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## The relationship between continuing professional development and demographic characteristics, professional practices, and employment conditions of school psychologists

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The Relationship between Continuing Professional Development and Demographic  
Characteristics, Professional Practices, and Employment Conditions of School  
Psychologists

by

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A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Education Specialist  
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The Relationship between Continuing Professional Development and Demographic Characteristics, Professional Practices, and Employment Conditions of School Psychologists

Alana D. Lopez

ABSTRACT

Multiple issues that impact service delivery, such as changing student demographic characteristics, educational law and policy, and an increased focus on accountability for services, require school psychologists to adapt and acquire new professional skills in order to meet the needs of students and families. Continuing professional development (CPD) could help school psychologists expand their repertoire of professional skills so that they can engage in effective service delivery.

The present study examined the CPD subject areas endorsed by practicing school psychologists and the relationship of those areas with selected demographic characteristics, professional practices, and employment conditions. Secondary analyses were performed using the existing 2004-2005 National Association of School Psychologists (NASP) national database. The total sample size included the responses from 1,155 practitioners.

Descriptive analyses revealed that the most commonly endorsed CPD subject areas were behavioral interventions and standardized psychoeducational assessment. Logistic regression analyses indicated that selected demographic characteristic variables helped to predict participation in academic interventions and consultation/problem-solving CPD subject areas. However, no one demographic characteristic variable made a

significant unique contribution to either model. Selected professional practice variables helped to predict participation in standardized psychoeducational assessment, social/emotional interventions, consultation/problem-solving, and response to intervention CPD subject areas. School psychologists who engaged in non-traditional CPD subject areas (i.e., social/emotional interventions, consultation/problem-solving, and response to intervention) were less likely to engage in professional practices related to special education (i.e., initial evaluations). Selected employment condition variables helped to predict participation in academic screening/progress monitoring and social/emotional interventions CPD subject areas. School psychologists who reported lower ratios were more likely to participate in social/emotional interventions CPD as compared to those who reported higher ratios. A statistically significant association was found between region and participation in academic screening/progress monitoring, behavioral assessment, social/emotional assessment, social/emotional intervention, response to intervention, and crisis intervention CPD. Implications of the findings are discussed within the context of previous research. Suggestions are offered for areas of future study related to the CPD activities of school psychologists.

## Chapter One

### Introduction

The school psychology literature has included calls for professional role change for nearly 50 years (Bradley-Johnson & Dean, 2000; Reschly & Ysseldyke, 2002). The first major proposal for a paradigm shift for the field emerged from the Thayer Conference in 1954 (Bradley-Johnson & Dean, 2000; Fagan & Wise, 2000; Lambert, 1993). This conference focused on the training, credentialing, and professional practices of school psychologists (Fagan & Wise, 2000) and resulted in a call for the profession to move beyond the traditional gatekeeping role of assessment for special education eligibility (Bradley-Johnson & Dean, 2000). Recent calls for role change have emphasized the need for school psychologists to engage in problem-solving, consultation, health promotion, prevention practices, indirect service delivery, systems-level change, and other practices that extend beyond traditional testing and assessment to meet the diverse needs of children and families (Curtis & Stollar, 2002; Franklin & Duley, 2002; Harrison et al., 2003; Macklem, Kalinsky, & Corcoran, 2001; Tilly, 2002). The 2002 Multisite Conference on the Future of School Psychology specifically addressed the need for the field to adapt and respond to changes in order to shape the future of the profession (Dawson et al., 2003). The conference emphasized the need for professional role change in the midst of a school psychologist shortage and other contextual changes facing the field (e.g., changing student demographics, educational law and policy). Two major themes targeted for action by the conference included: (a) an emphasis on systems-level

change to best utilize limited resources to meet high priority needs of children and families; and (b) a focus on pre-service and in-service training to provide school psychologists with the necessary skills to practice effectively during a time of constant change and limited resources.

Sheridan and Gutkin (2000) conceptualized a paradigm shift that may guide practice, training, and research in the field and address the long standing call for role change. They proposed a paradigm shift from the traditional medical model toward an ecological framework for service delivery. An ecological framework purports that the field focus on prevention, developing strong links with schools, families, and communities, utilizing evidence-based practices, advocating for systems-change, and addressing the multiple ecologies in which children and families function. The authors argued that school psychologists operating from an ecological framework are able to deliver more effective and efficient services to a wider range of systems, settings, and populations (Conoley & Gutkin, 1995; Sheridan & Gutkin, 2000).

Role change and the associated skills necessary to facilitate this process are needed to adapt to the significant changes that have occurred in American schools, such as the rapidly changing demographic characteristics of the student population (Fowler & Harrison, 2001; Ysseldyke et al., 2006), an increasing need for mental health services in schools (Adelman & Taylor, 2000; Furlong, Morrison, & Pavelski, 2000; Ysseldyke et al., 2006), and an emphasis on data-based decision-making to demonstrate accountability for services (Reschly & Ysseldyke, 2002). These recent changes in the educational system require school psychologists to master and apply new skills to bridge the gap between old and new systems (Reschly & Ysseldyke, 2002). To facilitate this transition,

school psychologists may need to add skills related to systematic problem-solving, consultation, behavior change, instructional design, and functional assessment to the knowledge and skill base they acquired during graduate training (Reschly & Ysseldyke, 2002).

Despite these calls for role change and expansion, research indicates that many practitioners continue to engage in more traditional roles (Bramlett, Murphy, Johnson, & Wallingsford, 2002; Curtis, Grier, Abshier, Sutton, & Hunley, 2002; Curtis, Hunley, Walker, & Baker, 1999; Curtis, Lopez, Batsche, & Smith, 2006; Hosp & Reschly, 2002; Reschly, 2000). Challenges that confront the field of school psychology include providing effective services, demonstrating accountability for those services, and addressing the changing needs of children and families in the twenty-first century (Bradley-Johnson & Dean, 2000; Ysseldyke et al., 2006). Therefore, school psychologists must become lifelong learners and reinvent and redefine their roles by refining, expanding, and acquiring new professional skills and competencies (Ysseldyke et al., 2006) in order to meet these challenges.

#### *Continuing Professional Development and School Psychology*

According to the American Psychological Association (APA) (2000), continuing professional development (CPD) is defined as an ongoing process consisting of formal learning activities that (a) are relevant to psychological practice, education, and science; (b) enable psychologists to keep pace with emerging issues and technologies; and (c) allow psychologists to maintain, develop, and increase competencies in order to improve services to the public and enhance contributions to the profession.

Elman, Illfelder-Kaye, and Robiner (2005) detailed the 2002 Competencies Conference: Future Directions in Education and Credentialing in Professional Psychology, which was initiated by the Association of Psychology Postdoctoral and Internship Centers (APPIC). Conference participants identified professional development as one of eight core competency areas that provide a foundation for competent and professional psychology practice. A Professional Development Working Group (PDWG) was created to specifically address professional development issues in the professional psychology field. This group consisted of members from various psychology backgrounds (e.g., school, clinical, and counseling), and they collectively developed a definition of professional development based on relevant research literature. The definition states the following,

Professional development is the developmental process of acquiring, expanding, refining, and sustaining knowledge, proficiency, skill, and qualifications for competent professional functioning that result in professionalism. It comprises both (a) the internal task of clarifying professional objectives, crystallizing professional identity, increasing self-awareness and confidence, and sharpening reasoning, thinking, reflecting, and judgment and (b) the social/contextual dimension of enhancing interpersonal aspects of professional functioning and broadening professional autonomy (p. 368).

The group deemed it important to create this working definition of professional development because efforts to define professional development as well as professionalism have been limited in the research literature (Elman et al., 2005). This definition encompasses more than formal learning activities (APA, 2000) of

psychologists and indicates that professional development is determined by the professional's developmental stage (e.g., pre-service, practicing school psychologist) and the context in which learning occurs. This latter definition will be used as the foundational definition for the construct of CPD in this study.

