teacher characteristics), the *mesosystem* (interrelations among several variables in the workplace, such as collegiality and administrative support), the *exosystem* (formal and informal social structures, including the socioeconomic level of a community), and the *macrosystem* (cultural beliefs and ideologies of the dominant culture, as well as economic conditions that affect schools and teachers' career decisions). Brownell and Smith did not necessarily propose the framework for designing and interpreting attrition/retention research as a causal model to be tested. They expected that variable relationships would be complex and re-

TABLE 1. Special Education Attrition and Retention Studies

Author(s)	Purpose	Definition of attrition/retention	Sample	Methodology/analyses
A High-Quality Teacher for Every Classroom (2002)	To identify factors related to intention to leave (part of larger Study of Personnel Needs in Special Education [SPeNSE])	Intent to leave	More than 6,000 special educators (national sample)	Structured telephone interviews; regression analyses
Billingsley & Cross (1992)	To determine the variables that influence commitment, job satisfaction, and intent to stay in teaching	Intent to leave	463 special educators and 493 general educators in Virginia	Mailed questionnaire; regression analyses
Billingsley, Bodkins, & Hendricks (1993)	To investigate special education teachers' reasons for leaving teaching and related work experiences	Teachers who left special education teaching	42 former special educators in Virginia	Mailed questionnaire; qualitative analyses
Billingsley, Carlson, & Klein (in press)	To identify variables related to intent to leave among early-career special education teachers (part of larger SPeNSE study)	Intent to leave	1,153 beginning special educators (national sample)	Structured telephone interviews; quantitative analyses
Billingsley, Pyecha, Smith-Davis, Murray, & Hendricks (1995)	Study 1: To understand why special educators left their positions and what they did the following year.	Study 1: Teachers who left their teaching positions (large, urban district)	Study 1: 99 special educators who left their positions	Study 1: Mailed questionnaires; descriptive analyses
	Study 2: To gain a better understanding of the influence of career plans, commitment, and job satisfaction of special educators in an urban setting	Study 2: Stayers (intent to stay); leavers (intent to leave); undecided	Study 2: 81 current special educators in large, urban district	Study 2: Standardized, open-ended interview; qualitative and quantitative analyses
Boe, Bobbit, & Cook (1997)	To analyze from a national perspective four components of turnover in the teaching force in public schools and teachers' activities upon leaving	Retention, reassignment, migration, and attrition of special and general educators	Sample sizes vary depending upon question and analyses (national sample)	1987–1988 Schools and Staffing Survey and follow-up survey; descriptive and quantitative analyses
Boe, Bobbitt, Cook, Whitener, & Weber (1997)	To investigate from a national perspective teacher, school, and district characteristics associated with teacher turnover and retention of public school general and special educators	Leavers (left public school teaching); movers (transferred to another school); stayers (remained in same school)	1,612 teachers (188 special educators and 1,424 general educators)	1987-99 Public School Teachers Questionnaire of the Schools and Staffing Survey and Teacher Follow-Up Survey 1989; quantitative analyses
Brownell, Smith, McNellis, & Lenk (1994–1995)	To determine personal, educational, and workplace variables that influence special educators' decisions to leave or stay	Leavers and stayers	14 current and 10 former special educators from a large, urban district	Interviews; qualitative analyses
Brownell, Smith, McNellis, & Miller (1997)	To identify why special educators leave the special education classroom and make distinctions between disgruntled and nondisgruntled leavers	Leavers (switched to general education, moved to administration, or left teaching altogether)	93 randomly selected Florida teachers	Individual phone interviews using protocol; qualitative and quantitative data analysis
Cross & Billingsley (1994)	To determine the extent to which work-related variables, teaching assignments, and personal characteristics explain intent to stay in teaching	Intent to leave	412 special educators and 130 teachers of students with emotional disorders from Virginia	Mailed questionnaire; path analysis

(Table 1 continued)

Author(s)	Purpose	Definition of attrition/retention	Sample	Methodology/analyses
George, George, Gersten, & Grosenick (1995)	To compare variables associated with intent to stay and leave among teachers of students with behavioral disorders	Intent to leave (current teachers of students with behavioral disorders)	96 current special educators (51 who plan to stay and 45 at risk for leaving)	Mailed questionnaire and follow-up interviews; bivariate analyses
Gersten, Keating, Yovanoff, & Harniss (2001)	To examine specific job-design variables and their effects on teachers' intent to stay in or leave the field	Intent to leave	887 special educators in three large, urban school districts	Survey in statement; LISREL analysis
Littrell, Billingsley, & Cross (1994)	To determine the effects of perceived support on teacher stress, job satisfaction, school commitment, personal health, and intent to stay in teaching	Intent to leave	385 special educators of students with LD, MR, and ED and 313 general educators from Virginia	Mailed questionnaire; ANOVA, regressions analyses
Miller, Brownell, & Smith (1999)	To determine workplace variables that were significant predictors of teachers' decisions to leave or transfer from special education	Teachers who left special education teaching or transferred to a similar job	1,208 Florida special education teachers	Survey instrument; multinomial logit model used
Morvant, Gersten, Gillman, Keating, & Blake (1995)	To determine why special educators left their positions	Special educators who left an urban district	17 teachers from an urban district	Qualitative analyses
Schnorr (1995)	To study respondents' incentives to continue teaching, deterrents to teaching in special education, and future plans	Intent to leave	484 teachers endorsed special educators in Alaska	Mailed questionnaire; descriptive analyses
Singer (1992)	To determine how many years special education teachers continue to teach and in what years they tend to leave, as well specific risk factors for leaving	Teachers who left special education teaching	6,642 special education teachers from North Carolina and Michigan	Analyses of extant state data tapes; discrete time survival analysis
Singh & Billingsley (1996)	To examine specific work-related variables and how they influence intent among teachers of students with BD and other special educators	Intent to leave	412 special educators and 130 teachers of students with ED from Virginia	Mailed questionnaire; LISREL analyses
Westling & Whitten (1996)	To determine which conditions or attitudes differed between teachers who indicated they planned to remain and those who did not plan to remain	Intent to leave	158 special education teachers from mainly rural counties	Mailed questionnaire; logistical regression
Whitaker (2000)	To determine the impact of mentoring programs on first-year teachers' plans to remain in special education	Intent to leave	156 first-year special educators in South Carolina	Mailed questionnaire; regression analyses

Note. LD = learning disabilities; MR = mental retardation; ED = emotional disturbance; BD = behavior disorders.

ciprocal and that some variables would correlate more highly with attrition than others.

In this review, a thematic synthesis of findings is provided, including (a) teacher characteristics and personal factors, (b) teacher qualifications, (c) work environment factors, and (d) affective reactions to work. During the last 10 years, the study of work-related factors has been central in special education attrition and retention research; therefore, this review focuses heavily on these factors. Given that external factors were not directly addressed in recent studies, this area is not reviewed (see Billingsley, 1993, and Brownell & Smith, 1993, for a discussion of these factors).

