Special Education Teacher Retention and Attrition:
A Critical Analysis of the Literature

Prepared for the Center on Personnel Studies in Special Education

by
Bonnie S. Billingsley
Virginia Tech, Blacksburg

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COPSSE research is focused on the preparation of special education professionals and its impact on beginning teacher quality and student outcomes. Our research is intended to inform scholars and policymakers about advantages and disadvantages of preparation alternatives and the effective use of public funds in addressing personnel shortages.

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P.O. Box 117050
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CONTENTS

ABSTRACT

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, this paper provides a thematic synthesis of studies investigating factors that contribute to special education teacher attrition and retention. Five major themes are addressed: (1) teacher characteristics, (2) personal factors, (3) teacher qualifications, (4) work environments, and (5) 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 well as priorities for future research.

INTRODUCTION

One of the most important challenges in the field of special education is developing a qualified work force and creating work environments that sustain special educators' involvement and commitment. For decades the supply and demand of special educators has been of concern to policy makers (Morsink, 1982; Smith-Davis & Billingsley, 1993; Smith-Davis, Burke, & Noel, 1984). The field has an insufficient supply of new teachers as well as qualified teachers who are not currently teaching to fill vacancies. For example, administrators report that a shortage of qualified applicants is the greatest barrier to obtaining special education teachers (Carlson, 2001). Carlson found that local school administrators reported job openings for 69,249 special educators (positions for which personnel were recruited in 1999-2000). In addition, Carlson (2001) found that as of October, 1999, over 50,000 special education teachers were newly hired, and, at that same time, over 12,000 positions were left vacant or filled by a substitute because a suitable candidate could not be found.

These recent data are consistent with the trend over the last ten years. There has been a clear upward trend in the number of teachers needed over time to fill vacancies and replace unqualified personnel. Roughly 10% of special educators are not fully certified for their positions, according to *Bright Futures for Exceptional Learners: An Action Agenda to Achieve Quality Conditions for Teaching and Learning* (Council for Exceptional Children [CEC], 2000). However, these statistics may not fully illustrate the extent of the teacher shortage problem in special education. For example, school districts may reduce services to students with disabilities or raise class size limits (Billingsley, 1993; Darling-Hammond & Sclan, 1996).

The shortage problem has serious implications for students with disabilities if they are being taught by people with less than adequate preparation. Darling-Hammond and Sclan (1996) discuss a range of consequences of the shortage problem, including inadequate educational experiences for students, reduced student achievement levels, and insufficient competence of graduates in the work place.

Although the causes of the special educator shortage problem are complex, the retention of teachers is a critical part of solving the problem. As Ingersoll (2001) observes, the shortage problem will not be solved by recruiting thousands of new people into teaching if many leave after a few short years.

It is critical to know how many teachers are leaving and what they do upon leaving. 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 other teacher groups (Ingersoll, 2001). There are limited data comparing special and general education teacher attrition, but national data give some indication of rates. Boe, Barkanic, and Leow (1999) state that there has been a "fairly high level of school attrition in the public school teaching force" (p. 6) with about 7% of teachers moving to other positions and 6% exiting teaching altogether for a total of 13%. Special and general education teachers leave at about the same rates; however, special educators are significantly more likely than general educators to transfer to other teaching assignments (Boe, Cook, Bobbitt, & Weber, 1998).

The field of special education loses many teachers to general education (Billingsley & Cross, 1991b). A higher percentage of special educators transfer to general education than the reverse (Boe et al., 1998). Schnorr (1995) reports that of teachers who plan to leave special education, 12% want to transfer to general education. For the most part, general education teachers who hold both general and special education certification are not interested in transferring to special education (Billingsley & Cross, 1991a).

Clearly, teacher attrition is a major contributor to the teacher shortage problem in special education. Understanding the rates at which teachers leave is important, because most teachers are hired to replace those who leave rather than to meet the "needs of expanding enrollment, or smaller class sizes, or new programs" (Grissmer & Kirby, 1987, p. 2). (A comprehensive discussion of attrition rates and how teacher attrition contributes to the supply and demand of special educators is provided in McLeskey, Tyler, & Saunders (2002).

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 research through the early 1990s, mostly state data and small-scale studies. The goal of the present paper is to extend their initial findings by synthesizing research since 1992. Specifically, this paper considers: (1) thematic synthesis of studies investigating factors that contribute to special education teacher attrition and retention; (2) a critique of definitional, conceptual, and, methodological approaches used to study special education attrition; and (3) priorities for future research.
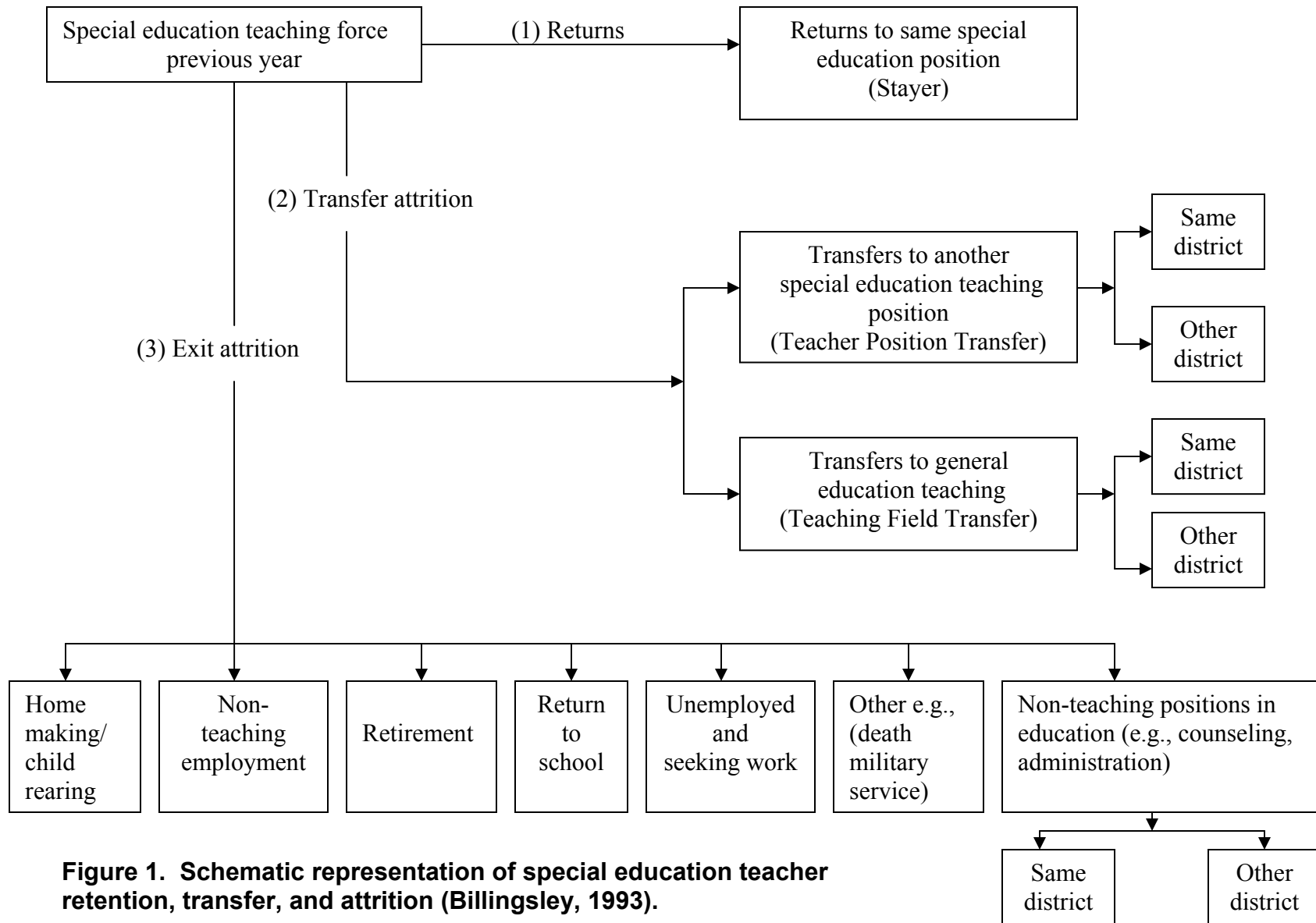
Figure 1. Schematic representation of special education teacher retention, transfer, and attrition (Billingsley, 1993).