*Developmental View of Continuing Professional Development.* The concept of CPD has been described as a continuous, life-long learning process for professionals (Houle, 1980), and, more specifically, school psychologists (Ysseldyke et al, 2006). Houle (1980) conceptualized CPD as occurring throughout a professional's lifespan. He suggested that each professional has a distinct and unique style of lifelong learning, which is influenced by that individual's background, character traits, and the immediate demands of the environment. Houle proposed a model of professional learning that included the following phases: (a) general education with an emphasis on the basic content required for specialization; (b) admission to the professional school; (c) pre-service specialized education; (d) securing a credential to practice; (e) entry into practice; and (f) professional practice. The professional practice phase is highly variable due to factors such as the age of the professional, different work settings, and changes in career focus or path. Continuing professional development allows professionals to maintain and modernize their basic professional skills and competencies, which is a requirement unique to the professional practice phase.

Fagan and Wise (2000) suggested that pre-service education provides the basic skills, theories, concepts, and experiences to begin a career in a real life setting. The development and maintenance of professional skills and competencies begins at the pre-service level (Curtis & Batsche, 1991). However, Fagan and Wise (2000) noted that there

is an expectation that professionals will engage in CPD because graduate training alone does not provide adequate preparation to address the wide range of settings, clients, problems, and professional issues that will be encountered throughout a career in school psychology. The National Association of School Psychologists (NASP) (2000, 2003) indicated that it is the professional's ethical responsibility to constantly engage in self-assessment and to identify those situations when the knowledge and skills possessed are insufficient to meet clients' needs. Furthermore, professionals are required to obtain additional training and education to acquire or further develop the knowledge and skills needed in order to provide the best services possible.

This developmental view of CPD is specifically recognized in the *School Psychology: A Blueprint for Training and Practice III* (Ysseldyke et al., 2006). The revised blueprint includes the following eight domains of competence: (a) Enhancing the Development of Cognitive and Academic Skills; (b) Enhancing the Development of Wellness, Social Skills, Mental Health, and Life Competencies; (c) Data-Based Decision Making and Accountability; (d) Systems-Based Service Delivery; (e) Professional, Legal, Ethical, and Social Responsibility; (f) Technological Applications; (g) Diversity Awareness and Sensitive Service Delivery; and (h) Interpersonal and Collaborative Skills. Ysseldyke et al. (2006) indicated that a major change in this blueprint includes the recognition that school psychologists will develop competency in practice over time. For example, school psychology graduates are expected to develop competency at the "novice" level in all domains at the time of graduation, be at a "competent" level in one domain following internship, and approach the "expert" level in one or two domains after 5-10 years in practice (p. 6, 11). It is not assumed that graduates will demonstrate



competence in all domains, but, rather, competencies and skills will develop over time. Ysseldyke et al. (2006) referred to this concept as “a continuum of skill development” (p. 11). This developmental view of school psychologists’ competency and skill development supports the idea that CPD a lifelong process that serves to enhance the individual practitioner as well as the services provided to children and families.

*School Psychologists as Adult Learners.* It is critical to recognize professionals as adult learners as they progress through each professional learning phase (National Staff Development Council [NSDC], 2001; Sparks & Hirsh, 1997). The nature of school psychology is to help clients become more effective and efficient learners through the use of evidence-based interventions, consultation, and systems-level change. However, the school psychologist also should be viewed as a learner within the context of his or her professional environment (e.g., school, administrative, or university setting) who requires support and the resources necessary to continually engage in lifelong learning. Krupp (1982) conceptualized the adult learner as proceeding through various stages of skill acquisition, which include awareness that a skill is needed (or warrants refinement), awkward use of the skill, feeling phony when using the skill, skillful and deliberate use, masterful and automatic use, and, finally, innovative and creative use of the skill. This progression suggests that learning requires professionals to pass through various stages in order to acquire necessary skills and competencies that will allow them to remain professionally competent. The goal is for the learner, or professional, to eventually take ownership in demonstrating and using newly acquired or refined skills. Krupp (1982) also suggested that it is critical to assess the stage, or step, at which adult learners are presently functioning in order to better meet their needs and to target appropriate and

effective learning strategies. For example, a learner who is only at the awareness level would be overwhelmed if presented with a plethora of information and activities aimed at developing a new skill. Overall, individual adult learners will vary in their professional development. In particular, school psychologists' professional development needs also may vary due to factors such as work setting, available resources, and number of other school psychologists employed (Chafouleas, Clonan, & Vanauken, 2002).

*Purposes of Continuing Professional Development.* Additionally, it is important to consider the purpose of professional development. The Professional Development Work Group (PDWG) noted that the nature of professional development is multi-faceted and may address one or more of the following goals: (a) developing skills/competencies; (b) refining skills; (c) attaining skills to prevent falling behind; (d) deepening/expanding existing skills/competencies; or (d) generalizing skills/competencies to specific settings. These CPD goals may be achieved through a variety of mechanisms such as workshops, classrooms, collaborative groups, formal CPD programs, training sessions, licensure/certification, reading, or mentoring (Elman et al., 2005). The PDWG concluded that CPD is a broad and vague term that is applicable to many types of professional development that occur under various conditions and settings (Elman et al., 2005). Overall, it is important to acknowledge the professional learning phase, characteristics of the adult learner, context of learning, and purpose of professional development when discussing CPD in the field of school psychology.

*Support for Continuing Professional Development.* National and state school psychology associations have recognized the importance of CPD and created opportunities for school psychologists to develop, maintain, and enhance their

professional skills (Fagan & Wise, 2000). In fact, CPD is one of the primary functions of such associations. Fagan and Wise (2000) indicated that the substantial growth of state school psychology associations, professional institutes for school psychologists, and national associations (e.g., NASP, Division of School Psychology of the APA) has created many opportunities for CPD that include, but are not limited to, journals, professional conferences, and internet learning communities. At the national level, the National School Psychology Certification System includes one of the most organized CPD programs (Fagan & Wise, 2000), which requires that school psychologists complete and document 75 clock hours of CPD activities within a three-year period in order to renew their Nationally Certified School Psychologist (NCSP) credential (NASP, 2003).

The National Staff Development Council (NSDC) (2001) and others (e.g., Guskey & Sparks, 1996; Joyce and Showers, 1996; Kiernan, 2004) conceptualized professional learning and development as far more than traditional workshops, conferences, courses, and internet learning communities. Professional learning is defined as a means by which professionals acquire or enhance knowledge, skills, attitudes, and beliefs necessary to create high levels of learning for all students. Professional development is viewed as an on-going process that primarily occurs in the school setting as professionals and teams collaborate, plan, and problem-solve on a regular basis to best meet the needs of children and families. The process of professional development can be used as a major driving force and catalyst for school improvement efforts (Joyce & Showers, 1996). It is noted that obtaining information from sources outside the work setting, such as workshops and conferences, is also important to enhance professional learning. Joyce and Showers (1996) suggested that workshops or coursework, which are relevant to the specific school

needs/context, are useful sources of information and knowledge at the individual practitioner level. However, it is only one component within the larger, multidimensional professional development system. The NSDC (2001) argued that if a great deal of professional development is received away from the work setting “it serves as a centrifugal force that leads to fragmentation and incoherent improvement efforts” (p. 12). Furthermore, Knight (2002) argued that “something taught on an in-service course has a transfer value and a life expectancy directly proportional to its fit with the community of practice, which provided a way of understanding why CPD courses often have such limited influence on activity” (p. 232). Professional development that occurs outside of the school setting has minimal impact on behavior change of individuals and the overall functioning of the system (NSDC, 2001). Knight (2002) contended that it is important to realize that change is a slow process and that CPD needs to be considered in the context of the environment.

The NSDC (2001) stated that professional development may be viewed as either an investment that will pay off in the form of improved staff performance and student learning or as an expense that takes resources away from other priority budget areas. The former view of CPD advocates for meaningful professional growth that occurs primarily in the school setting, which ultimately will impact the main consumers of school psychologists’ knowledge (e.g., students, families) (Joyce & Showers, 1996). Professional development is envisioned as a goal-directed means for improving service delivery, which, after all, is a paramount goal for the profession of school psychology.