Teacher Characteristics and Personal Factors

The relationship of teacher characteristics to attrition has been studied fairly extensively in the last two decades in general

education attrition research (Darling-Hammond & Sclan, 1996; Grissmer & Kirby, 1987) but has received less attention in special education studies. Although some special education researchers have investigated the relationship between attrition and demographic variables (i.e., age, gender, and race), only age has been consistently linked to attrition. Several studies have also documented the importance that personal circumstances play in some decisions to leave.

Age. Age is the only demographic variable that is consistently linked to attrition in the special education literature. Researchers consistently show that younger special educators are more likely to leave (or express intent to leave) than older special educators (Boe, Bobbitt, Cook, Whitener, et al., 1997; Cross & Billingsley, 1994; Morvant et al., 1995; Singer, 1992). Singer found that young special education teachers leave at a rate nearly twice that of mature teachers. Earlier, Grissmer and Kirby (1987) showed that teacher attrition patterns for both general and special educators followed a U-shaped curve: Attrition was high among younger teachers, low for teachers during the midcareer period, and high again as teachers retired. However, Boe, Bobbitt, Cook, Whitener, et al. (1997) reported that age functioned differently for *leavers* (those who exit public school teaching) than *movers* (those who change positions). They found that leavers showed the characteristic U-function with age, whereas the percentage of movers declined systematically with increasing age. Boe and colleagues found that this relationship held for both general and special educators. Miller et al. (1999) reported that younger special educators were more likely to *transfer* than older teachers; however, this finding did not hold for leavers.

Teachers with less experience are more likely to leave (Miller et al., 1999) and also indicate intent to leave more often than their more experienced counterparts (Cross & Billingsley, 1994; Gersten et al., 2001; Morvant et al., 1995; Singh & Billingsley, 1996). This is to be expected, because age and teaching experience are highly correlated. However, many people now begin teaching when they are older, often as a second career, so age should be controlled while examining experience.

Age affects supply and demand as well as teacher retention. Because attrition rates are sensitive to teacher characteristics, "teacher career persistence may change as the composition of the teaching force changes" (Murnane, Singer, & Willett, 1988, p. 22). As Singer (1992) pointed out, there is a "possibility that future attrition rates computed across all special educators may drop as older teachers comprise a larger fraction of the new teaching force and as special educators hired in response to EHA reach the stable years of mid-career" (pp. 274–275).

The reasons for higher attrition among younger teachers have been discussed fairly extensively in the literature. While some new teachers find the job of teaching satisfying, others encounter frustrations and initial difficulties that discourage them from continuing in their positions (Grissmer & Kirby, 1987; Heyns, 1988; Singer, 1992). Grissmer and Kirby also pointed out that younger teachers have fewer debt oblig-

ations and are less invested in a specific occupation or location. Experienced teachers who leave face retraining costs, as well as the loss of tenure and an experienced teacher's salary (Singer, 1992). Some younger teachers also leave because of family responsibilities, such as decisions to stay home with children.

Gender. The relationship between gender and attrition has been included in only a few special education studies, and findings have been mixed. Boe, Bobbitt, Cook, Whitener, et al. (1997) did not find a relationship between gender and attrition for a national sample of general and special educators. Moreover, no relationship between gender and turnover was found in state studies of attrition (Miller et al., 1999) and intent to leave (Cross & Billingsley, 1994). However, in a study of urban special educators, Morvant et al. (1995) found that male teachers were more likely to indicate intention to leave. Singer (1992) found that young female special educators left the classroom at a higher rate than, and returned at the same rate as, their male counterparts.

Inconsistent findings may be due to differences in the methods and samples used, as well as to changes in the workforce over time. For example, Singer's (1992) data were from a database covering 1972 to 1983; the more recent findings (Boe, Bobbitt, Cook, Whitener, et al., 1997; Miller et al., 1999) reflect teachers of more than a decade later. As Darling-Hammond and Sclan (1996) pointed out, in the previous era, younger women were more likely to leave than men or older women. Women's labor-force participation patterns now more closely resemble men's.

Race. No differences in attrition behavior were found between teachers of different races in a recent national study of special educators (Boe, Bobbitt, Cook, Whitener, et al., 1997), or in studies in Florida (Miller et al., 1999), North Carolina, and Michigan (Singer, 1992). In Virginia, Cross and Billingsley (1994) found that Whites were more likely to stay, but their study focused on intent, not actual behavior.

In one study of special educators working in an urban system, a higher proportion of European American teachers left than African American teachers (Billingsley et al., 1995). This finding is consistent with Dworkin's (1980) finding that White faculty, particularly women, were more likely to want to quit urban school positions than Black or Hispanic faculty.

Personal Factors. Personal finances and perceived opportunities may influence whether teachers stay in or leave the classroom. Special educators who were primary breadwinners were more likely to stay than those who were not (Westling & Whitten, 1996). However, Billingsley and Cross (1992) did not find any differences between breadwinner status and intent to stay or leave. Special educators perceiving a likelihood of finding nonteaching positions plan to teach for shorter periods than those perceiving fewer nonteaching opportunities (Cross & Billingsley, 1994; Singh & Billingsley, 1996). Cross and Billingsley suggested that teachers who attained higher

levels of education, had less experience, and belonged to a minority group were more likely to intend to leave because of better career alternatives outside of education.

In several studies, teachers have indicated that personal reasons unrelated to work contributed to their decisions to leave (Billingsley et al., 1993; Billingsley et al., 1995; Brownell, Smith, McNellis, & Miller, 1997; Morvant et al., 1995). In a study of 99 teachers who exited an urban school system, Billingsley et al. (1995) found that 37% of the special educators indicated that they left primarily for personal reasons (e.g., family move, pregnancy or childrearing, health, retirement). Boe Bobbitt, Cook, Barkanic, and Maislin (1999) reported a similar percentage (35%) of special educators leaving for "personal/family" reasons in a national study of 477 special educators.

Teacher Qualifications

Teacher qualifications have received less attention in the special education attrition literature than any other area. Most of the special education attrition studies include relatively easy-to-obtain measures that are sometimes assumed to be basic indices of quality (e.g., certification status, degrees earned, performance on tests, experience). Because it is difficult to find consensus on what teacher "quality" means (Blanton et al., 2002), the selection of any measure will likely be controversial. Variables such as the nature of preservice experiences, student teaching, and teacher skill or efficacy have rarely been addressed in special education attrition reports.

Certification. There is clear evidence that links certification status to special education teacher attrition. In a study of more than 1,000 Florida special educators, Miller et al. (1999) reported a higher level of attrition among uncertified teachers than certified teachers. In their logit analyses, Miller and colleagues found that certification was a predictor for exit, but not transfer, attrition. Boe, Bobbitt, et al. (1999) reported that being uncertified was associated with a higher level of transfer. In another study, Boe, Bobbitt, Cook, Whitener, et al. (1997) reported that higher levels of turnover were associated with teachers who were not fully certified in their main assignment when general and special educator samples were combined, but not for general and special education samples separately (probably due to a smaller sample). Given these findings, special education teachers on provisional or emergency certificates should be considered at high risk of leaving and in particular need of support.