LITERATURE REVIEW

Methodology

For this paper, electronic databases (i.e., ERIC, Psychological Abstracts) were searched using terms such as special education teacher attrition, retention, turnover, and transfer. Studies prior to 1992 were not included, because they have been previously reviewed in either Billingsley (1993) or Brownell & Smith (1992). The **Appendix** summarizes 16 research-based articles in scholarly journals that meet the criteria outlined above. Several research reports and presentations are also included in this review, because the findings from several major funded projects do not appear in journals. Reports consisting primarily of tables with minimal narrative discussion were excluded. 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 paper. Dissertations were also excluded.

Definitions of Attrition and Retention

Researchers studying attrition and retention have used varied definitions. Billingsley (1993) provides a four category schematic representation of special education teacher retention, transfer, and attrition. (See **Figure 1**.) In this first category, "absolute" retention (Boe, 1990), teachers remain in the same teaching assignment and the same school as the previous year. The second category, "transfers to another special education teaching position," includes those who stay in special education teaching but transfer to another position (either in the same or a different district). The third category, "transfers to general education teaching," is of particular concern, because this group reflects a loss to the special education teaching force (Billingsley, 1993). The fourth group, "exit attrition," includes those who leave teaching altogether. This "exit" group includes those who retire, return to school, stay home with young children, or take non-teaching positions in education (e.g., counseling, administration). Boe, Bobbitt, and Cook (1997) state "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 of the categories identified in **Figure 1** in a given study. For example, Boe, Bobbitt, Cook, Whitener, and Weber (1997) and Miller, Brownell, and Smith (1999) studied teachers who moved to other districts as well as those who left teaching altogether.

The above schema relate to what teachers actually do (i.e., stay, transfer, exit). It is important to note that only about half of the special education attrition studies address attrition behavior. Several researchers collected follow-up data from special educators who left their positions (Billingsley, Bodkins, & Hendricks, 1993; Billingsley, Pyecha, Smith-Davis, Murray, & Hendricks, 1995; Miller et al., 1999; Morvant, Gersten, Gillman, Keating, & Blake, 1995). 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, et al., 1997).

Determining the extent to which teachers exit and rearrange themselves in the work force requires careful follow-up study that is difficult, time-consuming, and costly, an obvious

drawback to studying teacher attrition. This may be one reason that the majority of special education researchers do not actually study special education 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 use of intent as a variable is discussed later in the section critiquing definitions, models, and methodologies.

External Factors

• Societal   • Economic   • Institutional
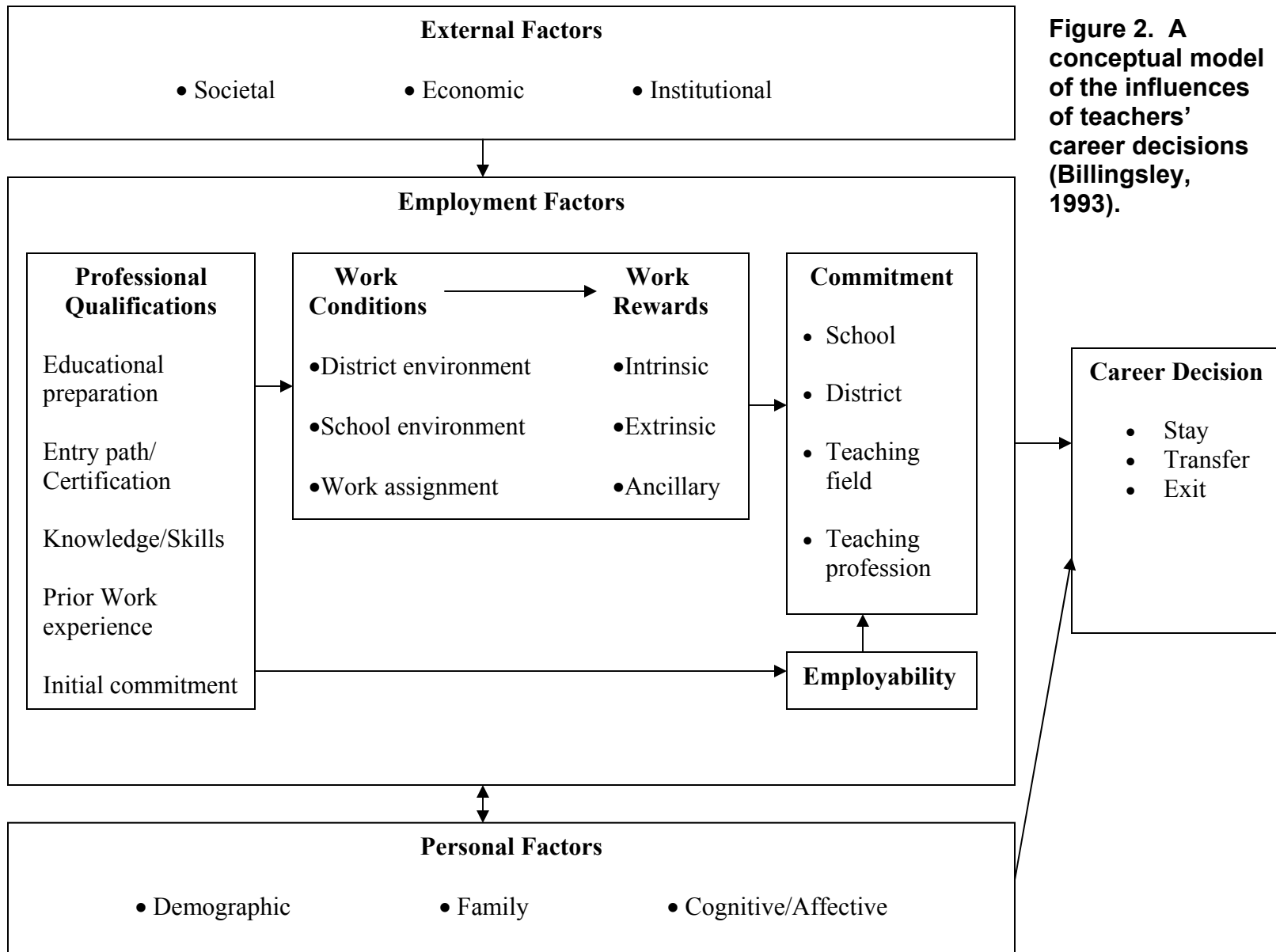
Figure 2. A conceptual model of the influences of teachers' career decisions (Billingsley, 1993).

Employment Factors

Professional Qualifications

Educational preparation

Entry path/ Certification

Knowledge/Skills

Prior Work experience

Initial commitment

Work Conditions

•District environment

•School environment

•Work assignment

Work Rewards

•Intrinsic

•Extrinsic

•Ancillary

Commitment

• School

• District

• Teaching field

• Teaching profession

Employability

Career Decision

• Stay
• Transfer
• Exit

Personal Factors

• Demographic   • Family   • Cognitive/Affective

Historical Factors

Teacher Characteristics
- Educational Prep
- Initial Commitment
- View of Efficacy
- Coping Strategies
- Demographics