### *Summary of the Research Literature*

The need for school psychologists to engage in CPD is significant due to calls for role change and proposed paradigm shifts in the profession that will require knowledge and skills not included in the graduate-level preparation of many school psychologists (Chafouleas et al., 2002; Fagan & Wise, 2000; Sheridan & Gutkin, 2000). These changes require that practitioners continually update their knowledge and skills and utilize the most current expertise available to serve children and families (Brown, 2002; NASP, 2003; Nastasi, 2000). The critical importance of CPD was specifically recognized at the 2002 Multisite Conference on the Future of School Psychology as one of the most pressing issues facing the field of school psychology (Harrison, et al., 2003). It is argued that CPD has the potential to improve the quality and effectiveness of school psychological services (Chafouleas et al., 2002; Crespi & Rigazio-Digilio, 1992), which can lead to improved outcomes for children and families.

There appears to be a void with regard to information about CPD relative to the profession of school psychology. Few studies have examined the CPD practices of school psychologists, despite the recognized importance of CPD for the field (Chafouleas et al., 2002; Fowler & Harrison 2001; Lam & Yuen, 2004). Little is known about the forms, frequency, quality, and popularity of CPD (Lam & Yuen, 2004) as well as school psychologists' perceptions of CPD (Guest, 2000). Limited empirical research was found in which the relationship between the CPD of school psychologists and selected demographic characteristics, professional practices, and employment conditions was examined (e.g., Fowler & Harrison, 2001). The limited research indicated few significant relationships among these variables.

Furthermore, several studies have investigated supervision practices in the field (Chafouleas, et al., 2002; Fischetti & Crespi, 1999; Hunley et al., 2000; Ross & Goh, 1993; Zins, Murphy, & Wess, 1989). Some of these studies have examined CPD of as a secondary area of interest (Ross & Goh, 1993; Watkins, Tipton, Manus, & Hunton-Shoup, 1991). Supervision is viewed as a critical component of professional development (Ross & Goh, 1993); however, it is just one form of CPD (Lam & Yuen, 2001). Therefore, it is important to examine professional development practices beyond supervision (Lam & Yuen, 2004). Additionally, data from national studies assessing the field of school psychology have revealed associations and trends among selected demographic characteristics, professional practice, and employment condition variables; however, it is not clear how these relationships are associated with CPD practices and/or activities of school psychologists.

#### *Purpose of the Study*

Given the paucity of research on this topic, this study was largely exploratory in nature. The purpose of this study was to identify the CPD subject areas that school psychologists engage in and the relationship of those subject areas with selected demographic characteristics, professional practices, and employment conditions. Additionally, the study investigated if participation in CPD subject areas varied according to United States (U.S.) geographic region.

#### *Research Questions*

The following research questions were addressed in the present study.

*Research Question 1:* What is the distribution of continuing professional development subject areas among school psychologists who are employed full-time in school settings? (Survey Item 35)

*Research Question 2:* What is the direction and strength of the relationship between selected demographic characteristics of school psychologists and each continuing professional development subject area?

- a.) gender (Survey Items 1 and 35)
- b.) age (Survey Items 2 and 35)
- c.) years of experience in school psychology (Survey Items 6 and 35)
- d.) highest degree earned (i.e., Masters, Masters plus 30 semester hours/Educational Specialist, or Doctorate) (Survey Items 11 and 35)
- e.) Nationally Certified School Psychologist credential held (NCSP) (i.e., yes or no) (Survey Items 13 and 35)

*Research Question 3:* What is the direction and strength of the relationship between selected professional practices of school psychologists and each continuing professional development subject area?

- a.) percentage of total work time in activities related to special education (Survey Items 33 and 35)
- b.) number of psychoeducational evaluations completed relating to initial determination of special education eligibility (Survey Items 26 and 35)
- c.) number of special education reevaluations completed (Survey Items 27 and 35)

*Research Question 4:* What is the direction and strength of the relationship between selected employment conditions of school psychologists and each continuing professional development subject area?

- a.) school setting (i.e., urban, suburban, rural) (Survey Items 19 and 35)
- b.) ratio of individual students to school psychologist (Survey Items 23 and 35)
- c.) administrative supervision received in practice (Survey Items 36 and 35)
- d.) clinical supervision received in practice (Survey Items 37 and 35)
- d.) clinical supervisor's degree area (i.e., school psychology, psychology, or other) (Survey Items 37 and 35)
- e.) clinical supervisor's degree level (i.e., non-doctoral or doctoral) (Survey Items 37 and 35)

*Research Question 5:* What is the relationship between the distribution of selected continuing professional development subject areas and geographic region? (Survey Items 35 and 10)

#### *Significance of the Study*

As indicated previously, few studies have examined the CPD practices of school psychologists (Chafouleas et al., 2002; Fowler & Harrison 2001; Lam & Yuen, 2004). Limited empirical research has examined the relationship between the CPD of school psychologists and selected demographic characteristics, professional practices, and employment conditions. The literature on supervision has devoted little attention to CPD as well (Ross & Goh, 1993; Watkins, Tipton, Manus, & Hunton-Shoup, 1991). Data from national studies have revealed associations and trends among selected demographic characteristics, professional practice, and employment condition variables; however, it is



unclear how these variables are associated with CPD practices and/or activities of school psychologists on a national level.

The findings of this study could: (a) identify current CPD trends in the field; (b) examine CPD trends in relationship to the current status of the field; (c) provide information to trainers, researchers, practitioners, and professional organizations about the CPD of school psychologists in the field; and (d) inform future research and CPD initiatives and standards. Overall, the findings of the study could build upon and strengthen the existing literature base on CPD within the field of school psychology.

## Chapter Two

### Review of the Literature

The demand for continuing professional development (CPD) of school psychologists is significant due to proposed professional role changes (Ysseldyke et al, 2006), ever-changing needs of children and families (Bradley-Johnson & Dean, 2000; Chafouleas et al., 2002), and legal mandates focused on accountability of services (Individuals with Disabilities Improvement Act (IDEIA), 2004; No Child Left Behind Act (NCLB), 2001; Talley & Short, 1995). Furthermore, it is likely that legislation will continue to be a major influence and shape school psychology practice along with other factors such as economics, advances in technology and science, and increasing diversity in the United States (Jacob-Timm, 2000). These factors have impacted service delivery and transformed the role of the school psychologist (Sheridan & Gutkin, 2000). These changes require that practitioners continually update their knowledge and skills in order to effectively serve children and families (Fowler & Harrison, 2001; NASP, 2003). Continuing professional development is recognized as an effective means to acquire and build on existing skills and competencies (Fowler & Harrison, 2001). Moreover, life-long learning is an essential component of professional practice and is the “cornerstone of psychology’s commitment to professional and social responsibility” (Belar et al., 2001, p. 4). School psychologists are challenged to go beyond a written description of a school psychologist’s role or simply fulfilling predetermined certification and/or licensure

requirements and to engage in authentic behavior change that will lead to observable and positive outcomes for students (Aiga & Banta, 2003; Conoley & Gutkin, 1995).

This chapter will examine CPD research in the field of school psychology. To date, the literature includes limited information on the CPD practices of school psychologists and their relationship with selected demographic characteristic, professional practice, and employment condition variables. Additionally, there is scant literature regarding school psychologists' perceptions of CPD. The information covered in this chapter includes: (a) the history of CPD in psychology; (b) federal support for CPD; (c) factors in the field of school psychology that impact CPD; (c) professional organizations and CPD; (d) practices and perceptions of CPD by school psychologists; and (e) supervision.

#### *History of Continuing Professional Development in Psychology*

The concept of CPD evolved in the field of psychology during the late 1960's (Houle, 1980). This time period was characterized by the rapid development of new psychological techniques, methods, and orientations, or a "knowledge explosion" (Ross, 1974, p. 122). Houle (1980) proposed a shift in thinking from professionalism to professionalization. Professionalism is focused on searching for absolutes or requirements that are used to define an occupation. It is a static concept that defines a profession, but it does not delineate the process through which a profession continuously evolves and develops over time. However, professionalization is more focused on asking "what principles of action seem most significant to the members of a vocation as they seek to elevate and dignify its work so that it can become accepted by society as a profession" (p. 27). In summary, professionalization is a dynamic conceptualization of a

profession and, therefore, requires more active and on-going professional development of its members.