Academic Ability, Degrees Earned, and Teacher Preparation. Few studies address the relationship of attrition to academic ability, degrees earned, or the quality of teacher preparation, so few conclusions can be drawn. Probably the strongest link is between attrition and performance on standardized tests. For example, Singer (1992) found that teachers with higher National Teacher Exam scores were twice as likely to leave as those with lower scores. In an earlier study, M. Frank and Keith (1984) found that special educators who were more academically able (as measured by the *Scholastic Aptitude Test*) were more likely to leave teaching than those with lower academic performances. Although these measures are not indicators of teaching competence, it is of concern that teachers with higher tested ability are leaving the field.

None of the attrition studies relate level of academic degrees to leaving, moving, or exiting. However, in two studies of intent to leave, those with more training were more likely to indicate they intended to leave (Cross & Billingsley, 1994; Westling & Whitten, 1996). Cross and Billingsley stated that teachers with higher degrees perceived greater employability in nonteaching positions and were therefore more likely to leave.

Other variables studied include perceived preparedness (George, George, Gersten, & Grosenick, 1995; Miller et al., 1999), ranking of own abilities (Westling & Whitten, 1996), ratings of competence (George et al., 1995), and self-efficacy (Brownell, Smith, McNellis, & Lenk, 1994–1995; Miller et al., 1999). Morvant et al. (1995) reported that stayers rated their perceived effectiveness in making a significant difference in the lives of their students significantly higher than leavers. However, in a study of Florida teachers, Miller et al. did not find that self-efficacy was significantly related to teacher attrition. In addition, neither perceived preparedness nor self-rankings have been related to attrition and retention.

Conclusions. Teachers who are uncertified for their positions and those with higher standardized test scores appear to be at a greater risk for attrition than their certified and lower scoring counterparts. However, few conclusions can be made about the relationship between teacher quality and career decisions. Although we do not have strong data to support a relationship between teacher quality and retention in special education, Darling-Hammond (1999) argued convincingly that if teachers are well-prepared in both content and pedagogy, "it makes an enormous difference not only to their effectiveness in the classroom, but also whether they're likely to enter and stay in teaching" (p. 16). She further suggested that better preparation increases career longevity, stating that it is "more expensive to under-prepare people, and then let them spin out again, than it is to prepare people more effectively and keep them in the profession" (p. 17). Moreover, the quality of preparation and support is "as integral to the task as the development of incentives to boost up the supply of people coming in" (p. 18).

Work Environments

Overall, the special education attrition and retention research shows that work environments are important to teachers' job satisfaction and subsequent career decisions. Researchers in attrition and retention define work environments in a range of different ways, use both broad and narrowly defined variables,

define similarly named variables differently, and use a range of analytic approaches to investigate the relationships between work-related variables and attrition. This section addresses the relationship of attrition to specific work environment variables, including salary, school climate, administrative support, colleague support, support through induction and mentoring, professional development, teacher roles, and caseload issues.

Salary. Several special education studies suggest that salary is related to turnover. In three studies, researchers looked at the salaries earned by teachers who actually left and those who stayed. Boe, Bobbitt, Cook, Whitener, et al. (1997) reported that for a national sample of special and general educators, moving and leaving decreased as salary increased. Both Miller et al. (1999) and Singer (1992) also found that special educators with higher paying jobs were more likely to stay than those with lower paying jobs. Billingsley et al. (1995) reported that 10% of those who left an urban setting gave salary as one of the primary reasons for leaving their position. Henke, Choy, Chen, Geis, and Alt (1997) suggested that compensation is an important consideration for current teachers weighing the "tangible and intangible costs and benefits of remaining in the teaching field or in a particular district or school" (p. VI-1). Given these consistent findings, salary should be a strategy that school systems consider to increase retention. There are also equity implications as poorer districts try to compete for teachers. As Henke et al. (1997) pointed out, districts and schools that cannot offer competitive salaries are likely to be at a serious disadvantage when it comes to hiring and retaining teachers.

School Climate. One of the broadest work environment variables included in the special education attrition literature is school climate. The results of three large-scale studies (A High-Quality Teacher for Every Classroom, 2002; Billingsley, Carlson, & Klein, in press; Miller et al., 1999) suggested that teachers who view school climate positively are more likely to stay or indicate intent to stay than those who have less positive views. These researchers measured climate differently: Miller and colleagues defined *school climate* via a three-item scale (e.g., "The morale of the staff in my current school is good"), whereas the other two studies included a wider range of items, such as "School administrative behavior is supportive and encouraging," "Necessary materials are available when you need them," "There is a great deal of cooperation among staff members," and "You feel included in the school."

Many attrition researchers attempt to separate various work-related influences; this is difficult because these influences are inextricably linked. The climate variable is important, because in essence researchers are asking, "Overall, is your school/district a good place to work?"

Administrative Support. Research suggests that teachers are more likely to leave teaching or indicate intent to leave in the absence of adequate support from administrators and colleagues. In a national study, Boe, Barkanic, et al. (1999) reported that teachers who stayed in their positions were almost four times more likely to strongly perceive administrators' behavior as supportive and encouraging than leavers. Miller et al. (1999) also found that perceived support from building administrators was significantly related to attrition behavior. Research on intent supports these findings. George et al. (1995) found that when teachers of students with emotional disorders perceived supervisory support as "adequate" or "more than adequate," there was a greater likelihood that they planned to remain in the field. Special and general educators who reported higher levels of principal support were less likely to be stressed and more likely to be committed to and satisfied with their jobs than those receiving less support (Billingsley & Cross, 1992). Westling and Whitten (1996) found that teachers who planned to stay are more likely than leavers to indicate that they received support from school administrators for inclusion, program enhancement, and problem solving. In a study of incentives to teach in special education, Schnorr (1995) reported that the top-rated incentive was a supportive principal (88%).

Findings on the relationship between central office administration and attrition are mixed. In a study of intent to leave, Gersten et al. (2001) found that central office administrators exerted an indirect influence on attrition via professional development opportunities and stress related to role design (Gersten et al., 2001). However, Miller et al. (1999) did not find a relationship between principal support and attrition. It is likely that the different dependent measures or different analyses employed may have influenced these differences.

In a study of urban teachers, special educators indicated dissatisfaction with central office administrators more frequently than with principals (Billingsley et al., 1995). Billingsley et al. found that 25% of those who left teaching in an urban setting cited dissatisfaction with support from central administration and that 20% indicated that dissatisfaction with principal support influenced their decision to leave. In contrast, general educators were less likely to report dissatisfaction with support from central administrators (10%) and principals (12%). The finding of the effect that central office administrators have on special education attrition is not surprising, particularly given the critical role they play in determining local special education policies, regulating IDEA requirements, and identifying and placing students with disabilities.

Recent path analyses provide a better understanding of how administrative support influences intent to leave through other mediating variables, such as job satisfaction, stress, and commitment. More specifically, in all three path studies, a higher level of support from principals was directly or indirectly associated with more professional development opportunities (Gersten et al., 2001), fewer role problems, greater job satisfaction, reduced stress, and higher levels of commitment (Cross & Billingsley, 1994; Gersten, 2001; Singh & Billingsley, 1996). (Gersten et al. included both principals and teachers in their support variable.)