Perceived Career Options

Microsystem
Teachers
Students

Mesosystem
Integration into Workplace

Exosystem
LEA, SEA, Federal Policy

Macrosystem
Perceptions of learners
Economy

Job Satisfaction

Commitment

Career Decision

External Personal Factors

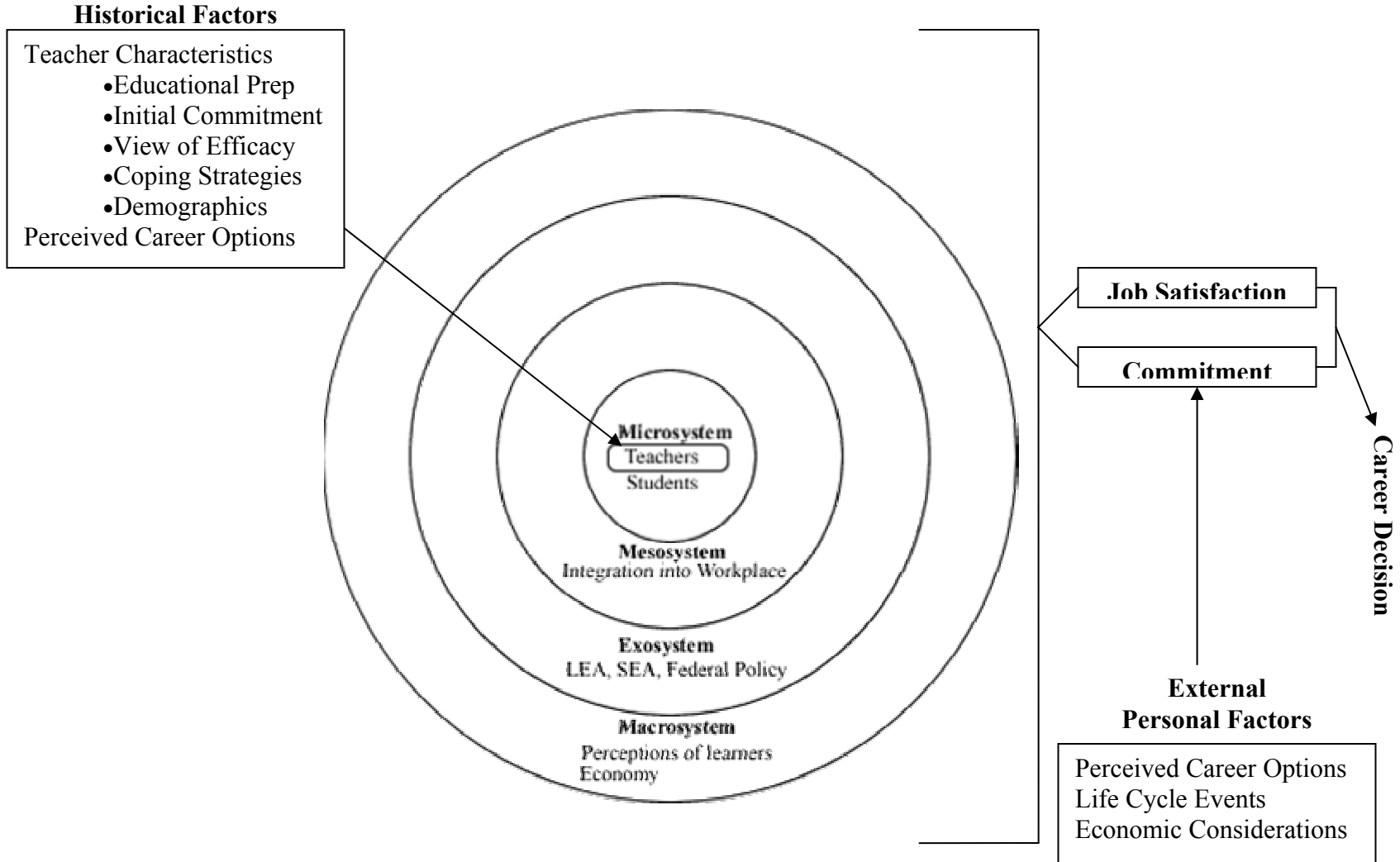Perceived Career Options
Life Cycle Events
Economic Considerations

Figure 3. Conceptual model for understanding teacher attrition and retention (Brownell & Smith, 1993).

LITERATURE REVIEW RESULTS

Two conceptual models provide a broad understanding of factors that influence special education attrition and retention (see **Figure 2** and **Figure 3**). Both models provide a description of the wide range of factors that influence special educators' career decisions. Figure 2 provides Billingsley's (1993) schematic representation of the range of influences on teachers' career decisions, including External Factors, Employment Factors, and Personal Factors. External Factors (economic, societal, institutional), which are external to the teacher and employing district, have an indirect effect on teachers' career decisions. The center of this model focuses on Employment Factors (professional qualifications, work conditions and rewards, and commitments to school, district, teaching field and teaching profession). Billingsley (1993) hypothesizes 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 (see **Figure 3**) proposed by Brownell and Smith (1993) is an adaptation of Bronfenbrenner's model that incorporates four nested, interrelated systems. These systems include the *microsystem* (teacher's immediate setting and interactions that occur as a result of student and teacher characteristics), the *mesosystem* (interrelations among several variables in the work place, e.g., collegiality and administrative support), the *exosystem* (formal and informal social structures, e.g., socioeconomic level of community, nature of district), and the macrosystem (cultural beliefs and ideologies of the dominant culture as well as economic conditions that impact schools and teachers' career decisions). Brownell and Smith propose a framework for designing and interpreting attrition/retention research, but not necessarily as a causal model to be tested. They expect that variable relationships may be complex and reciprocal and that some variables may correlate more highly with attrition than others.

Both frameworks identify variables that may be related to attrition and propose relationships between the variables. This section of the present paper provides a thematic synthesis of findings, including: (1) Teacher Characteristics and Personal Factors, (2) Teacher Qualifications, (3) Work Environment Factors, and (4) Affective Reactions to Work. During the last ten 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,(1992) 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), few conclusions can be drawn about teacher characteristics and attrition.

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, 1993a). Singer (1993a) found that young special education teachers leave at rates 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 is high among younger teachers, low for teachers during the mid-career period, and high again as teachers retire. However, Boe, Bobbitt, Cook, Whitener, et al. (1997) report that age functions differently for *leavers* (those who exit public school teaching) than *movers* (those who changed positions). They show that *leavers* show the characteristic U-function with age, whereas the percentage of *movers* declines systematically with increasing age. Boe and colleagues found this relationship holds 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 impacts 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 (1993a) points 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" (p. 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, 1993a). Grissmer and Kirby (1987) also point out that younger teachers have fewer debt obligations and are less invested in a specific occupation or location. Experienced teachers who leave also face retraining costs, as well as the loss of tenure and an experienced teacher's salary (Singer, 1993a). Age-related factors also include lifestyle cycle stages (e.g., child-rearing, retirement) as well as personal needs and preferences.

Gender. The relationship between gender and attrition has been included in only a few special education studies, and the findings are mixed. Boe, Bobbitt, Cook, Whitener, et al. (1997) did not find a relationship between gender and attrition for a national sample of general or special educators. Moreover no relationship between gender and turnover was found in state studies of attrition behavior (Miller et al., 1999) and intent (Cross & Billingsley, 1994). However, in a study of urban special educators, Morvant et al. (1995) found that male teachers are more likely

to indicate intention to leave. Singer (1993a) found that young female special educators leave the classroom at a higher rate and return at the same rate as their male counterparts.

Inconsistent findings may be due to differences in the methods and samples used as well as changes in the workforce over time. For example, Singer's data (1993a) was from a database covering 1972 to 1983, while the more recent findings (Boe, Bobbitt, Cook, Whitener, et al., 1997; Miller et al., 1999) reflect teachers over a decade later. As Darling-Hammond and Sclan (1996) point 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), as well as studies in Florida (Miller et al., 1999), North Carolina and Michigan (Singer, 1993a). 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) findings 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 or leave. 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 the likelihood of finding non-teaching positions plan to teach for shorter periods than those perceiving fewer non-teaching opportunities (Cross & Billingsley, 1994; Singh & Billingsley, 1996). Cross and Billingsley suggest that teachers who had higher levels of education, 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 qualitative studies, teachers indicate 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 compared to 53% of general educators, left primarily for personal reasons, e.g., family or person move, pregnancy/child-rearing, health, retirements. Personal reasons were usually given as first reasons for leaving and appear to be "pivotal" in decisions to leave.

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, and 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, e.g., the nature of preservice experiences, student teaching, and teacher skill or efficacy have rarely been addressed in the majority of special education attrition reports.

Certification. There is some evidence that links certification status to special education teacher attrition. In a study of over 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 is a predictor for *exit*, but not *transfer* attrition. In Boe, Bobbitt, Cook, Barkanic, and Maislin (1999), being uncertified was associated with a higher level of transfer. Boe, Bobbitt, Cook, Whitener, et al. (1997) reported that higher levels of turnover were associated with teachers who are not fully certified in their main assignment when general and special educator samples were combined, but not for general and special education samples separately. (This may be due to an inadequate sample size of special educators).

Certification has also been linked with intent to leave. Carlson and Billingsley (2001) reported that uncertified special educators were more likely to indicate plans to leave as soon as possible than their certified counterparts. Because two large-scale studies (Miller et al., 1999; Carlson & Billingsley, 2001) found a relationship between lack of certification and higher levels of attrition, 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. Most likely, the strongest link is between attrition and performance on standardized tests. For example, Singer (1993a) found that teachers with higher National Teacher Exam scores were twice as likely to leave than those with lower scores. Similarly, 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 intented to leave (Cross & Billingsley, 1994; Westling & Whitten, 1996). Cross and Billingsley state that those teachers with higher degrees perceive greater employability in non-teaching positions and therefore are more likely to leave.

Some studies include variables such as 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). However, neither perceived preparedness nor self-rankings have been related to attrition and retention. In a study of Florida teachers, Miller et al. (1999) did not find that self-efficacy was significantly related to teacher attrition. Although no relationship was found between attrition and teacher quality, it is possible that the measures used in some of these studies may not be adequate to detect differences.