In addition to this new conceptualization of a profession, pressures were exerted on health service providers to demonstrate greater accountability for the effectiveness and quality of their services in the 1970's (Jones, 1975). Jones (1975) noted that public dissatisfaction with methods of quality control in health care resulted in approximately 75 pieces of national health insurance legislation. Many of these proposals included a review of professional standards and advocated for the establishment of formal CPD requirements. In fact, a United States Department of Health, Education, and Welfare (1971) publication urged federal and state legislative efforts in health care credentialing to consider including mandatory continuing education provisions. Jones (1975) noted that various professions such as medicine, psychology, dentistry, and optometry, subsequently implemented continuing education requirements. Additionally, legislative and regulatory boards of many professions began to specify continuing education as a requirement for license renewal in the 1970's (VandeCreek, Knapp, & Brace, 1990).

Education also was developing the concept of professional development for staff members during the 1960's and 1970's. Until the mid 1970's, the term "in-service training" was used to refer to workshops conducted before school opened, state teachers' conventions, weekend teacher institutes, or courses off campus (Dillon-Peterson, 1991). Dillon-Peterson (1991) reported that the term "staff development" was not used until the mid 1970's, and few school districts implemented systematic professional development programs. In fact, the National Staff Development Council (NSDC) was not created until 1969. Since then, staff development has acquired popularity in school districts throughout

the U.S. and has been viewed as a vehicle through which to improve the educational system. Overall, CPD received increasing attention during the 1960's and 1970's and prompted professions as well as school districts to consider the importance of CPD for improving and enhancing service delivery.

*Federal Support for Continuing Professional Development.*

The Eisenhower Professional Development Program (under Title II, Part B of the 1994 reauthorization of Elementary and Secondary Education Act) was created as a federal grant program specifically intended to support high-quality professional development that would provide teachers with the knowledge and skills necessary to improve student learning (United States Department of Education, Office of the Under Secretary, Planning and Evaluation Service, Elementary and Secondary Education Division, 1999). Of note, this program was renamed the K-16 Professional Development Collaborative under Title II of the NCLB Act of 2002. In 2000, the average amount of state grants awarded by this program was \$6,352,000 (Eisenhower Professional Development Program, 2001). Through this program, monies are available to state education agencies (SEA's), local education agencies (LEA's), state agencies for higher education (SAHE's), institutes of higher education (IHE's), and nonprofit organizations (NPO's) (United States Department of Education et al., 1999). The funds are primarily used to target instruction in science and mathematics; however, funds also may be used to develop teachers' skills in other academic content areas. The Eisenhower Professional Development Program advocates for high-quality programs that are coordinated and planned components of an on-going school district system as opposed to short-term CPD methods, such as workshops.

Furthermore, IDEIA (2004) provides support for opportunities for professional development under Title I Part D (i.e., National Activities to Improve the Education of Children with Disabilities) in order to improve educational outcomes of children with disabilities. The law specifically states, “high quality, comprehensive professional development programs are essential to ensure that the persons responsible for the education or transition of children with disabilities possess the skills and knowledge necessary to address the educational and related needs of those children...Models of professional development should be scientifically based and reflect successful practices, including strategies for recruiting, preparing, and retaining personnel” (p. 118, Sec 650., 20 USC 1450). The law requires that 100% of all State Improvement Grant (SIG) money be used to conduct professional development for both general and special education school personnel. For example, these funds may be used to develop mentoring programs for staff, train school personnel to conduct effective Individualized Education Plan (IEP) meetings, and create collaborative team problem-solving groups.

Both the Eisenhower Professional Development Program and the National Activities to Improve the Education of Children with Disabilities provide school districts with the opportunity to implement high quality and comprehensive professional development practices. The allocation of these monies speaks to the national recognition of CPD as a critical means for promoting successful student outcomes.

#### *Factors in School Psychology that Impact Continuing Professional Development*

School psychology has been recognized as a field that has a special need for continuing professional development (Fowler & Harrison, 2001; Lam & Yuen, 2004). Hynd, Pielstick, and Schakel (1981) suggested that school psychologists may be required

to update their skills every three to five years due to the rapid changes in the field.

Arguably, professional development should be viewed as an on-going process that takes place through collaboration and problem-solving with colleagues (NSDC, 2001).

However, the main idea is that school psychologists function within a complex ecology that is greatly influenced by legal, social, professional, and economic factors (Sheridan & Gutkin, 2000). These ever-changing dynamics impact the profession and the manner in which services are provided (Bradley-Johnson & Dean, 2000). Fagan and Wise (2000) noted that school psychologists in the 21<sup>st</sup> century do not operate the same way as school psychologists did in previous decades due to societal changes that impact those who receive school psychological services and, in the process, redefine the role of the school psychologist. School psychologists are challenged to provide effective services and demonstrate accountability for those services in the midst of constant societal change.

*Legislative changes.* State and federal legislative mandates represent one salient factor that impacts the field of school psychology (Reschly, 2000). The NCLB Act (2001) requires schools to demonstrate accountability for academic outcomes of *all* students, increased flexibility for states and school districts in the use of federal education funds, the use of scientifically-based educational programs and practices, and more choice for parents. A major emphasis of NCLB is that schools demonstrate that all students are meeting rigorous academic standards. School districts must report Adequate Yearly Progress (AYP) data that are disaggregated by specific student category. The categories include: (a) African American; (b) Asian/Pacific; (c) Caucasian; (d) Hispanic; (e) Native American; (f) Economically Disadvantaged; (g) Student with Disabilities; and (h) English Language Learners. Each year schools must meet performance targets in

reading and math in order to demonstrate that they are on track to meet 100% proficiency by the 2013-14 school year. This piece of legislation has significant implications for student support services personnel, including school psychologists, who are now required to demonstrate that programs, interventions, and services delivered are linked to academic progress and the attainment of state and national standards.

In alignment with NCLB, the reauthorization of the IDEA (1997), as well as the Individuals with Disabilities Education Improvement Act (IDEIA) (2004), maintained the basic structure of IDEA but included new requirements regarding how schools can determine whether a child has a specific learning disability. The IDEIA allows schools to use data-based evidence regarding how well a student responds to scientifically-based interventions (commonly referred to as Response to Intervention [RtI]) to decide on the presence or absence of a specific learning disability (Brown-Chidsey, 2005). Response to Intervention was proposed as an alternative to widely used model that is based on documentation of a significant discrepancy between cognitive ability and academic achievement. Response to Intervention is an approach to delivering services at increasing levels of intensity (Florida Department of Education, 2005). Evidence-based interventions are continued, modified, or dropped based on the student's data-based response to the intervention. One of the major goals of RtI is to assess whether students are being exposed to an effective curriculum and receiving adequate instruction, which will enable them to meet academic standards and benchmarks. Response to Intervention is in alignment with NCLB (2001) and IDEIA (2004) because it focuses on delivering effective instruction in the general education classroom, emphasizes the use of evidence-based interventions, uses data to make educational decisions, and de-emphasizes labeling



students (Vaughn & Fuchs, 2003). In general, NCLB (2001) and IDEIA (2004) require that states and school districts demonstrate that the services they provide lead to academic competence and achievement for all students. School psychologists play a critical role in ensuring that schools are in compliance with these laws, and, more importantly, that students receive appropriate services that will help them academically succeed. For a thorough discussion of the impact of IDEA on school psychology see Reschly (2000).

*Demographic changes.* The Current Population Survey (CPS), conducted by the United States Census Bureau in 2003, indicated that more than one-fourth, or 74.9 million people, of the United States population aged 3 and older attended school (Shin, 2005). Between the years of 1983 and 2003, the number of children enrolled in elementary (Grades 1-8) and high school (Grades 9-12) increased by 8 million (i.e., from 41.2 to 49.6 million). Between the years 2001 and 2013, the National Center for Education Statistics (2003) projected a 5% increase in school enrollment in both public and private sectors. Factors that contribute to these projections include internal migration, legal and illegal immigration, and the high level of births in the 1990's.