Defining *support* is difficult, because support is comprehensive in nature and varied in type (Gold, 1996). In this sense, support is a global construct that has many dimensions. Littrell et al. (1994) found that *emotional* support (e.g., showing appreciation, taking an interest in teachers' work, maintaining open communication) was perceived as most important to special educators. They also found that emotional and instrumental support (e.g., helping teachers with work tasks, such as providing needed materials, space, and resources; ensuring adequate time for teaching and nonteaching duties) correlate positively with both job satisfaction and school commitment.

The fact that Littrell et al. (1994) did not find a significant relationship between administrative support and intent to leave is consistent with the path analysis studies described earlier. Administrative support likely influences attrition through other key mediating variables, such as role design, stress, job satisfaction, commitment, and professional development.

Colleague Support. Although administrative support is prominent in the special education attrition literature, less attention has been given to the relationship between colleague support and attrition, and the findings from the research are mixed. Miller et al. (1999) found that lower levels of colleague support were associated with leaving and higher levels of colleague support with staying. Although George et al. (1995) found that about one fourth of teachers of students with behavioral disorders indicated that support from classroom teachers was "totally inadequate," collegial support did not discriminate between those who intended to stay and those who intended to leave. In a study of 99 teachers who left an urban setting, only 4 leavers indicated that problems with colleagues contributed to their decisions to leave (Billingsley et al., 1995). In an open-ended study of 42 teachers who left their positions, none of the respondents identified colleague factors as contributing to their decisions to leave (Billingsley et al., 1993). Reasons for these differences may have to do with how teachers responded (e.g., open-ended survey vs. questionnaire items), whether intent versus leaving behavior was measured, and large differences in sample sizes for these studies.

Although most of the special education attrition studies to date have focused on the role of the administrator in supporting teachers, Singh and Billingsley (1998) suggested that principals enhance commitment through fostering a collegial environment, and that principals who share goals, values, and professional growth foster supportive and collegial learning communities. Gersten et al. (2001) noted that it makes more sense to examine building-level support as the "cumulative impact" (p. 563) of the building principal, assistant principal, and fellow teachers at the school than to examine support from the building principal separately. Although administrators clearly play important roles in supporting teachers, it is limiting to think of support as something that one person provides and another receives. Important to creating a positive school climate is reciprocity of support among special and general educators, administrators, parents, paraprofessionals, and other service providers.

Support Through Induction and Mentoring. Focusing on the support needs of beginning teachers is critical because teachers are at risk of leaving during these years. A large body of literature in general education suggests that the optimism that beginners bring to their work is often replaced with disappointment, discouragement, and disillusionment (Gold, 1996). Beginning teachers struggle with a range of problems, such as discipline, difficult parents, insufficient support, apathy from colleagues, and problems with student behavior (Gold, 1996; Veenman, 1984). Special educators, like general educators, must engage in educational planning, understand the curriculum, and become familiar with school routines. Special educators have numerous additional responsibilities and concerns related to working with students with significant learning and behavioral problems. A few qualitative studies have documented the concerns experienced by beginning special educators, such as managing paperwork; making accommodations for instruction and testing; developing and monitoring IEPs; scheduling students; and collaborating with teachers, paraprofessionals, parents, and related services personnel (Billingsley & Tomchin, 1992; Boyer & Gillespie, 2000; Kilgore & Griffin, 1998).

It is critical that teachers obtain support during the early stages of their careers, when they are most likely to leave. Although early-career teachers are at risk of leaving, only two special education attrition studies specifically reported on the relationship between induction experiences and attrition. Whitaker (2000) investigated what beginning special educators perceive as effective mentoring programs and examined the impact of such programs on their plans to remain in special education. Although the effect size was small, perceived effectiveness of mentoring was significantly correlated with teachers' plans to remain in special education and with special educators' job satisfaction. Billingsley et al. (in press) did not find the level or helpfulness of induction support provided to beginning teachers to be significantly related to their plans to stay; however, those with higher levels of induction support were more likely than those with lower levels of support to see their roles as manageable, to believe that they could get through to the most difficult students, and to believe that they were successful in providing education to students with IEPs. Billingsley et al. and Whitaker used different types of measures and populations, which may account for conflicting results on the relationship between induction support and career intent. For example, Billingsley et al. investigated early-career teachers' intent to stay over an entire career span, whereas Whitaker (2000) looked at plans to remain in or leave special education for the following school year and in the next 5 years.

An important contribution of Whitaker's (2000) study was the identification of specific aspects of effective mentoring, including selecting a *special education* mentor (as opposed to a non–special educator), even if that special educator worked in a different school. Assistance provided in the area of emotional support and the mechanics of the job were particularly important. Billingsley et al. (in press) and Whitaker

also found that more informal contacts were perceived as more effective than formal mentor programs.

Carefully designed induction programs can help teachers cope with these challenging tasks (Billingsley, 2002a; Gold, 1996; Rosenberg, Griffin, Kilgore, & Carpenter, 1997). Novice teachers who are given reasonable assignments, adequate feedback, and personal support are more likely to acquire the skills needed for a satisfying teaching career and to develop greater commitment to teaching (Rosenholtz, 1989; Yee, 1990).

Professional Development. Professional development can be thought of as one dimension within the broad concept of support. Several researchers have found a relationship between professional growth opportunities and attrition (Brownell et al., 1994–1995; Gersten et al., 2001; Morvant et al., 1995). In a study of teacher attrition in three urban systems, Gersten et al. found that professional development had an indirect effect on teachers' intent to leave and a direct influence on their commitment to the profession. In the Gersten et al. study, *professional development opportunities* referred to the degree to which special educators perceived that they had opportunities to grow and advance professionally. "This scale measures satisfaction with items such as opportunities to learn new techniques and strategies and opportunities for professional advancement and promotion" (pp. 555–556). Teachers who perceived greater professional development opportunities also experienced less role dissonance. Findings from the Gersten et al. study suggest the importance of support at both the district and the school level. It is interesting to note that over half of those surveyed in this urban study did not feel that there were many opportunities to learn new techniques and strategies in their district (Morvant et al., 1995).

Brownell et al. (1994–1995) reported in their interview study that stayers were more likely to assume at least some responsibility for their own professional development and to initiate actions to continue their own learning. They also found that only stayers discussed the importance of university training to their professional development. Brownell et al. suggested that the degree of satisfaction with professional development opportunities is influenced by the content, timing, and quality of the opportunities, as well as incentives for participating. Although Miller et al. (1999) did not find that satisfaction with professional opportunities related to the attrition behavior of special educators, this difference may be due to differences in samples, measures, and analytic measures used.

Teacher Roles. Problems with role overload and design have been strongly linked to special education attrition. Regardless of whether quantitative or qualitative methods are used, research results provide convincing evidence that role problems significantly interfere with special educators' job satisfaction and their ability to be effective with their students.

The specific role-related problems are not simple or isolated. As Billingsley et al. (1995) stated, "*Multiple* problems *interact* and create what teachers sometimes view as stressful, overwhelming work situations." As one special educator pointed out, her paperwork increased every time she received another student (Billingsley et al., 1995). Corcoran, Walker, and White (1988) also suggested that the lack of resources increases the teacher's workload, and a heavy workload makes it very difficult to use available resources. Many of the work-related problems identified in these attrition and retention studies are similar to the concerns expressed by special educators in the recent report on working conditions, *Bright Futures for Exceptional Learners: An Action Agenda to Achieve Quality Conditions for Teaching and Learning* (Council for Exceptional Children, 2000).