Few conclusions can be made about the relationships between teacher preparation, quality, and attrition. Although we do not have data to support a relationship between teacher quality and attrition in special education, Darling-Hammond (1999) argues 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 states that better preparation increases career longevity. She states 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). She further states, that 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

District, school, and classroom environments define many aspects of a teacher's work life, including the salary and benefits received, nature of the community and student population, physical facilities, role expectations, as well as the professional communities in which teachers live out their everyday work lives. In a national study of teachers, Ingersoll (2001) states that:

> 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)

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, e.g., salary, school climate, administrative support, colleague support, support through induction and mentoring, professional development, teacher roles, paper work, and students and case load 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) report that for a national sample of special and general educators, moving and leaving decreased as salary increased. Both Miller et al. (1999) and Singer (1993a) 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.

In summary, researchers found that salary is clearly associated with attrition behavior in special education. Henke, Choy, Chen, Geis, and Alt (1997) suggest 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" (VI-1). Given the consistent

findings in three studies of attrition behavior among special educators, salary should be a strategy that school systems consider to increase retention. However, there are equity implications. As Henke et al. (1997) point 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. It is interesting to note that over half of the nation's large districts use financial incentives, such as cash bonuses or placement on a higher step of the salary schedule, as a *recruitment strategy* (Carlson & Billingsley, 2001). These bonuses help attract teachers, but the effects of these bonuses on the retention of teachers beyond the negotiated period remains a question.

School Climate. One of the broadest work environment variables included in the special education attrition literature is school climate. Two large-scale studies (*A High-Quality Teacher for Every Classroom*, Study of Personnel Needs in Special Education [SPeNSE], 2002; Miller et al., 1999) suggest that teachers who rate school climate positively are more likely to stay than those who have less positive views of school climate. Although both found climate important to retention, they measure climate differently. Miller and colleagues define school climate in a three-item scale (e.g., "the morale of the staff in my current school is good" (p. 207). In the SPeNSE study, entitled *A High-Quality Teacher for Every Classroom*, school climate is measured by a scale that includes a range of items such as:

- school administrative behavior is supportive and encouraging
- necessary materials are available when you need them
- most of your colleagues share your beliefs and values about what the central mission of the school should be
- there is a great deal of cooperation among staff members
- this school is a safe place for students
- you feel included in the school.

In summary, school climate is clearly linked to attrition and the Miller et al. (1999) study looked at actual leavers. These two studies suggest that when teachers have overall positive feelings about the climate of their schools, they are more likely to stay in teaching. Many attrition researchers attempt to separate various work-related influences; this is difficult because these influences are inextricably linked. The climate variable is important, 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 without adequate support from administrators and colleagues. In a national study, Boe et al. (1999) reported that teachers who stay in their positions are 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 perceive supervisory support as "adequate" or "more than adequate," there is a greater likelihood that they plan to remain in the field. Special and general educators who report higher levels of principal support are more likely to be less stressed, more satisfied with their jobs, and more committed to their employing school divisions than those receiving less support (Billingsley & Cross, 1992).

Westling and Whitten (1996) found that teachers who plan to stay are more likely than leavers to indicate that they receive support from school administrators for inclusion, program enhancement, students taught, and problem solving. In a study of incentives to teach in special education, Schnorr (1995) reports that the top-rated incentive was a supportive principal (88%).

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 exert an indirect influence on attrition through professional development opportunities and stress (Gersten et al., 2001; see **Figure 4**). However, Miller et al. (1999) did not find a relationship between principal support and attrition in their study of attrition behavior. It is likely that the different dependent measures may have influenced these differences or the different analyses employed.

In a study of urban teachers, special educators indicate dissatisfaction with central office administrators as frequently or more frequently than with principals (Billingsley et al., 1995). Billingsley et al. (1995) states that 25% of those who left teaching in an urban setting identify dissatisfaction with support from central administration and 20% indicate 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 that central office administrators play a critical role in the lives of special educators is not surprising, given that district administrators usually have a key role in determining 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 important mediating variables, e.g., job satisfaction stress, and commitment. More specifically, in all three path studies, a higher level of support from principals is 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 it must be comprehensive in nature and varied in type (Gold, 1996). In this sense, support is a global construct that has many dimensions. Littrell and colleagues (1994) found that *emotional* support (e.g., showing appreciation, taking an interest in teachers' work, maintaining open communication) is perceived as most important to special educators. They also found that emotional and instructional support (providing needed materials, space, and resources) correlate positively with both job satisfaction and school commitment. The fact that Littrell and colleagues did not find a significant relationship between administrative support and intent to leave is consistent with the path analysis studies described above. Administrative support likely influences attrition through other key mediating variables, e.g., role problems, stress, job satisfaction, commitment, and professional development.

Figure 4. Path diagram for intent to stay (Gersten et al., 1999).
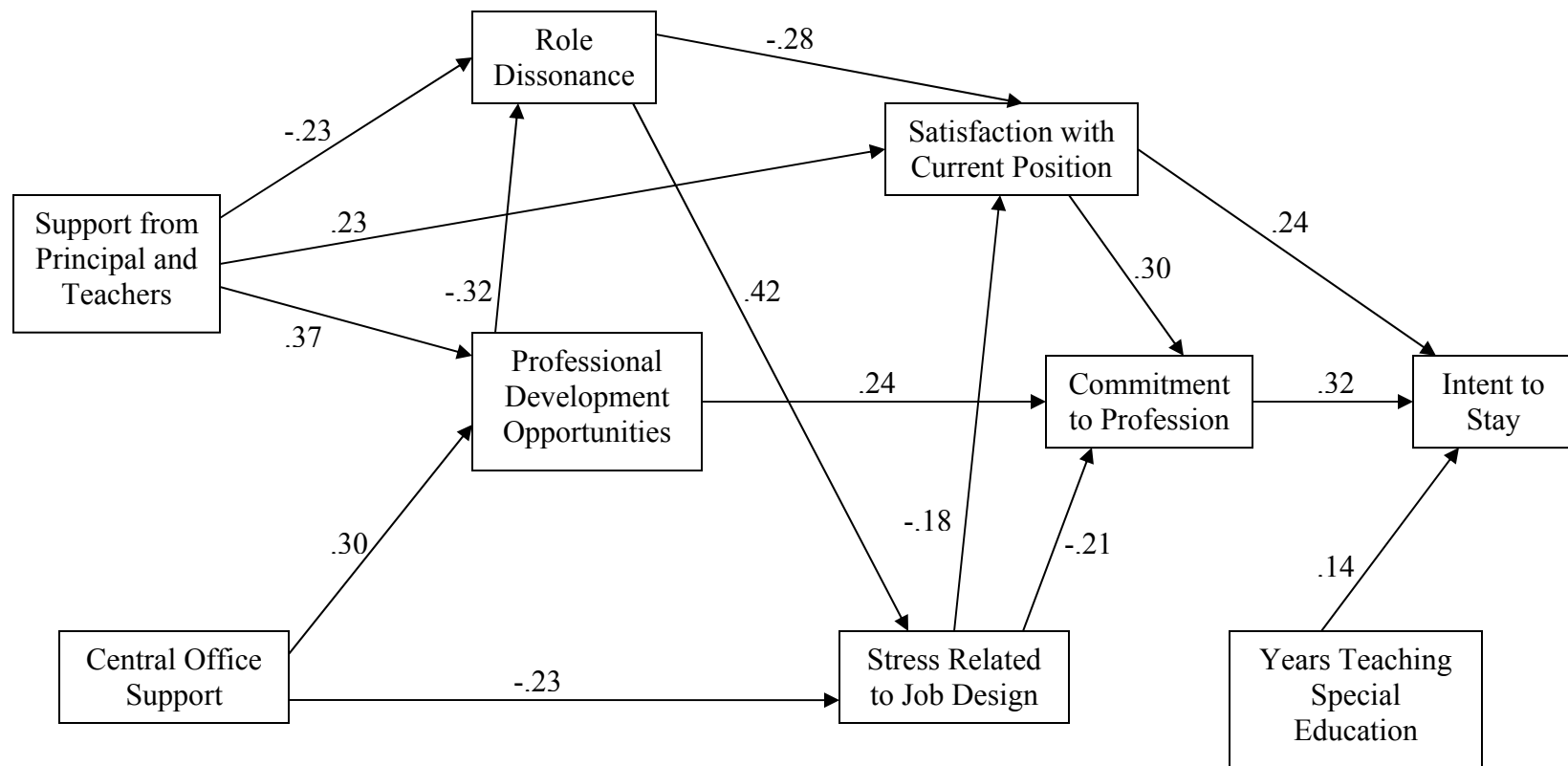
Site = Silver City
N = 248
R^2 for intent to stay = .24
X^2 = 30.0   df = 18
Adjusted goodness of fit = .93
Root mean square error of approximation = .05

Colleague Support. Although administrative support is prominent in the special education attrition literature, less attention has been given to the relationship of colleague support and attrition, and the findings from these studies are mixed. Miller et al. (1999) in a large-scale study found that a lower level of colleague support was associated with leaving behavior and a higher level 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, 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 versus questionnaire items), measuring intent versus leaving behavior, and large differences in sample sizes for these studies.