The field of school psychology also is challenged to meet the needs of an increasingly diverse student population. Shin (2005) reported that elementary and high school students are more diverse today as compared to the "baby boom" generation. In 1970, the United States student population was 79% non-Hispanic White, 14% Black, 6% Hispanic, 1% Asian/Pacific Islander and Other. In 2003, data indicated that 60% were non-Hispanic White, 16% Black, 18% Hispanic, and 4% Asian. This trend in increasing percentages of racial/ethnic minority students is expected to continue in the future (Shin,

2005). In fact, by 2025 it is estimated that one-quarter of all United States public school students will be Latino (Gregory, 2003). It also is estimated that over 6 million children in the United States will be English Language Learners by the year 2020 (Ysseldyke et al., 2006). These demographic changes will require that school psychologists and the greater educational system implement culturally sensitive instructional practices in schools (National Center for Culturally Responsive Educational Systems, 2005).

Increases in student enrollment along with greater racial/ethnic and cultural diversity create a pressing need for school psychological services that actively address this diversity. As Baker, Kamphaus, Horne, & Winsor (2006) indicated, the increasing diversity of the student population will result in variability in children's academic performance and behavior in the classroom. School psychologists should acquire skills and competencies that will enable them to adapt to these changing student enrollment conditions (Ysseldyke et al., 2006).

#### *Professional Organizations and Continuing Professional Development*

The need for CPD has been recognized by professional psychological associations. The NASP (2000), APA (1981), and International School Psychology Association (ISPA) (Oakland, Goldman, & Bischoff, 1997) have established guidelines and ethical principles for the delivery of psychological services. These guidelines recommended that providers of psychological services maintain professional competency in order to responsibly and ethically provide services to clients. Each of these professional organizations included CPD as a core component of competent and ethical practice. The NASP Guidelines for the Provision of School Psychological Services (2000) specifically delineated CPD as a central component of ethical and professional

conduct in the schools (as specified in Unit Guideline 5: Supervision and Unit Guideline 6: Professional Development and Recognition Systems). The APA Specialty Guidelines for the Delivery of Services by School Psychologists (1981) specifically required that school psychologists maintain current knowledge to preserve and enhance professional competence (Guideline 1.5). The Code of Ethics of the ISPA identified professional growth (Professional Standard III) as a core value and principle of school psychology practice (Oakland et al., 1997).

Furthermore, the *School Psychology: A Blueprint for Training and Practice III* (Ysseldyke et al., 2006) provided the field with a framework to guide training and practice in school psychology. The blueprint content was revised due to the numerous legislative changes, a need for a safer school climates and mental health services (e.g., as a result of school violence across the United States), and the expanding role of school psychologists. The task force (Ysseldyke et al., 2006) for the blueprint indicated that school psychology training and practice is focused on achieving two goals: (a) improving competencies and skills of all students; and (b) building capacity via systems change to create or improve systems that will most efficiently and effectively serve students and families. Ysseldyke et al. (2006) suggested that these goals can be achieved as practitioners develop their skills and competencies and integrate them into daily practice. It is expected that school psychologists will continually work toward higher levels of competence during their careers. There are eight competency domains (as stated previously in Chapter I) that are divided into foundational (i.e., competencies/skills which are build upon in practice) and functional (i.e., competencies/skills that are exercised in practice) competencies. Continuing professional development is specifically cited in the

*Professional, Legal, Ethical, and Social Responsibility* foundational domain. This domain indicated that it is the school psychologist's ethical and professional responsibility to engage in CPD in order to stay current and adapt to the societal trends/movements that impact the field. More importantly, CPD is seen as a lifelong process in which the blueprint may be used to guide personal and systems-level professional development. Ysseldyke et al. (2006) stated that the competencies should be viewed as an "integrated set of competencies that will require lifelong learning" (p. 2). This suggests that CPD is seen as more than just separate, disjointed activities, but, rather, as a lifelong pursuit of knowledge that occurs at both the individual and systems level.

*The Nationally Certified School Psychologist Continuing Professional Development Program.* According to NASP (2003), the current NASP Continuing Professional Development Program provides all members an opportunity to grow professionally through participation in a variety of CPD activities. School psychologists are encouraged to develop a personal plan to guide the selection of CPD activities. Specifically, the program is targeted for those school psychologists who hold the Nationally Certified School Psychologist (NCSP) credential. The CPD program requires the completion of 75 clock hours of CPD activities within a three-year period to renew the NCSP credential. Renewal of the NCSP requires the documentation and maintenance of records of CPD activities. Applicants who wish to renew their NCSP credential are subject to a random audit wherein they are required to provide documentation so that the National School Psychology Certification Board can verify the completion of the required CPD activities. The applicants who receive an audit have 60 calendar days from

the date of notice to document the 75 CPD credits. Continuing professional development activities are recognized by the national certification system according to the following categories: (a) Group A: Workshops, conferences, and in-service training; (b) Group B: College and university courses; (c) Group C: Teaching and training activities; (d) Group D: Research and publications; (e) Group E: Supervision of interns; (f) Group F: Postgraduate supervised experiences; (g) Group G: Program planning and evaluation; (h) Group H: Self study; and (i) Group I: Leadership in professional organizations. A detailed explanation of CPD requirements, documentation procedures, and activities is provided in the NCSP Renewal Guidelines (NASP, 2003).

*The National Staff Development Council's Standards for Staff Development.*

Although the NSDC standards for professional development do not guide CPD initiatives or practices in the field of school psychology, they provide a useful framework through which to view effective CPD. The NSDC “recognizes that sustained, intellectually rigorous staff development is essential for everyone who affects student learning” (NSDC, 2001, p. 2). Presumably, this includes school psychologists because they both directly (e.g., counseling services) and indirectly (e.g., consultation with teachers, system-level change) impact student learning. Therefore, these standards are deemed appropriate for inclusion in a discussion of the field of school psychology. One of the guiding principles of the NSDC is that “improvement is always unfinished” (p. 3). Therefore, individuals, groups, schools, and school districts can utilize these standards in an effort to continuously improve outcomes for students.

The NSDC (2001) advocated for comprehensive professional development that addresses the following three essential standards, which collectively can lead to student

learning and improved outcomes: (a) *context* (e.g., resources available, incentives for school psychologists to participate in professional development, district leadership, and presence of problem-solving teams); (b) *process* (e.g., conditions under which learning occurs, collaboration, using student data to determine adult learning priorities, and strategies to engage school psychologists as adult learners); and (c) *content* (e.g., the skills and knowledge that professionals need in order to ensure successful student outcomes) (Guskey & Sparks, 1996). These three core standards are deemed essential for the creation of a social climate that promotes both individual and system-level professional development. Ryan and Deci (2000) argued that participation in social contexts, or climates, can promote active engagement that may lead to enhanced motivation and well-being. The authors contended that these social contexts can be constructed in such a way as to facilitate positive outcomes for staff (e.g., intrinsic motivation, personal/professional development, and self-regulation of behavior). They provided evidence that indicated social contexts that are: (a) supportive of professional autonomy; (b) provide opportunities for professionals to experience connectedness/relatedness to others; and (c) provide the necessary supports to allow professionals to develop competence (e.g., assuring that professionals have the prerequisite skills to learn new material, providing support via mentoring/coaching) are more likely to foster such positive outcomes for professionals and strengthen the working environment. As is illustrated below, the NSDC standards reflect these critical elements.

The NSDC (2001) suggested that an effective *context* for professional development includes: (a) learning communities; (b) leadership; and (c) resources. These three requirements are deemed necessary to create a climate that facilitates CPD. First,

the creation of learning communities organizes staff into teams that collaborate and meet on a regular basis to examine achievement standards/benchmarks, problem-solve issues related to student achievement, and determine professional development needs. These learning communities are core problem-solving units that promote ongoing discussion and support regarding student learning and achievement. These communities provide an important opportunity for staff to interact with each other on a frequent basis and create a sense of community, trust, and competence. Communities may consist of administrators, teachers, or other staff members.