Role Problems. A number of researchers (Billingsley & Cross, 1992; Cross & Billingsley, 1994; Gersten et al., 2001; Morvant et al., 1995; Singh & Billingsley, 1996) have reported a relationship between different types of role problems (e.g., role overload, role conflict and ambiguity, role dissonance) and the intent to leave teaching. Workload manageability has also been included as a measure in some attrition studies. Specifically, Morvant et al. (1995) found that only half of the special educators in their study felt that their workload was manageable. Sixty-eight percent felt they had too little time to do their work, and almost one third found conflicting goals, expectations, and directives to be a frequent source of stress. However, Miller et al. (1999) did not find that role conflict or manageability had an effect on leaving behavior (but they studied teachers in Florida, where school psychologists and counselors handle much of the testing and paperwork burden).

Research results have suggested that role problems create stress (Gersten et al., 2001) and decrease job satisfaction (Cross & Billingsley, 1994; Gersten et al., 2001). An important finding was that teachers who perceived greater principal support also perceived fewer role problems than those receiving less support. Qualitative studies also have supported the relationship between role problems and attrition. Billingsley et al. (1993) reported that, in open-ended interviews, special educators gave job-design factors (e.g., lack of time, lack of resources, paperwork, excessive meetings) as reasons for leaving more often than any other factor.

Other job-design factors have been identified with teachers' plans to stay. Westling and Whitten (1996) identified specific role factors associated with teachers' plans to stay: clearly defined responsibilities; adequate time to complete paperwork, plan instruction, and prepare materials; and teacher agreement with program goals.

Paperwork. Paperwork is a major contributor to role overload and conflict. Recent studies have consistently identified paperwork as a problem that contributes to teacher attrition (e.g., Billingsley et al., 1993; Billingsley et al., 1995; Brownell et al., 1994–1995; George et al., 1995; Morvant et al., 1995; Schnorr, 1995; Westling & Whitten, 1996). In particular, findings from the largest study investigating paperwork (Paperwork in Special Education, 2002) suggested that paperwork problems were significantly related to special educators'

intent to leave teaching, after many other work-condition variables were controlled. According to Westling and Whitten (1996), those planning to leave rated the item "has adequate time to complete paperwork" significantly lower than those planning to stay. In a study of Alaska teachers (Schnorr, 1995), 71% of respondents indicated that paperwork was a major deterrent to special education teaching. Qualitative results support these findings. Billingsley et al. (1995) found that 60% of special educators who planned to leave teaching in an urban district cited paperwork as a major contributor to their decision. Billingsley et al. emphasized, in their 3-year study, "Whenever teachers were given an open-ended opportunity to express concerns, paper work was sure to emerge as one of their greatest frustrations" (p. 7.14).

The extent of paperwork is also significantly related to the overall manageability of special educators' jobs. According to a recent report, the typical special education teacher spent 5 hours per week completing forms and doing administrative paperwork, which was as much time as they spent preparing for lessons (Paperwork in Special Education, 2002). More than half of the special educators reported that routine duties and paperwork interfered with their teaching to a "great extent." General educators were significantly less likely to indicate that routine duties and paperwork interfered with their teaching (Paperwork in Special Education, 2002). Billingsley et al. (1995) also reported that general educators were less likely than special educators to view paperwork as a problem: 35% of the special educators and 12% of the general educators in their study cited paperwork as one of their most pressing problems.

Understanding what teachers mean by "excessive paperwork" is highlighted in some qualitative attrition studies. Special educators have described paperwork as overwhelming, unnecessary, redundant, and intimidating (Billingsley et al., 1995). In Billingsley et al.'s study, some interviewees said that they did not have the time to complete required paperwork, that there was too much pressure to complete paperwork, and that paperwork requirements were inconsistent or unnecessary. Morvant et al. (1995) provided one leaver's description of the problem:

> You don't only have to test 'em. You have to write up your results. But, before you ever do it, you have to get all these permission forms signed and all the referrals and the request for services—and the paperwork . . . gets worse every year. And then test, write up the results, get all the paperwork ready for the first conference, notify all the other people that have to sit in on that. And then you have your professional conference, and then you have to have another one where the parent comes. And it just goes on and on. And you have paperwork for every one of these conferences. (p. 3-14)

Although paperwork and related responsibilities are a problem for many special educators, not all leavers view these responsibilities as contributing to their decisions to leave. Why some teachers see paperwork as a major obstacle and others do not cannot be answered in this review. It is likely that different state, district, and/or school practices influence the responsibilities that teachers are given. In some systems, school psychologists may have a larger share of the responsibility for testing and identification, reducing responsibilities for teachers. In another district, one of several teachers in a school may serve as a school coordinator and have a disproportionate share of the paperwork burden. Still other teachers may have found effective ways of keeping these additional responsibilities to a minimum.

Service delivery and changing roles. No conclusions can be drawn about the relationship between teaching in a particular service-delivery model (e.g., resource, self-contained, inclusion) and attrition. George et al. (1995) found that teachers of students with emotional disorders in self-contained classroom planned to leave the field significantly more often than resource room teachers.

Recent evidence suggests that some special educators struggle with changing roles and shifts in responsibilities as districts move toward greater inclusion. For example, on the basis of interviews with leavers, Morvant et al. stated, "Teachers indicated a desire to spend more time providing direct instructional services to students and less time coordinating with classroom teachers and serving essentially as 'case managers' of students' schedules and programs" (p. 3-26). Teachers implicated the loss of paraprofessionals (who were reassigned to general education classrooms), the increased complexity of scheduling students, and the expectation for meaningful teacher-to-teacher collaboration without planning time. As one teacher said,

> It's an idealistic situation, and I can't see it working. If I have children from three different classrooms and two different grades, they can come together and form a group. And I can work with them in a short time period and accomplish something. But now, with [the new model] I am supposed to go to these individual rooms. Now where in an hour can I go to three different rooms and accomplish anything? (p. 3-13)

In an investigation of teacher burnout, Embich (2001) concluded that teachers who worked primarily in general education classrooms were at more risk of burnout than teachers in more traditional settings (e.g., resource, self-contained classrooms). Embich noted that the responsibilities of those who team teach have expanded and include a wider range of services (e.g., teaching, work in general education classrooms, collaboration) than those working in resource or self-contained models. These team teachers are often involved in working where they are not wanted and in areas for which they have had little preparation.

The move toward inclusion contributes to role conflict for some special educators. If special educators have beliefs

that differ from the philosophy of the school, they may seek other positions. Moreover, special educators who find it difficult to implement an inclusive program because of inadequate support systems or resistance from general educators may also find their work unfulfilling and look elsewhere. Administrators need to be particularly aware of the support needs of teachers as major shifts occur in their roles and responsibilities.