Although most of the special education attrition studies to date focus on the role of the administrator in supporting teachers, Singh and Billingsley (1998) suggest that the principal enhances commitment through fostering a collegial environment. They suggest that principals who share goals, values, and professional growth foster supportive and collegial learning communities. Gersten et al. (2001) suggest that it makes more sense to examine building-level support as the "cumulative impact" of the building principal, assistant principal, and fellow teachers at the school than to examine support from the building principal separately.
Although administrators clearly have 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 early teachers is important 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). Novice teachers struggle with a range of problems, e.g., discipline, parent difficulties, 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, e.g., managing paper work, 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; MacDonald, 2001; Magliaro & Wildman, 1990).

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 report 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 is small, perceived effectiveness of mentoring is significantly correlated with teachers' plans to remain in special education and with special educators' job satisfaction. Billingsley (2002a) did not find the level and 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, believe that they can get through to the most difficult students, and believe they are successful in providing education to students with IEPs. Billingsley 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 (2002a) investigated intent to stay over an entire career span, while Whitaker (2000) looked at plans to remain in or leave special education for the following school year and in the next five years.

An important contribution of Whitaker's (2000) study is the identification of specific aspects of effective mentoring, which includes selecting a *special education* mentor (as opposed to a non-special educator), even if that special educator works in a different school. Assistance provided in the area of emotional support and the mechanics of the job are particularly important. Billingsley (2002a) and Whitaker (2000) 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 (Gold, 1996; Rosenberg, Griffin, Kilgore, & Carpenter, 1997; Zepeda & Ponticell, 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 (Yee, 1990).

Reducing attrition should not be the primary goal of induction programs; indeed, carefully designed induction programs would be needed even if a teacher surplus existed. Induction programs must be designed with the primary purpose of helping teachers become more effective in supportive and carefully designed environments. If this is the primary goal and teachers develop competence and satisfaction in their work, attrition will likely be reduced. A model for providing individualized support for special educators proposed by Rosenberg and colleagues (1997) is an excellent resource for those developing induction programs. Their model considers both the "full series of dynamic interacting factors that are specific to the individual and specific to the teaching environment and tasks that are to be accomplished" (p. 301).

Professional Development. Professional development may be thought of as one dimension within the broad concept of support. Several researchers found a relationship between professional growth opportunities and attrition (Brownell et al., 1994-1995; Gersten et al., 2001; Morvant et al., 1995). Miller et al. (1999) did not find that satisfaction with professional opportunities related to the attrition behavior of special educators. In a study of teacher attrition in three urban systems, Gersten et al. (2001) found that professional development has an *indirect* effect on teachers' intent to leave and a direct influence on teachers' commitment to the profession. In the Gersten et al. study, professional development opportunities referred to the

degree to which special educators perceive that they have 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 perceive greater professional development opportunities also experienced less role dissonance. Findings from the Gersten et al. study suggest the importance of the support at both the district and school levels. It is interesting to note that over half of those surveyed in this urban study did not feel there were many opportunities to learn new techniques and strategies in their district (Morvant et al., 1995).

Brownell et al. (1994-1995) report in their interview study that stayers are more likely to assume at least some responsibility for their own professional development and to initiate actions to continue their own learning. They also report that only stayers discuss the importance of university training to their professional development. Brownell and colleagues suggest that the degree of satisfaction with professional development opportunities may be influenced by the content, timing, and quality of the opportunities as well as incentives for participating.

Special educators devote considerable time to continuing professional development, averaging 59 hours in 1999-2000 as reported by *A High-Quality Teacher for Every Classroom*, (SPeNSE, 2002). Although school districts support staff development, they do not reliably incorporate best practices, e.g., engaging teachers in the learning process, allowing time to plan now to implement new skills. Teachers want to continue to learn and grow throughout their careers (Rosenholtz, 1989), and it is ironic that schools are not better organized to promote teachers' professional development (Rosenberg et al., 1997). Quiocho and Rios (2000) discuss the need for responsive professional development opportunities for teachers and suggest that they occur in "qualitatively different ways than are experienced in teacher credential programs. They must be directed toward professional nurturing, be systematic, and change over time as professional needs change." (p. 522)

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

The specific role-related problems are not single or simple problems. As Billingsley et al. (1995) state, "Multiple problems interact and create what teachers sometimes view as stressful, overwhelming work situations" (p. 7.21). As one special educator pointed out, her paper work increases every time she receives another student (Billingsley et al., 1995). Corcoran, Walker, and White (1988) also suggest that the lack of resources increases the teacher's work load. And a heavy work load makes it very difficult to use the 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 (CEC, 2000).

Role problems. A number of researchers (Billingsley & Cross, 1992; Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996) report a relationship between different types of role problems (e.g., role problems, role overload, role conflict and ambiguity, role dissonance) and intent to leave teaching. Work load manageability has also been included as a measure in some attrition studies. Teachers who plan to leave special education teaching as soon as possible are significantly more likely to rate their work load as "not at all manageable" compared to those who indicate intent to stay (Carlson & Billingsley, 2001). Morvant et al. (1995) found that only half of the special educators in their study agreed that their work load was manageable, 68% felt they had too little time to do their work, and almost one-third found conflicting goals, expectations, and directives a frequent source of stress (pp. 4-29). However, Miller et al. (1999) did not find that role conflict or manageability had an effect on leaving behavior. Miller and colleagues studied teachers in Florida where the school psychologist and counselors handle much of the testing and paper work burden.

Research results suggest that role problems create stress and decrease job satisfaction (Cross & Billingsley, 1994; Gersten et al., 2001). An important finding of these studies is that teachers who perceive greater principal support also perceive fewer role problems than those receiving less support; the Gersten et al. variable included support from both principals and teachers. Qualitative studies also support the relationship between role problems and attrition. In open-ended interviews, Billingsley et al. (1993) report that special educators gave job-design factors (e.g., lack of time, resources, paper work, excessive meetings) as a reason 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 a number of role-related items associated with teachers' plans to stay: teacher responsibilities are clearly defined, teacher is never directed to complete tasks not considered to be their responsibility, teacher has adequate time to complete paper work, teacher has adequate time to plan instruction and prepare materials, the job has clear program goals, teacher agrees with program goals for job.   To improve retention, more attention must be paid to role design. As Gersten et al. (2001) asks: "Does the job, with all it entails, make sense? Is it feasible? Is it one that well-trained, interested, special educational professionals can manage in order to accomplish their main objective—enhancing students' academic, social, and vocational competence?" (p. 551).

Paper work. Paper work is a major contributor to role overload and conflict. Recent studies consistently identify paper work 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 paper work, *Paperwork in Special Education* (SPeNSE, 2002) suggest that paper work problems are significantly related to special educators' intent to leave teaching, after many other work condition variables are controlled. According to Westling and Whitten (1996), those planning to leave rated the item "has adequate time to complete paper work" significantly lower than those planning to stay.   In a study of Alaska teachers, Schnorr (1995) found that 71% of respondents indicated that paper work is a major deterrent to special education teaching. Qualitative results support these findings. In open-ended interviews, Billingsley et al. (1995) found that 60% of special educators who plan to leave teaching in an urban district gave

paper work as a major contributor to their decision. Billingsley et al. (1995) emphasized in their three-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 paper work is also significantly related to the overall manageability of special educators' jobs. The typical special education teacher reports spending five hours per week completing forms and doing administrative paper work. This is as much time as they spend preparing for lessons. Over half of the special educators report that routine duties and paper work interfere with their teaching to a "great extent." General educators were significantly less likely to indicate that routine duties and paper work interfered with their teaching in *Paperwork in Special Education* (SPeNSE, 2002). Billingsley et al. (1995) also reported that general educators are less likely than special educators to view paper work as a problem: 35% of the special educators and 12% of the general educators cited paper work as one of their most pressing problems.

Understanding what teachers mean by excessive paper work is highlighted in some of the qualitative attrition studies. Special educators describe paper work as overwhelming, unnecessary, redundant, and intimidating (Billingsley et al., 1995). Some interviewees said that they did not have the time to complete required paper work, that there was too much pressure to complete paper work, and that paper work requirements were inconsistent or unnecessary (Billingsley et al., 1995). Morvant et al. (1995) provided an in-depth discussion of the paper work problem for special educators. As one leaver described:

> 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. (Morvant et al., 1995, p. 3-14)

Although paper work is clearly a problem for many special educators, not all leavers view paper work as contributing to their decisions to leave. Why some teachers see paper work 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 paper work 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 paper work burden. Still, other teachers may have found effective ways of keeping their paper work burdens to a minimum.