Second, leadership includes leaders at all levels (e.g., district, school, and classroom) who guide the development and implementation of professional development initiatives. Moreover, leaders provide the necessary guidance, vision, and support to see that CPD initiatives come to fruition. A systems-level vision is often required to implement successful professional development on a larger scale. School psychologists have been cited as potential leaders who can foster and develop CPD initiatives within the school system because they possess a diverse range of knowledge and skills (Lau et al., 2006; Ross, Powell, & Elias, 2002). Youngs and King (2002) investigated the role of the principal's leadership in the process of school-wide professional development and building the school's capacity for change. Results from a multiyear, qualitative investigation of four urban public elementary schools indicated that a strong principal leader can foster a capacity for change by encouraging staff to establish shared goals for student learning, collaborate and problem-solve to reach decisions, and exert influence and/or control over their work. Schools whose CPD efforts lead to improved academic outcomes all had principals who facilitated the change process in the previously noted

ways. Overall, the results suggested that the principal can assume a leadership position that gradually builds a school's capacity for change, which can indirectly impact student learning and adult professional development.

Finally, the availability of resources (e.g., allocation of funds) is considered an integral component of CPD in order to support district-wide professional development initiatives and action plans. The NSDC (2001) advocated that school districts allocate at least 10% of their budget to staff development and that at least 25% of time be devoted to professional learning and collaboration. However, NSDC reported that many schools actually allocate only 1% or less to professional development. Glickman, Gordon, and Ross-Gordon (2001) offered an analogy that illustrates the commitment of school districts to CPD:

When a customer purchases a new car costing upwards of \$30,000, he or she brings it in every 5,000 miles for preventative maintenance and fine-tuning. The customer continues to put additional money into the car to prolong its life and performance. Simply to run the car into the ground would be a dumb way to protect such an investment! In education, the school board is the customer, who purchases more than a new car with its \$30,000 initial investment—it purchases a living and breathing professional! Without resources for maintaining, fine-tuning, and reinvigorating the investment, the district will run teachers [and arguably other school professionals] into the ground. This is far more consequential than a neglected car. The district will lose teachers, physically and/or mentally. The real losers will be the students of these teachers (p. 360).



However, Glickman et al. (2001) reported that states have increased their expenditures on CPD in local school districts since the series of national reports regarding CPD in the mid-1980's. Resources may be used to hire trainers, part-time coaches, external consultants, or substitute teachers (e.g., to fill in for teachers while they receive training) to facilitate the adult learning process. Additionally, resources can provide stipends to teachers who attend professional development training. Overall, learning communities, leadership, and resources are three components that create an appropriate context for professional development.

The NSDC (2001) advocated that the *process* of professional development incorporate the following components: (a) conduct data-driven assessment and evaluation; (b) evaluate the effectiveness of CPD efforts; (c) apply research to the decision-making process; (d) utilize appropriate and varied adult learning strategies; and (e) collaborate with colleagues. These elements describe best practice principles in how to conduct professional development in the school setting. A brief description of each component is presented below.

First, data-driven professional development entails using disaggregated student data (e.g., standardized tests, work samples, disciplinary action reports, grade retention statistics) to determine adult learning objectives and priorities. Student data are used to guide adult professional learning, as well as to assess and evaluate professional development goals for summative and formative information. Lastly, data may be used to motivate staff as they see that CPD efforts are positively impacting student performance.

Second, effective professional development efforts utilize information from multiple sources in order to evaluate the quality and impact of CPD. The NSDC (2001)

suggested that evaluation go beyond initial thoughts and reactions to workshops and include assessments of skill acquisition (e.g., routine classroom observations, anecdotal information), examinations of student data (e.g., progress monitoring, tracking disciplinary records), or reviews of professional portfolios. Notably, the NSDC indicated that those receiving evaluation data (e.g., groups or individual teachers) need to have the prerequisite knowledge to interpret data. Lastly, the NSDC stressed that different audiences will require varying forms/types of data in order to satisfy their specific concerns. They recommended that the following framework be completed as a useful exercise to facilitate this process (p. 19).

Table 1

*Framework Used to Acquire Data from Multiple Sources*

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Decision Makers	Typical Questions	Data Sources for Responses
1. School Board		
2. Superintendent		
3. Principals		
4. Teacher Leaders		
5. Parents		
6. Business Partners		

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Third, effective professional development requires that staff apply research to the decision-making process. Staff should critically examine the research and make informed decisions regarding practices that will promote student achievement. For example,

schools may invite researchers to present to school staff, forge university partnerships, or visit other model schools in order to create and sustain a culture of inquiry and research. The NSDC (2001) suggested that schools conduct pilot studies to determine the effectiveness of research-based curricula or programs prior to large-scale implementation. Research is considered to be a staple of CPD efforts because it will inform and guide decision-making throughout the process.

Fourth, effective CPD recognizes that adult learning strategies must be utilized in order to meet individual, group, and district goals. The NSDC (2001) suggested the use of varied strategies to promote learning, such as collaboration with colleagues, study groups, professional associations, online support networks, internet-based learning, live/video modeling, or feedback sessions. The main goal is to use learning strategies that allow staff to gradually incorporate what they have learned on a routine basis. Adult learning strategies should entail more than one time workshop or presentations, but, rather, include a carefully selected combination of learning strategies that best fit the needs of the staff. The NSDC stated that adult learners must have a deep understanding of what they learn and that “such deeper understanding typically requires a number of opportunities to interact [and practice] with the idea or procedure through active learning processes that promote reflection such as discussion and dialogue, writing, demonstrations, practice with feedback, and group problem-solving” (p. 24). Joyce and Showers (1988, 2002) demonstrated that CPD for teachers was most effective if training included information, theory, demonstration, practice feedback, and coaching. Collectively, all of these training elements lead to greater transfer of skills in the classroom. Joyce and Showers (2002) argued that transfer of training to the classroom is

essential for CPD to have a direct and positive impact on student outcomes. Furthermore, Lankard (1995) also argued that it is critical to promote learning in the workplace via linking study to practice, providing opportunities for reflection, and programming for transfer of knowledge to different situations. These methods of learning serve to enhance adult learning and, ultimately, the processes that impact student achievement.

Lastly, the NSDC (2001) suggested that collaboration with colleagues is one of the most important types of professional development within the school setting. The goal of collaboration is to provide an interpersonal context that is supportive and fosters a culture of problem-solving and data-based decision-making. The NSDC stated that CPD efforts should focus on arming staff with the appropriate knowledge (e.g., group processes, stages/phases of group development) and skills (e.g., conflict resolution, consensus building) in order to form and participate in school-based teams. Teams may consist of administrators, teachers, or a combination of staff employees. Additionally, they noted that technology, such as the internet, list serves, and web conferences also may enhance collaboration among colleagues from varying demographic regions. King (2002) demonstrated the importance of collective teacher inquiry, which occurs when teachers collaborate to systematically discuss and critique professional practices as they relate to student outcomes. More specifically, King stated that effective teams have “considerable control over process and content of CPD [and] critically discuss issues related to the school mission, curriculum, instruction, or student learning, address areas of disagreement and entertain diverse viewpoints, draw upon relevant data and research to inform deliberation, and sustain a focus on a topic or problem, and reach a collective decision” (p. 246). Arguably, school psychologists are an integral part of the collective

inquiry process and can acquire CPD benefits from participation. The inquiry process should reflect the issues and norms specific to that local community (NCSD, 2001).

Overall, data-driven assessment and evaluation, summative and formative evaluation of CPD efforts, application of research to the decision-making process, implementation of effective adult learning strategies, and collaboration are process-oriented components that can facilitate professional development in the school setting.

Finally, *content* is another necessary component of comprehensive professional development. Content refers to what topics, issues, or learning objectives will be the focus of professional development efforts. This component includes the following: (a) equity; (b) quality teaching; and (c) family involvement. Equity means that school personnel establish effective teaching practices (e.g., differentiating instruction, addressing students' cultural backgrounds), create safe environments that foster social-emotional development, establish behavior management practices that promote self-regulation/management, and communicate high expectations for all students. This may entail implementation of school-wide positive behavioral support or evidenced-based curriculum program empirically tested with a diverse population of students.