Students and Caseload Issues. In a large-scale study of teachers between 1972 and 1983, Singer (1992) found that special educators in secondary schools stayed an average of 1.6 years less than their colleagues in elementary schools. Additionally, teacher attrition by disability area varied. Teachers of students with learning disabilities, physical/multiple disabilities, and mental retardation were the least likely to leave teaching. Those working with students with emotional problems were somewhat more likely to leave. Teachers working with students with speech, hearing, or vision impairments were the most likely to leave, perhaps because of more opportunities outside of education (Singer, 1992). As some states move toward noncategorical and inclusive programs, such comparisons across disability are making less sense. A recent national study of special educators revealed that 80% of teachers worked with students with two or more exceptionalities and 32% of teachers worked with students with four or more different primary disabilities (A High-Quality Teacher for Every Classroom, 2002).

Although caseloads have increased in size (McLeskey et al., this issue), no empirical studies have shown a relationship between the number of students on teachers' caseloads and attrition. George et al. (1995) also found no relationship between size of caseload and teachers' intent to leave in a study of teachers who taught students with emotional disorders. Although there have been no findings relating attrition to numbers of students taught, teachers consistently report problems with caseload size and give caseload issues as reasons for leaving (Billingsley et al., 1993; Billingsley et al., 1995; Brownell et al., 1994–1995; Morvant et al., 1995; Schnorr, 1995). In a study of urban special educators who left teaching because of dissatisfaction (Billingsley et al., 1995), 33% indicated "class size/caseload too large" and 25% indicated "inappropriate placement of students with disabilities." It may be not simply the number of students but, rather, the diversity of caseloads that is problematic for teachers. Carlson and Billingsley (2001) suggested that special educators who planned to leave as soon as possible were significantly more likely to teach students with four or more different primary disabilities (42%), compared to those planning to stay.

Related to caseload issues are the problems that teachers encounter with students. Researchers have linked a range of student-related problems to attrition, such as discipline problems (Billingsley et al., 1993; Billingsley et al., 1995; Brownell et al., 1994–1995; Brownell et al., 1997), students' attitudes (George et al., 1995), lack of student progress (Bill-

ingsley et al., 1995; Brownell et al., 1994–1995), safety issues (Billingsley et al., 1995; Brownell et al., 1997), and diversity of student needs (Billingsley et al., 1995; Brownell, Smith, et al., 1997). In a review of general education teachers who departed because of low job satisfaction (Ingersoll, 2001), a quarter of the dissatisfied teachers who left indicated that student discipline problems and lack of student motivation were two primary reasons. However, few conclusions can be drawn about the extent to which student issues contribute to the attrition problem in special education. Miller et al. (1999) did not find a link between satisfaction with student relationships and attrition. Billingsley et al. (1995) found that student issues were a less important factor in attrition than other types of problems, such as inadequate administrative support, caseload, and role problems. Westling and Whitten (1996) said, "Teachers who planned to leave were not doing so because of the students they were teaching or the type or severity of their disabilities" (p. 330).

Affective Responses to Work

Excessive and prolonged work problems lead to negative affective reactions, such as increased stress, lower job satisfaction, and reduced organizational and professional commitment. The combination of multiple, interacting work problems (e.g., too many students, too much paperwork, too little support, and the lack of needed resources) clearly weakens teachers' ability to be effective and thereby reduces their opportunities for the positive intrinsic rewards that are important to teachers (Billingsley et al., 1995).

Stress. Stress was one of the most powerful predictors of special educators' attrition in a large-scale Florida study (Miller et al., 1999). Other researchers have found that perceived stress is related to intent to leave (Billingsley & Cross, 1992; Cross & Billingsley, 1994; Gersten et al., 2001; Morvant et al., 1995; Schnorr, 1995; Singh & Billingsley, 1996). In Morvant et al.'s study, almost 80% of those who planned to leave indicated that they felt under a great deal of stress on a weekly or daily basis, compared to just over half of the stayers. Leavers also indicated significantly more frequent stress than stayers due to (a) the range of students' needs and abilities; (b) bureaucratic requirements; and (c) conflicting expectations, goals, and directives.

Researchers have studied the effects of stress and burnout among special educators for more than two decades (Banks & Necco, 1987; Cooley & Yovanoff, 1996; Embich, 2001; A. R. Frank & McKenzie, 1993; Wisniewski & Gargiulo, 1997; Zabel & Zabel, 2001). Chronic stress leads to burnout, which Maslach (1982) defined as exhaustion, powerlessness, and depersonalization. Frank and McKenzie found that entering teachers experienced slow yet steady increases in emotional exhaustion over a 5-year period.

Some of the factors that cause burnout, such as stress and lack of support systems, are also associated with attrition.

Consequently, many of the strategies designed to reduce burnout have also been recommended for improving retention (e.g., administrative and collegial support). Cooley and Yovanoff (1996) found that a stress-management workshop and a peer-collaboration program improved teachers' job satisfaction, reduced burnout, and increased organizational commitment. Participants who learned stress management techniques and learned to collaboratively identify and solve problems outperformed control groups on job satisfaction, burnout control, and organizational commitment.

Job Satisfaction. Increasing teachers' job satisfaction is one of the most important ways to reduce attrition, because job satisfaction and attrition are strongly linked in studies of career intentions (e.g., Billingsley & Cross, 1992; Billingsley et al., 1995; Brownell, Smith, et al., 1997; Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996; Westling & Whitten, 1996; Whitaker, 2000). Gersten et al. found that satisfaction reflects greater differences between those intending to stay and those intending to leave than other factors.

The path models described earlier (Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996) show how different work conditions influence job satisfaction. Paying attention to creating supportive relationships with teachers and principals, reducing stress, clarifying roles, and providing professional support should help teachers derive more satisfaction from their work.

Commitment. *Commitment* can be defined as comprising (a) a strong belief in and acceptance of an organization's/profession's goals and values, (b) a willingness to exert significant effort on behalf of the organization/profession, and (c) a strong desire to maintain membership in the organization/profession (Mowday, Porter, & Steers, 1982). Several special education studies have suggested that teachers with higher levels of professional and organizational commitment are more likely to stay (Miller et al., 1999) or intend to stay (Billingsley & Cross, 1992; Gersten et al., 2001; Littrell et al., 1994) in teaching.

Higher commitment among special educators has also been associated with leadership support (Billingsley & Cross, 1992; Cross & Billingsley, 1994; Gersten et al., 2001; Littrell et al., 1994); fewer role problems (e.g., conflict, overload, dissonance; Billingsley & Cross, 1992; Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996); lower levels of stress (Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996); more teaching experience (Cross & Billingsley, 1994); and higher levels of job satisfaction (Billingsley & Cross, 1992; Cross & Billingsley, 1994; Gersten et al., 2001; Littrell et al., 1994). An interesting area for further study is the degree to which initial commitment contributes to subsequent career decisions (Billingsley, 1993; Brownell et al., 1994–1995; Chapman & Green, 1986).

Summary of Research Findings

A decade of research shows that teacher and work factors are critical to special educators' job satisfaction and their subsequent career decisions. Attrition researchers have identified several key teacher characteristics and qualifications that influence teachers' decisions to leave special education:

1. Younger and inexperienced special educators are more likely to leave than their older, more experienced counterparts.
2. Uncertified teachers are more likely to leave than certified teachers.
3. Special educators with higher test scores (e.g., National Teacher Exam) are more likely to leave than those with lower scores.
4. Teachers' personal circumstances (e.g., family move, decision to stay home with children) often contribute to attrition.