Service-delivery models and shifts in responsibility. 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 self-contained teachers of students with emotional disorders plan to leave the field significantly more often than resource room teachers. However, as districts have moved toward greater inclusion, some special

educators struggle with changing roles and lack support for these new roles. For example, in interviews with leavers, Morvant et al. (1995) state, "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). Some of these leavers related the problems they had in implementing inclusive programs. Teachers indicated 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 states:

> 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) concludes that teachers who work primarily in general education classrooms are at more of a risk of burnout than teachers who work in more traditional settings (e.g., resource, self-contained classrooms). Embich states that responsibilities of those who team teach have expanded and include a wider range of services (e.g., teaching, work in regular 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 in which they have had little preparation.

As Morvant et al. (1995) suggest, the move toward inclusion may contribute to role dissonance or conflict for some special educators. If special educators have beliefs that differ from the philosophy of the school, they may seek other positions. 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 they make changes in their roles and responsibilities.

Students and Case Load Issues. In a large-scale study of teachers between 1972 and 1983, Singer (1993a) found that special educators in secondary schools stay 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, 1993a). As some states move toward non-categorical and inclusive programs, such comparisons across disability may make less sense today. A recent national study of special educators revealed that 80% of teachers work with students with two or more exceptionalities, and 32% of teachers work with students with four or more different primary disabilities reported in *A High-Quality Teacher for Every Classroom* (SPeNSE, 2002). No empirical studies have shown a relationship between the number of students on teachers' case loads and attrition. In two large-scale studies, no relationship is reported between the number of students taught and intent to leave (Carlson & Billingsley, 2001). George et al. (1995) also

found no relationship between size of case load and teachers' intent to leave in a study of teachers who taught students with emotional disorders.

Although there have not been any clear quantitative findings relating attrition to numbers of students taught, in qualitative studies, teachers consistently report problems with case load and give case load 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/case load too large" and 25% indicated "inappropriate placement of students with disabilities" (25%). Teachers indicate that it is not simply the number of students, but rather the *diversity* of case loads that is problematic for teachers as well. In a recent national study of special educators, Carlson and Billingsley (2001) reported that teachers 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 special educators planning to stay.

Related to case load issues are the problems that teachers encounter with students. Researchers link 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), attitudes of students (George et al., 1995), lack of student progress (Billingsley 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 et al., 1997). In a review of general education teachers who depart because of low job satisfaction, Ingersoll (2001) found that a quarter or more of the dissatisfied teachers who leave indicate that student discipline problems and lack of student motivation are 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, e.g., inadequate administrative support, case load, and role problems. Westling and Whitten (1996) stated that, "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). Morvant et al. (1995) suggested that 83% of teachers felt satisfied with their accomplishments with students, 85% felt they were making a significant difference in their students' lives, and 96% enjoyed their students.

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-related problems (e.g., too many students, too much paper work, too little support, and the lack of needed resources) clearly weakens the teacher's ability to be effective and therefore 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 attrition behavior in a large-scale Florida study (Miller et al., 1999). Other studies found that 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). Morvant et al. (1995) stated that 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 stayers. They also report that leavers indicated significantly more frequent stress than stayers due to: (1) the range of students' needs and abilities; (2) bureaucratic requirements; and (3) conflicting expectations, goals, and directives.

Researchers have studied the effects of stress and burnout among special educators for over two decades (Banks & Necco, 1987; Cooley & Yovanoff, 1996; Embich, 2001; Greer & Greer, 1992; Weber & Toffler, 1989; Weiskopf, 1980; Wisniewski & Gargiulo, 1997; Zabel & Zabel, 1982; Zabel & Zabel, 2001). Most researchers identify stress as a major contributing factor in burnout. Burnout refers to exhaustion, powerlessness, and depersonalization in response to chronic work stress (Maslach, 1982). Not all burned-out employees leave. Of particular concern is the quality of education delivered to students by teachers experiencing burnout (Weber & Toffler, 1989). The relationship between the stress/burnout literature and the attrition literature needs integration. Some of the factors that influence burnout are also associated with attrition (e.g., age, support systems).

Moreover, many of the strategies designed to reduce burnout have also been suggested to improve 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, burnout, and organizational commitment. They taught stress management techniques (e.g., analyzing physiological responses, changing destructive thinking, and learning about techniques for changing a specific situation) to special educators and related service providers. Participants also learned about a collegial dialogue process to help participants improve their ability to collaboratively identify and solve problems. Both teachers and service providers who participated in both treatment groups 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 et al., 1997; Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996; Westling & Whitten, 1996; Whitaker, 2000). Gersten et al. (2001) found that "satisfaction and personal assessment of rewards" reflects greater differences between those intending to stay and leave than other factors. 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. Miller et al. (1999) did not find that satisfaction was significantly related to attrition behavior, which may be accounted for by different measures used, differences in the samples, or study of leavers vs. those who intended to leave.

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. Several special education studies suggest that teachers with higher levels of professional and organizational commitment are more likely to stay (Miller et al., 1999) or intend to stay in teaching (Billingsley & Cross, 1992; Gersten et al., 2001; Littrell et al., 1994). Commitment was defined by Mowday, Porter, and Steers (1982) as an attitude that includes: (a) strong belief in and acceptance of an organization's/profession's goals and values, (b) willingness to exert significant effort on behalf of the organization/profession, and (c) strong desire to maintain membership in organization/profession. Billingsley (1993) suggests several types of commitment, including commitment to school, district, teaching field, and teaching profession. Teachers may be committed to special education teaching, not necessarily the employing district or assigned school.

In special education, higher levels of commitment are 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). The degree to which initial commitment contributes to subsequent career decisions (Brownell et al., 1994-1995; Billingsley, 1993; Chapman & Green, 1986) deserves further consideration.

Summary of Research Findings in Attrition and Retention

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 personal factors that influence teachers' decisions to leave special education: (1) there are consistent reports that younger and inexperienced special educators are more likely to leave than their older, more experienced counterparts; (2) there is support from two major studies that uncertified teachers are more likely to leave than certified teachers; (3) special educators with higher test scores are more likely to leave; and (4) teachers' personal circumstances and priorities influence attrition and retention.

The majority of attrition studies focus 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: (1) higher salaries; (2) positive school climate; (3) adequate support systems, particularly principal and central office support; (4) opportunities for professional development; (5) reasonable role demand; and (6) manageable case loads. Problematic district and school factors—especially low salaries, poor climate, lack of administrative support, and role overload and dissonance—lead to negative affective reactions, e.g., high levels of stress, low levels of job satisfaction, and low levels of commitment. These negative reactions can often lead to withdrawal and eventually attrition.

A CRITIQUE OF DEFINITIONS, CONCEPTUAL MODELS, AND METHODOLOGIES USED TO STUDY ATTRITION

Compared to the exploratory literature prior to 1992, the current research base is much stronger and provides direction to those interested in improving teacher retention. However, the current frameworks used to study attrition and the range of definitions, samples, measures, and analysis strategies used make it difficult to answer important questions. This section reviews and critiques definitional, conceptual, and methodological considerations in attrition studies.

Definitions of Attrition

The schema in **Figure 1** illustrate the different types of teacher attrition. Special educators transfer to other special or general education positions (within the same or different districts) or leave teaching altogether. The **Appendix** highlights the definitions of attrition that are used in each special education study. Only a few researchers differentiate between different types of leavers in their studies (i.e., Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al., 1997; Miller et al., 1999). Moreover, only about half of the studies include special educators who actually left their positions. The remainder of researchers use "intent to leave" as a proxy for attrition.

Note that the use of different attrition definitions depends on the focus of the study. As Grissmer and Kirby (1987) state, there is no single definition of attrition, and it is the policy or research context that frames the definition. This section highlights the need to study actual leavers, the importance of studying different types of leavers, and the intent variable.

Future studies of attrition need to focus on attrition *behavior* (teachers who actually leave their positions). Although half of the studies identified in the **Appendix** include those who left special education (i.e., Billingsley et al., 1993; Billingsley et al., 1995; Brownell et al., 1994-1995; Brownell et al., 1997; Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al. 1997; Morvant et al., 1995; Miller et al., 1999; Singer, 1993a), several of these studies were large-scale studies (i.e., Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al., 1997; Miller et al., 1999; Singer, 1993a).