Second, successful professional development promotes quality teaching practices that include a deep understanding of subject area content, use of appropriate and evidence-based instructional methods, and application of multiple assessment strategies. Professional development for staff may include summer institutes, university coursework, study groups, classroom coaching, or observations of demonstration lessons. These learning strategies are specifically geared toward learning instructional methods and assessment tools that will allow students to meet academic standards. Additionally, the

NSDC (2001) stated that instructional leaders (e.g., administrators) are responsible for aligning curriculum, instruction, and assessment strategies as well as creating a culture of continuous learning and improvement.

Lastly, meaningful family involvement requires that administrators and staff actively engage both families and community members in efforts to improve student learning. For example, partnerships may be forged with parents, local businesses, or community agencies. It is essential that these partnerships establish mutual goals and communicate respect for different perspectives and/or opinions. Overall, the NSDC (2001) deemed it important that the school, home, and community collectively support student learning while respecting the differences that may arise as these relationships are sustained over time.

In summary, the NSDC (2001) presented three core standards of *context*, *process*, and *content* necessary for effective professional development to improve student learning. These standards may be utilized by individuals, groups, schools, school districts, or state departments of education to guide professional development efforts. The NSDC stated that professional development is no longer the sole responsibility of a designated “staff developer” or “professional development coordinator”, but it is the responsibility of all those who impact student learning (p. 2).

*Empirical support for the National Staff Development Council Standards.* In reviewing the research literature on professional development from the 1970’s through the 1990’s, Glickman et al. (2001) identified the following characteristics of effective professional development programs:

- (a) involvement of participants in planning, implementing, and evaluating programs
  - (b) programs that are based on school-wide goals but that integrate individual and group goals with school goals
  - (c) long range planning and development
  - (d) programs that incorporate research and best practice on school and instructional improvement
  - (e) administrative support, including provision of time and other resources as well as involvement in program planning and delivery
  - (f) adherence to the principles of adult learning
  - (g) attention to the research on change, including the need to address individual concerns throughout the change process
  - (h) follow-up and support for transfer of learning to the school or classroom
  - (i) ongoing assessment and feedback
  - (j) continuous professional development that becomes part of the school culture
- (p. 363).

Glickman et al. (2001) provided detailed case examples of school districts that have incorporated these elements into successful comprehensive CPD programs. Additionally, other studies have described CPD initiatives that have included many of these characteristics of effective CPD, which were found to be associated with positive outcomes, such as decreases in the percentage of students determined eligible for special education services (Lau et al., 2006) and increased knowledge and use of reading

interventions by classroom teachers to improve student learning outcomes (Truscott & Truscott, 2004).

Support for the NSDC standards is offered by the American Institutes for Research (AIR) based on their evaluation of the Dwight D. Eisenhower Professional Development Program (Garet et al., 1999). The AIR evaluated the program via intensive case studies of 10 school districts located in Ohio, New York, Kentucky, Texas, and Washington, a national sampling of district Eisenhower coordinators, directors, and teachers to assess the current status of the program (i.e., The National Profile), and a longitudinal study of science and mathematics teacher change from 30 schools (i.e., data collected from 1996 through 1999). Overall, the data suggested that the impact of CPD was stronger when district programs reflected the following six quality indicators: (a) utilized “reform” type of CPD (e.g., teacher network, study group, peer coaching) versus a traditional approach (e.g., workshop); (b) sustained CPD over time; (c) involved groups of teachers who collaborated from the same school, grade, and/or department; (d) incorporated active adult learning principles; (e) focused on specific content and effective teaching strategies; and (f) ensured that teachers’ CPD goals and activities were in alignment with building-wide, district, state, and national goals.

These findings by the AIR were consistent with previous professional development research in that effective CPD is systematic, goal directed, aligns with state and national standards, and meets the needs of both teachers and students. As a result of this research, the Eisenhower Professional Development Program has emphasized its support for districts that systematically plan CPD that addresses both individual teachers (or school practitioners in general) and school-wide goals designed to improve student



learning. Undoubtedly, school psychologists are integral school district employees who also would benefit from a comprehensive, adult learner centered CPD program.

Research by Lowden (2005) provided additional support for the NSDC standards. The purpose of the study was to examine the characteristics of professional development programs in K-12 public schools and how they related to teacher change. Participants included 250 teachers who represented 11 schools. Participants completed and returned surveys via mail. Results indicated that effective professional development: (a) was linked district goals and school improvement; (b) was aligned with teacher evaluation processes; (c) was offered during the school day; (d) consisted of individual CPD plans, guided practice, reflection, mentoring, district curriculum development, peer study groups, and long-term courses with district support; and (e) addressed content that was determined by school and community stakeholders. Those teachers who rated their professional development experiences as effective (i.e., endorsed a majority of above characteristics) reported more satisfaction, learning, organizational support, positive change in knowledge and skills, positive teacher perceptions of student learning, and positive attitudes and beliefs as compared to those who reported participating in professional development characterized as ineffective.

Garet, Porter, Desimone, Birman, and Yoon (2001) provided further support for the NSDC standards. They examined professional development factors that increased positive teacher self-reported outcomes. Participants included a national sample of 1,027 mathematics and science teachers who participated in the Eisenhower Professional Development Program to compare selected characteristics of professional development and their relationship with teacher self-reported learning (i.e., increase in knowledge and

skills and changes in classroom teaching practices). Teacher outcome measures included ratings on the impact that CPD had on their knowledge and skills as well as the extent to which they perceived themselves changing their teaching practices in six domains (e.g., instructional methods, use of technology to facilitate student learning). Results indicated that a focus on specific content knowledge, opportunities for active learning with colleagues, and CPD initiatives coherent with district and state standards were necessary core conditions for effective professional development. The combination of these core conditions and the following variables significantly impacted teacher learning: (a) reform CPD activity (e.g., peer coaching as opposed to more traditional types of CPD); (b) collective participation for the same grade, school, or subject; and (c) sustained CPD efforts (i.e., provided an opportunity for discussion and debate and allowed teachers to practice what they learned). Overall, results indicated that CPD that is sustained, intensive, focused on content knowledge, provides opportunities for active learning, and is integrated into everyday practices in the school setting is more likely to result in enhanced knowledge and skills. Furthermore, results suggested that it may be important to concentrate on the core conditions (i.e., content, active learning, consensus on goals/vision), duration of CPD, and collective participation rather than focusing on the type (i.e., reformed versus traditional) of CPD activity.

Milne et al. (2003) demonstrated that these core conditions may be more influential than the actual type of CPD format or activity. They investigated the effectiveness of an evidence-based staff training program. Participants included mental health staff who worked in a residential setting for clients with severe mental health concerns. The participants were assigned to either a training group (n= 18) or control

group (n=7). The 10-day experiential workshop covered the following topics: functional analysis, behavioral interventions, and staff self-regulation and support systems. Prior to training, participating staff were interviewed individually to assess their attributions regarding challenging client behavior as well as peer/management support needs. Outcome measures included eight instruments that were used to evaluate the process, outcome, and organizational context of the training. Results indicated: (a) significant improvement in participants' knowledge and skills (as evidenced by higher scores on the knowledge quiz and video-based exercise); and (b) significantly more self-reported use by participants of the methods they learned six to nine months after the training as compared to prior to training. Facilitators of transfer of training included: (a) organizational support; (b) involvement of all staff in the training; (c) consistent and on-site support from trainers; (d) continuity of the staff; and (e) support from colleagues. Overall, transfer of training occurred because training was integrated into participants' daily routine.

In summary, the NSDC (2001) provided a specific set of standards to help guide the development of comprehensive professional development programs in school settings. These standards may be utilized by a wide range of individuals from state department administrators to individual school psychologists. The NSDC standards are supported by empirical research demonstrating that effective CPD efforts are characterized by specific elements. The presence or absence of these elements may influence the extent to which professional development initiatives are actualized in practice.