The majority of attrition studies have focused on the effects of district and school working conditions, work assignment factors, and teachers' affective reactions to their work. Work environment factors associated with staying include higher salaries; positive school climate; adequate support systems, particularly principal and central office support; opportunities for professional development; and reasonable role demands. Problematic district and school factors—especially low salaries, poor school climate, lack of administrative support, and role overload and dissonance—lead to negative affective reactions to work, including high levels of stress, low levels of job satisfaction, and low levels of commitment. These negative reactions may lead to withdrawal and eventually attrition.

Critique of Definitions, Conceptual Models, and Methodologies

Compared to the exploratory literature prior to 1992, the current research base is stronger and provides greater direction to those interested in improving teacher retention. However, the current frameworks and the range of definitions, samples, measures, and analysis strategies used to study attrition still make it difficult to answer important questions. In this section, I review and critique definitional, conceptual, sample, and methodological considerations in retention and attrition studies.

Definitions of Attrition

Table 1 highlights the varied definitions of attrition used in each special education study. Subtle differences in the way attrition is defined can result in major differences in research

findings (Billingsley, 1993). There is not a single definition of attrition; rather, policy and research contexts frames the definitions (Grissmer & Kirby, 1987).

It is encouraging that several large-scale studies now clearly define and differentiate among different types of leavers (Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al., 1997; Miller et al., 1999). These studies reveal differences between teachers who transfer to other teaching positions and those who exit teaching (see the earlier discussion on teacher characteristics).

Although some might argue that there should be a greater focus on the examination of attrition than on intent to leave, others have noted that there is a positive relationship between career intentions and later decisions (Boe, Barkanic, et al., 1999; Gersten et al., 2001). However, more needs to be known about the strength of this relationship. Studying intent is also important if we consider Gold's (1996) suggestion that we develop a broader definition of retention,

> one which encompasses not only teachers' decisions to leave teaching or to stay but also the concept of engagement or involvement in teaching. This definition suggests a corresponding commitment to teaching that needs to be a focus of retention, not simply retaining all teachers on the job. (p. 548)

Researchers also need to carefully consider how they ask teachers about their career intentions. For example, researchers include different time frames for leaving as well as different ideas about what leaving means (e.g., whether one plans to leave teaching, a district, or the teaching field altogether). Westling and Whitten (1996) used multiple-choice items asking about special educators' intent to remain in the same position/similar position in the next school year and in 5 years. Cross and Billingsley (1994) asked special and general educators to "Please check which of the following comes closest to describing how long you plan to teach" (p. 413), followed by five choices, up to retirement. Westling and Whitten addressed a relatively short time frame, whereas Cross and Billingsley considered teachers' career plans over a longer span of time. Researchers will clearly get different kinds of information, depending on how these questions are asked. Both types of questions and measures are appropriate, depending on the specific populations, intents, and purposes of the study. It would be logical to assume that short-term plans will have a stronger relationship to attrition than long-term plans.

Conceptual Models

Studies of special education attrition over the last 10 years have been more comprehensive than the earlier exploratory studies, due in part to stronger conceptualizations of the factors associated with attrition (e.g., Billingsley, 1993; Brownell & Smith, 1992) and the support offered through federal funding.

Recent reports include important variables that were not investigated in earlier special education studies, such as school climate (A High-Quality Teacher for Every Classroom, 2002; Miller et al., 1999), mentoring (Billingsley et al., in press; Whitaker, 2000), manageability of work (A High-Quality Teacher for Every Classroom, 2002; Morvant et al., 1995), and self-efficacy (Miller et al., 1999). Some of the more recent studies have also included comparisons between general and special educators (A High-Quality Teacher for Every Classroom, 2002; Billingsley et al., 1995; Boe, Bobbitt, & Cook, 1997; Boe, Bobbit, Cook, Whitener, et al., 1997). Although the knowledge base is growing, greater attention needs to be given to the framing of these studies, particularly models for examining turnover.

An important question is the extent to which existing special education conceptual models of attrition (e.g., Billingsley, 1993; Brownell & Smith, 1993; Gersten et al., 2001) help to frame and interpret attrition research findings. Existing research studies include many variables but few theories. Unlike most special education research, attrition research in general education tends to be more focused and theory-driven. Gold (1996) summarized the basis of some attrition models used in general education (e.g., social learning theory, organizational theory, career-choice theories, economic cost–benefit analysis, human capital theory). Future studies need to be carefully conceptualized and focused.

Samples

In general, studies conducted in the last 10 years have included larger samples (e.g., Billingsley et al., in press; Cross & Billingsley, 1994; Gersten et al., 2001; Miller et al., 1999; Singer, 1992) from more geographically diverse areas than earlier studies. The studies listed in Table 1 include samples from a number of states (e.g., Alaska, Florida, North Carolina, Michigan, South Carolina, Virginia); several urban cities (Billingsley et al., 1995; Brownell et al., 1994–1995; Gersten et al., 2001; Morvant et al., 1995); rural settings (Westling & Whitten, 1996); and nationally representative groups of teachers (Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al., 1997).

Interpreting special education attrition findings is problematic because different attrition definitions lead to varied samples. Some samples address only a particular group of teachers, such as teachers of students with emotional disorders (George et al., 1995) or beginning special educators (Billingsley et al., in press; Whitaker, 2000). Other samples are from specific states (e.g., Florida, Virginia), with specific state characteristics and district practices. One third of the studies included small samples (fewer than 100 teachers). Moreover, most studies gathered data at only one point in time. An exception to this was the longitudinal study by Singer (1992), which examined more than 6,600 teachers from two states between 1972 and 1983.

Research Methods

Most attrition studies in Table 1 involved the use of questionnaires and surveys to explore the range of variables associated with attrition. Researchers analyzed these data using several approaches, one of which was investigating bivariate relationships to determine if a particular variable (e.g., age, gender, salary) was associated with special education attrition (e.g., George et al., 1995; Grissmer & Kirby, 1987; Morvant et al., 1995). Some of the researchers who have investigated bivariate relationships focused primarily on the relationships of a particular class of variables and turnover, such as demographic variables (Grissmer & Kirby, 1987); others have focused on a greater number of work and demographic variables (Morvant et al., 1995; Westling & Whitten, 1996).

Other researchers have used multivariate methods to investigate attrition and retention. Singer (1992) conducted the only longitudinal study, using survival analysis to track special educators for up to 13 years. Miller et al. (1999) and Westling and Whitten (1996) used logit models to identify significant predictors of attrition. Miller et al. argued that the multinomial logit analyses identified variables that have the most direct effect on attrition, thus allowing for more parsimonious models of attrition.

Path models have been used to test causal relationships among various work-related variables (e.g., support, professional growth, role demands, commitment) believed to be important to job satisfaction, commitment, and ultimately teacher retention (Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996). Researchers should continue to use multivariate methods, which demonstrate the dynamic interactions between important variables and career decisions while controlling for effects of other variables.