Of these large-scale studies of actual leavers, one of the strongest and most comprehensive is Miller et al. (1999). These researchers surveyed a large, representative teacher sample in Florida, included a range of teacher and work-related variables, and differentiated between types of attrition (i.e., transfer and exit attrition). Singer's study (1993a) highlighted a number of important findings related to demographic variables, teacher quality, and specific teaching assignment variables. However, the database used did not allow for the study of different work variables, and various exit categories could not be differentiated (see **Figure 1**). One of the problems in using state databases is that "teachers who leave a state disappear from state databases, giving the appearance of having left the field" (p. 377). Unless researchers use follow-up surveys (e.g., Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al., 1997; Miller et al., 1999), distinctions between different leavers are not possible.

Boe and colleagues (e.g., Boe, Bobbitt, & Cook, 1997; Boe, Bobbitt, Cook, Whitener, et al., 1997) have conducted the only national studies of teacher attrition behavior comparing special and general educators. Boe and colleagues provide important information about the relationships of certain important variables (e.g., salary, age) and attrition behavior. Moreover, they studied both moving and exit behavior. However, the relatively small number of special educators in the sample and the constraints of the database limit their study.

In contrast to looking at teachers' behavior, the use of *intent* allows researchers to assess 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. Therefore, it is not surprising that approximately half of the studies included in the **Appendix** use intent-to-leave as a proxy for attrition.

This intent variable is controversial, with some questioning whether the intent variable is related to attrition behavior (Boe, Bobbitt, Cook, Whitener, et al., 1997; LeCompte & Dworkin, 1991). Boe, Barkanic, et al. (1999) report 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). Recently Boe (personal communication, October, 2001) shared his observations that, for three waves of the Teacher Follow-up Survey combined (1988-1989, 1991-1992, 1994-1995), based on national estimates of public school teachers, 93% of teachers who said they would stay in the same school the next year actually did; 44% of teachers who said they would move to a different school actually did; and 52% of teachers who said they would leave actually did. 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, one year or less. Gersten et al. (2001) report that of 33 teachers who planned to leave within the 15-month period, 69% had actually left special education teaching.

Researchers also need to carefully consider how they ask teachers about their career plans. For example, researchers include different time frames for leaving as well as what leaving means, e.g., whether one plans to leave teaching, a district, or the teaching field altogether. Westling and Whitten (1996) provide multiple-choice items to teachers asking about intent to remain in same position/similar position in the next school year and in five years. Cross and Billingsley (1994) asked a group of special and general educators at various stages of their careers, "Please check which of the following comes closest to describing how long you plan to teach," followed by five choices until retirement. Westling and Whitten (1996) address a relatively short time frame, whereas Cross and Billingsley look at how teachers see their futures 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.

In summary, both studies of leavers and those who intend to leave provide critical knowledge about factors related to teachers' career decisions. It is important to consider Grissmer and Kirby's (1987) reminder that it is important to analyze and measure subgroups of teachers who leave. The special education research base lacks information about actual leavers, which has only

been included as a variable in a few major studies of attrition. Boe, Bobbitt, Cook, Whitener et al. (1997) and Miller et al. (1999) found differences between those who exit teaching and those who transfer to other positions. Whenever possible, future studies should include various types of attrition.

There is a positive relationship between career intentions and later decisions, although more needs to be known about the strength of this relationship. Studying intent is 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).

Conceptual Models

Studies of special education attrition over the last ten 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; Gersten et al., 2001) and the support offered through federal funding. Recent reports include important variables that have not been investigated in earlier special education studies such as school climate (Carlson & Billingsley, 2001; Miller et al., 1999), mentoring (Whitaker, 2000), manageability of work (*A High-Quality Teacher for Every Classroom*, SPeNSE, 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 (Billingsley et al., 1995; *A High-Quality Teacher for Every Classroom*, SPeNSE, 2002; 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 behavior.

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. Many 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) summarizes the basics of attrition models used in general education, e.g., social learning theory, organizational theory, career choice theories, economic cost-benefit analysis, and human capital theory. Future studies need to be carefully conceptualized and focused.

Samples

In general, studies conducted in the last ten years include larger samples (Carlson, 2001; Gersten et al., 2001; Miller et al., 1999; Singer, 1993a) from more geographically diverse areas than earlier studies. The studies listed in the **Appendix** 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; Carlson, 2001).

Interpreting special education attrition findings is problematic, because samples include variations in the data collection time frame, and different attrition definitions lead to different types of 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 (Whitaker, 2000). Other samples are from specific states (e.g., Florida, Virginia) where state characteristics and district practices may vary. One-third of the studies included small samples of fewer than 100 teachers. Moreover, most studies only gathered data at one point in time. An exception to this was the longitudinal study by Singer (1993a), which examined the largest group of special education leavers (over 6,600 teachers from two states between 1972 and 1983). Singer examined the characteristics of special educators who returned to teaching in a second study (Singer, 1993b).

Quantitative Studies in Attrition Research

Most attrition studies in the **Appendix** involved the use of questionnaires and survey methods to explore the range of variables associated with attrition. Researchers analyzed these data from several approaches. One widely used approach in both general and special education studies is to investigate bivariate relationships to determine if a particular variable (e.g., age, gender, salary) is *associated* with special education attrition (e.g., George et al., 1995; Grissmer & Kirby, 1987; Morvant et al., 1995). Some of the researchers who investigated bivariate relationships focused primarily on the relationships of a particular class of variables and turnover, such as demographic variables (Grissmer & Kirby, 1987); others focus on a greater number of work and demographic variables (Morvant et al., 1995; Westling & Whitten, 1996). Other researchers use multivariate methods to investigate attrition and retention. Miller et al. (1999) and Westling & Whitten (1996) use logit models to identify significant predictors of attrition. Miller et al. (1999) argue that the multinomial logit analyses identify the variables that have the most direct effect on attrition, thus allowing for more parsimonious models of attrition. Other researchers use path models 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 can demonstrate the dynamic interactions between important variables and career decisions while controlling for effects of other variables.

Large-scale quantitative studies of attrition are also needed to investigate the relationships among different factors included in the conceptual models as well as subgroups of teachers. For example, little is known about attrition in rural versus urban systems or attrition among teachers who work with low incidence disabilities versus high incidence disabilities.

Qualitative Studies

Only a few researchers use qualitative methods in attrition studies. These studies include open-ended surveys of leavers (Billingsley et al., 1993), 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 to illustrate the lives of special educators and critical transition points that lead to withdrawal and eventually attrition. Although some contextual information is provided in these qualitative studies, future studies should address teachers' perspectives, observations of their work lives, and analyses of journals and other documents to provide a full understanding of important contributors to job satisfaction, commitment, stress, and career decisions.

PRIORITIES FOR RESEARCH

The previous discussion addresses issues important to the design of future attrition research in special education (e.g., attrition definitions, 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 factors within a school, descriptions of what these problems mean to teachers on a day-to-day basis, and how problems and issues contribute to decisions to leave over time. Moreover, an in-depth analysis of stayers would provide a better understanding of resilience and 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 (1993a) provided evidence that teachers with higher test scores are 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 first 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 decision to stay or leave.

Also, little is known about strategies that faculty in teacher preparation programs might employ to increase special educators' survival in teaching. What steps might institutions of higher education do to help future administrators and teachers advocate for effective working conditions in special education? Although two studies (Carlson & Billingsley, 2001; Miller et al., 1999) suggested that uncertified teachers are more likely to leave than certified teachers, we know little about why some of these uncertified teachers leave after a short time and others pursue certification and remain in special education teaching.

The Early Career Period

Future research must address programs and strategies to reduce attrition among early career teachers, given they are at most risk of leaving. A neglected aspect in the attrition literature is beginning teachers' perspectives, qualifications, and 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 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 these teachers through the early career period. A range of approaches might be used, including journals and logs, interviews over time, observations, and recordings of critical incidents.

A better understanding of special educators' entry into teaching would provide critical information on how to best support their transition into teaching. There is increasing interest in supporting beginning teachers (e.g., Boyer & Gillespie, 2000; Rosenberg et al., 1997; Whitaker, 2000); however, few studies examined the specific needs of beginning special educators, and even fewer reports are available on the effectiveness of induction programs. As Gold (1996) states, "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. One way of providing support to teachers is through collaborative environments. However, the relationship of collaboration to 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 (CEC, 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.

Reducing 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, administrators, and parents. Unfortunately, many special educators report problems with role overload and stress (CEC, 2000). The attrition research in special education clearly documents that perceived work conditions are related to teachers' career plans and attrition. 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 suggest that it is not the paper work itself, but the combination of meetings, forms, testing, scoring, written reports, scheduling, and paper work that creates the problem. In-depth qualitative studies are needed to promote an understanding of issues that researchers have primarily described at a superficial level, e.g., role problems, paper work concerns. Some focused questions include:

- What in particular contributes to role overload and dissonance? What contextual factors make role problems better or worse?