Only a few researchers use qualitative methods in attrition studies. These include open-ended surveys of leavers (Billingsley et al., 1993) and interviews with teachers who have left (Brownell et al., 1994–1995; Brownell, Smith, et al., 1997; Morvant et al., 1995) and those who intend to leave (Billingsley et al., 1995). These survey and interview studies provide a basic understanding of factors that influence career decisions but do little by way of depicting the lives of special educators or the critical transition points that lead to withdrawal and eventually attrition.

Research Priorities

The previous discussion addresses issues important to the design of attrition research in special education (e.g., definition, samples, methodologies). This section identifies knowledge gaps in the literature and proposes several priorities for research.

Teachers' Perspectives

Although teacher questionnaires are used in most of these studies, few researchers gave teachers the opportunity to frame issues from their perspectives. Only a few researchers asked special educators why they left or solicited their views on their work lives (Billingsley et al., 1993; Billingsley et al., 1995; Brownell et al., 1994–1995; Brownell et al., 1997; Morvant et al., 1995). Although these studies requested information in an open-ended manner, the data were collected at only one point in time—usually, soon after teachers left their positions. Very little attention has been paid to problems within a school, descriptions of what these problems mean to teachers on a day-to-day basis, or how certain problems and issues contribute to decisions to leave over time. Future studies should address teachers' perspectives, observations of their work lives, and revelations in teacher journals, to provide a better understanding of important contributors to job satisfaction, commitment, stress, and career decisions. Moreover, an in-depth analysis of stayers would provide a better understanding of why some special educators remain involved and committed to working with students with disabilities for many years.

Teacher Preparation and Quality

The relationship between teacher quality and retention has received little attention, and few conclusions can be drawn. Singer (1992) provided evidence that teachers with higher test scores were more likely to leave. However, little is known about how educational background, preparation, or classroom practice is related to career longevity. Longitudinal studies of special educators from their entry into teacher preparation programs through their first 5 years of teaching are needed. A closer look is needed at the role that teacher preparation plays in the development of special educators' career dispositions (e.g., involvement, initial commitment) and decisions to stay or leave. Given the high percentages of uncertified beginning teachers who enter special education (Billingsley, 2002b), more information is needed about why some uncertified teachers leave after a short time while others pursue certification and remain in special education teaching.

Teacher Induction

Future research must address programs and strategies to reduce attrition among beginning teachers, given that they are at most risk of leaving. A neglected aspect in the attrition literature is beginning teachers' perspectives, their qualifications, and the work factors that influence their decisions to stay and leave. As Pugach (1992) observed, a "major question that has not been addressed in the attrition/retention literature is the socialization of what goes on in between choosing to become a special education teacher and choosing to leave" (p. 134). One way to address this gap in the literature is to study teachers during their preparation programs and follow them through the early career period.

A better understanding of special educators' transition into teaching would provide critical information on how to best support them. There is increasing interest in supporting

beginning teachers (e.g., Boyer & Gillespie, 2000; Rosenberg et al., 1997; Whitaker, 2000); however, few studies examine the specific needs of beginning special educators, and even fewer reports are available on the effectiveness of induction programs. As Gold (1996) stated, "There is an urgent need for data regarding the effectiveness of different types and sources of support for new teachers" (p. 560).

Supporting Teachers

Support has been shown to be critical to teacher retention, particularly administrative support. However, the relationship between collaboration and attrition has received only scant attention in the attrition literature. Given the different cultures in general and special education (Pugach, 1992) and the isolation that many special educators experience (Council for Exceptional Children, 2000), collaborative environments have the potential to help cultivate better understanding between general and special educators and foster a sense of belonging for special educators. Moreover, research suggests that collaborative environments have the potential to benefit teachers by preventing burnout, heightening teachers' sense of efficacy, and improving teachers' knowledge base (Brownell, Yeager, Rennells, & Riley, 1997). Future research should consider the nature and extent of collaboration and its effects on special educators' affective reactions to work and career plans. Moreover, because administrative support is strongly related to attrition among teachers, we need to know more about what supportive administrators do and how they promote positive school climates and working conditions in special education.

Role Overload and Dissonance

Certain working conditions are important for effective teaching (e.g., reasonable role expectations, time to teach and collaborate, support of colleagues and administrators). One question that remains unanswered is the extent to which school, district, state, and federal requirements contribute to the overload that teachers report. Some qualitative data (Billingsley et al., 1995; Morvant et al., 1995) have suggested that it is not the paperwork itself but the combination of meetings, forms, testing, scoring, written reports, scheduling, and paperwork that creates the problem. Questions include

- What in particular contributes to role overload and dissonance? What contextual factors make role problems better or worse?
- What needs to occur in a district/school to allow teachers to devote more time to student-centered tasks? Are there states or districts in which special educators report fewer role-related problems than others? If so, what are these districts/states doing differently?
- What are reasonable caseloads, given the demands of different service-delivery models (e.g., resource, self-contained, inclusion)?

Comparisons

Comparisons of particular groups of teachers will help provide important information about the differential effects of teacher characteristics, teacher qualifications, and work conditions on attrition-related variables. It is important to investigate those who leave (both transfer and exit) and those who stay, as several researchers have done (Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al., 1997; Miller et al., 1999). Given the need for greater diversity in the special education teacher population (Tyler, Yzquierdo, Lopez-Reyna, & Flippin, this issue), more information is needed about retaining teachers of color.

Studies of attrition should consider comparisons such as (a) factors that influence different types of attrition (exit, transfer, stay); (b) differences among geographic regions and types of school districts (e.g., rural, suburban, urban); (c) teachers working in more inclusive models versus traditional models; (d) teachers working with high-incidence versus low-incidence student groups; (e) differences in high- and low-attrition districts; and (f) teachers who work with children from racial and cultural backgrounds different from their own.

Summary and Implications

This review indicates that a wide range of factors influence attrition, including teachers' personal circumstances and priorities. Most of the attrition studies have focused on problematic work environment variables and their relationships to attrition. This review suggests that work environment factors (e.g., low salaries, poor climate, lack of administrative support, role problems) can lead to negative affective reactions (e.g., high levels of stress as well as low levels of job satisfaction and commitment). These negative reactions lead to withdrawal and eventually attrition. General educators also experience some of these same problems. In a national study of teachers (Ingersoll, 2001),

> the data show that, in particular, low salaries, inadequate support from the school administration, student discipline problems, and limited faculty input into school decision-making all contribute to higher rates of turnover, after controlling for the characteristics of both teachers and schools. (p. 7)

In addition, teacher characteristics and qualifications that are linked to attrition include the following: (a) Special educators who are younger and inexperienced are at higher risk of leaving than their older and more experienced counterparts, (b) those who are uncertified are more likely to leave than those who are certified, and (c) those with higher test scores are more likely to leave than those with lower scores.

Policymakers and administrators interested in reducing attrition must facilitate the development of better work environments for special educators. Issues such as overload and

the need for critical supports (e.g., administrative support, professional development) must be addressed to ensure that teachers can be effective in their work. Focusing on one or two aspects of teachers' work lives will probably be insufficient to substantially reduce attrition. For example, providing beginning teachers with formal induction programs is not likely to be effective in the long run unless their work assignments are also reasonable. A holistic look at creating positive work environments should not only reduce attrition behavior but also help sustain special educators' involvement in and commitment to their work.

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