- What needs to happen in a district/school so that teachers' roles can be restructured to devote more time to student-centered tasks? Are there states or districts in which special educators report overall fewer role-related problems than others? If so, what are these districts/states doing differently?

- What are reasonable case loads given the demands of different service-delivery models, e.g., resource, self-contained, inclusion? What supports and structures are needed to allow teachers sufficient opportunities to collaborate?

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 to recruit and retain teachers from different races in special education, it is critical that race be included as a variable in special education studies. Future studies should address the relationship of race to different types of districts and the match between teachers' race and that of their students.

We still know little about the attrition in different school districts and geographic regions. It is interesting to note that although three major research projects address attrition in major urban areas (Billingsley et al., 1995; Levine, Campeau, Doorlag, & Cegelka, 1994; Morvant et al., 1995), the knowledge gained from these projects provides little about the unique challenges of teachers working in urban districts. Most of the findings in these urban reports are consistent with the findings from non-urban areas. The attrition of teachers from rural areas has also received minimal attention.

We have learned that special educators teaching students with four or more disabilities are more likely to indicate intent to leave than those who teach a less diverse case load (*A High-Quality Teacher for Every Classroom*, SPeNSE, 2002). We need to know more about the needs of teachers who work with different student populations, particularly teachers working with students from low-incidence categories.

An ideal large-scale study of attrition would enable comparisons, such as: (1) factors that influence different types of attrition (exit, transfer, stay); (2) differences among geographic regions and types of school districts (e.g., rural, suburban, urban); (3) teachers working in more inclusive models versus traditional models; (4) teachers working with high-incidence versus low-incidence student groups; (5) differences in high and low attrition districts; and (6) teachers who work with children from racial and cultural backgrounds different from their own. Moreover, large-scale studies should always include a report on teacher characteristics, e.g., age, gender, race, basic preparation factors.

SUMMARY AND IMPLICATIONS

In summary, this review finds that a wide range of factors influence attrition, including teachers' personal circumstances and priorities. Most of the attrition studies focus on problematic work environment variables and their relationships to attrition. This review suggests that work environmental 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 can lead to withdrawal and eventually attrition. In addition, teacher characteristics and qualification variables that are linked to attrition include the following: (1) special educators who are younger and inexperienced are at higher risk of leaving that their older and more experienced counterparts, (2) those who are uncertified are more likely to leave than those who are certified, and (3) those with higher test scores are more likely to leave than those with lower scores.

Policy makers and administrators interested in reducing attrition must facilitate the development of better work environments for special educators (for implications of attrition research, see Billingsley, 2002b). Addressing issues such as teacher role 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 should also help sustain special educators' involvement and commitment in their work.

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Appendix. Special Education Attrition and Retention Studies

Author(s)	Purpose	Definition of Attrition/Retention	Sample	Methodology/ Analysis
Billingsley & Cross (1992)	To determine the variables that influence commitment, job satisfaction, and intent to stay in teaching	Intent to leave	286 former special educators	Mailed questionnaire; Regression analysis
Billingsley, Bodkins, & Hendricks (1993)	To investigate special education teachers' reasons for leaving teaching and related work experiences	Teachers who left special education teaching (included transfer to general education and exit categories)	42 former special educators in Virginia	Open-ended mailed questionnaire; Qualitative analyses
Billingsley, Pyecha, Smith-Davis, Murray, & Hendricks (1995)	Study 1: To understand from special educator-teachers' perspectives: why they left their positions in an urban school district and what work they did the following year	Study 1: Those who left their primary teaching positions in a large, urban district	Study 1: 99 special educators who left their teaching positions in a large, urban district	Study 1: Mailed questionnaires, descriptive analyses
	Study 2: To gain a better understanding of the influence of career plans, commitment, and job satisfaction for special educators in an urban setting	Study 2: "Stayers" (committed and satisfied teachers who intend to remain teaching in district; "Leavers" (those who are dissatisfied, not committed, and plan to leave district) "Undecided" (those who are unsure about career plans)	Study 2: 81 current special educators; 27 teachers in each of the following groups: stayers, leavers, undecideds	Study 2: Standardized, open-ended guide used to conduct interviews with teachers. Qualitative and quantitative analyses used to reduce, display, and interpret data

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	Data collected through the 1987-88 Schools and Staffing Survey and the subsequent 1988-89 Teacher Follow up Survey Descriptive and quantitative analyses
Boe, Bobbitt, Cook, Whitener, & Weber (1997)	To investigate from a national perspective, a wide variety of teacher, school, and district characteristics that are either known to be or suspected to be associated with teacher turnover and retention of both public school general and special educators	Leavers (left public school teaching entirely or are teaching in private schools) Movers (transferred to a public school in the same or different district Turnover – includes both leaver and mover categories Stayers – Those who stayed in the same school	1,612 teachers (188 special educators and 1,424 general educators)	Data collected through the 1987-99 Public School Teacher Questionnaire of the Schools and Staffing Survey and the subsequent Teacher Follow-up Survey 1989) Descriptive and quantitative analyses
Brownell, Smith, McNellis, and Lenk (1994-1995)	To determine personal, educational, and work place variables and their interactions that influence a special education teacher's decision to leave or stay in the classroom	Leavers and stayers	14 current special educators and 10 former special educators from a large urban school district in the southeast	Open-ended Interviews Qualitative Analyses

Brownell, Smith, McNellis, & Miller (1997)	Identify why special educators leave the special education classroom and make distinctions between disgruntled and non disgruntled leavers	Leavers (those who switched to general education, moved to administration, or left teaching altogether)	93 randomly selected Florida teachers (did not include speech pathologists)	Individual phone interviews using protocol Qualitative and quantitative data analysis
Carlson (2001, 2002) (Several research briefs and presentations)	Identify variables related to intention to leave (Part of larger SPeNSE Study of Personnel Needs in Special Education)	Intent to leave	867 preschool teachers, 2,031 teachers of visual and hearing impairments, 856 teachers of emotional disorders, and 2,581 other special educators	Structured telephone interviews Bivariate analyses and regressions
Cross & Billingsley (1994)	To determine the extent to which work-related variables, as well as teaching assignments, and personal characteristics explain expressed intentions to stay in teaching	Intent to leave	412 special educators and 130 teachers of students with emotional disorders from Virginia (response rate was 82% for both groups)	Path analysis used to examine the direct and indirect effects of principal support, role problems, stress, job satisfaction and commitment on intent to stay in teaching while controlling for other variables
George, George, Gersten, Grosenick (1995)	To compare variables associated with intent to stay and leave among teachers of behaviorally disorders (BD) students	Intent to leave (current teachers of behaviorally disordered students)	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, Yoranoff, & Harniss, (2001)	To use a path analysis to examine specific job-design variables and their effects on teachers and intent to stay in or leave the field	Intent to leave	887 special educators in 3 large urban school districts	Survey in statement; LISREL structural modeling analysis
Littrell, Billingsley, & Cross (1994)	To identify general and special educators' perceptions of principal support received 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, regression analyses
Miller, Brownell, & Smith (1999)	Determine those work place variables that were significant predictors of teachers' decisions to leave or transfer from the special education classroom	Teachers who left special education teaching or transferred to a similar job (compared to stayers)	1,208 Florida special education teachers responded (80% response rate)	Survey instrument; Multinomial logit model used to distinguish stayers, leavers, and transfers. Bivariate analyses
Morvant, Gersten, Gillman, Keating, & Blake (1995)*	Study 1: Study 2:	Study 1: Special educators who left one urban district Study 2: Intent to leave	Study 1: 17 teachers Study 2: 868 special educators from three urban districts	Study 1: Interviews Study 2: Mailed Questionnaire

Singer (1993a)	To determine how many years special education teachers continue to teach and in what years they tend to leave; To determine if the risk of leaving differs by year of hire, personal characteristics, job responsibilities, or salary	Teachers who left special education teaching	6,642 special education teachers from North Carolina and Michigan	Analyses of extant data tapes using discrete time survival analysis
Singh & Billingsley (1996)	To examine specific work-related variables and how they influence job satisfaction, commitment to teaching, and intent to continue in the profession and to determine if factors are the same among teachers of BD and other special educators.	Intent to leave	412 special educators and 130 teachers of students with emotional disorders from Virginia	Mailed questionnaire; LISREL analyses
Westling & Whitten (1996)	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 14 predominantly rural counties and in one southwestern U.S. state	Mailed questionnaire Bivariate statistics and 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 on mentoring, plans to remain in special education and demographic data