*Practices and Perceptions of Continuing Professional Development by School*

*Psychologists*

Continuing professional development is cited as critical in advancing the profession of school psychology to meet the increasing needs of students and families (Chafouleas et al., 2002; Crepsi & Rigazio-Digilio, 1992; Dawson et al., 2003; Fowler & Harrison, 2001; Lam & Yuen, 2004; Macklem et al., 2001; Murphy, 1981; Nastasi, 2000; Rosenfield, 1981; Swerdlik & French, 2000). However, few empirically-based studies have solely investigated the CPD activities of school psychologists, demographic characteristics, professional practice, or employment condition variables related to CPD, and perceptions of CPD by school psychologists (Fowler & Harrison, 2001; Lam & Yuen, 2004). Numerous studies have examined supervision of school psychologists (Chafouleas et al., 2002; Fischetti & Crespi, 1999; Ross & Goh, 1993; Zins et al., 1989); however, supervision is only one type of CPD (Lam & Yuen, 2004). Additionally, some studies (Chafouleas et al., 2002; Reschly & Connolly, 1990; Ross & Goh, 1993; Watkins et al., 1991) have examined CPD as a “by product” of their primary subject of interest (Fowler & Harrison, 2001, p. 76). Overall, few studies have emerged in an effort to address the limited knowledge base. The following sections will detail empirical studies of CPD in relation to demographic characteristics, professional practices, and employment conditions of school psychologists.

*Continuing professional development practices.* Fowler and Harrison (2001) examined the CPD needs of 235 school psychologists and their relationship with demographic, preservice training, and incentive variables. Furthermore, the study

investigated the types, amount, and frequency of CPD activities, as well as the relationship between the CPD needs of school psychologists and their actual engagement in CPD activities. Demographic variables examined included age, gender, professional credentials, marital status, parental status, and years of experience in school psychology. Preservice training variables included degree level, recency of school psychology degree, preservice training program accreditation/approval, preservice training in CPD self-management, and preservice training in aspects of CPD management (e.g., selecting and stating CPD goals, selecting learning options to meet CPD goals). Incentive variables included credentialing purposes, employer incentives for engaging in CPD, and personal needs and interests (e.g., opportunity for self-assessment of CPD needs, opportunity to practice new skills and receive feedback during CPD training). Participants worked in school settings and their characteristics were reported to be comparable to the 1994-1995 Regular NASP membership as reported by Curtis, Hunley, Walker, & Baker (1999). A survey was mailed to 500 Regular NASP members requesting information relating to: (a) demographic characteristics; (b) preservice training; (c) incentives for CPD; and (d) typical CPD activities completed. Participants also were asked to complete a rating scale of CPD needs based on the six areas of skill development as delineated in the *NASP Guidelines for the Provision of School Psychological Services* (NASP, 1997).

Frequency data indicated that the most commonly endorsed incentives for CPD included paid leave time for training and paid leave with monetary reimbursement for CPD-related expenses. Participants rated personal CPD needs and interests as being likely to influence CPD involvement. Personal needs and interests included an opportunity to: (a) conduct a self-assessment of CPD needs; (b) provide input when

developing CPD goals and objectives; (c) select learning options to meet personal CPD needs; (d) practice new skills and receive feedback during CPD training; and (e) evaluate CPD training and goal attainment. Participants most commonly reported engaging in self-study and attending workshops, institutes, and in-service training programs. More than 90% of respondents reported attending in-service programs and workshops within the preceding year. Approximately 71% of the respondents reported participating in CPD activities ranging from 21 to 41 or more clock hours during the preceding year, with 43.2% engaging in CPD activities on a quarterly basis and 27.8% on a monthly basis.

Participants also identified their CPD needs using a 5-point Likert-format scale in the areas of assessment, consultation, direct service, program planning and evaluation, research, and supervision (1 = no CPD needed; 5 = extensive CPD needed). Subscale mean scores indicated that school psychologists rated direct service (2.96) and consultation (2.94) as the areas of greatest CPD need. Other areas included supervision (2.65), program planning and evaluation (2.57), research (2.54), with assessment being reported as the lowest area of need (2.49). Additionally, respondents identified moderate to high levels of CPD need (i.e., defined as items rated by 50% or more of the sample as 3 or higher) within each area. Respondents rated all eight areas in the consultation subscale as reflecting moderate to high CPD needs. Behavioral consultation (77.4%) and educational consultation (70.2%) were identified as being moderate to high need areas most frequently. Six out of seven items in the direct service subscale were endorsed by respondents, wherein interventions for individuals (80.9%) and interventions for affective development (78.3%) were endorsed most frequently. Notably, no items on the supervision subscale were rated as moderate to high CPD need.

Continuing professional development needs and their relationship with demographic, preservice training, and incentive variables were examined using a one-way analysis of variance (ANOVA). Results indicated no significant relationship between any demographic variable and perceived CPD needs. In addition, no significant differences were found for CPD needs based on degree level, training program accreditation/approval, recency of preservice training, credentialing, or employer incentives for CPD. However, significant group differences were found for one preservice training factor, perceived value of CPD management training in the areas of assessment, direct service, and research. On the other hand, most respondents (89.3%) reported that they had not received CPD management training in their graduate programs even though 83% of them expressed the belief that this training has value. Interestingly, school psychology researchers have advocated for school psychologists being taught how to create a self-managed CPD plan during graduate training since the 1980's. For example, Rosenfield (1981) recommended that school psychologists should set clear CPD goals based on personal professional needs as opposed to haphazardly selecting activities that are not a part of an integrated CPD plan.

Fowler and Harrison (2001) also reported that their analyses indicated that numerous personal incentive items were related to participants' reported CPD needs. Specifically, opportunity for self-assessment of CPD needs was found to be significantly related to perceived CPD needs in the area of supervision. Opportunity to practice new skills and receive feedback was significantly related to perceived CPD needs in direct service and research areas. The opportunity to evaluate CPD training and goal attainment

was significantly related to participants' CPD needs in the areas of direct service and supervision.

Furthermore, results revealed that school psychologists' reported CPD needs in each skill area (i.e., direct service, consultation, assessment, program planning and evaluation, supervision, and research) were significantly related to the actual amount of CPD activity in which they engaged, with correlations ranging from .16 to .23 ( $p < .001$ ). However, Fowler and Harrison (2001) noted that these correlations were small and of little practical significance. Lastly, the participants perceived CPD needs were not related to frequency, amount, or type of CPD activity. The researchers speculated that this finding emerged because these particular school psychologists engaged in frequent and large amounts of CPD that were similar in type (i.e., workshops and in-services).

Overall, participants reported frequently engaging in more traditional forms of CPD primarily in the areas of direct service, consultation, and assessment. For example, 90% of participants reported attending in-service training programs and workshop within the preceding year. The highest CPD needs in were found to be in the areas of consultation and direct service. Specifically, the highest needs were found in interventions for individuals, groups, and affective development as well as in behavioral, mental health, and educational consultation. Few significant relationships were found between CPD needs and demographic, preservice training, and incentive variables. However, significant differences were found for perceived value of preservice CPD management training in the areas of assessment, direct service, and research despite the finding that few participants reported receiving training in CPD management. This suggests that CPD training (e.g., goal setting, seeking out CPD opportunities) may be an



important component of preservice training in order to prepare professionals to address their future CPD needs in the workplace. Personal incentives for CPD were related to the CPD needs of participants. The opportunity for self-assessment was found to be related to supervision needs. The opportunity to practice new skills and receive feedback was related to direct service and research needs. The opportunity to evaluate CPD training and goal attainment was related to needs in direct service and supervision. These findings suggest that CPD may be more meaningful and effective when school psychologists are actively engaged in planning their CPD and have more control and decision-making power over CPD activities.

*Perceptions of continuing professional development.* Guest (2000) investigated the career development of school psychologists and their perceptions of CPD. Twenty-five structured interviews were conducted with school psychologists from various racial/ethnic backgrounds. Results indicated that participants did not conceptualize or organize their careers in terms of distinct stages. The researchers hypothesized that school psychology is a unique profession due to environmental factors, such as legislation, changes in student demographic characteristics, and national disasters that impact children and families. These factors continually change role demands and expectations of school psychologists. Therefore, school psychologists may not follow an orderly, projected career development path. The researchers suggested that school psychologists' careers may be a series of short "mini careers" (p. 251). This hypothesis received some support in that results indicated that more seasoned school psychologists reported role changes over time. They reported more emphasis on consultation during the 1960's, followed by a transition to a more traditional assessment role during the 1970's

and 1980's, and then a recent movement to an expanded role (e.g., consultation, systems change). Participants identified CPD as being one of the most significant influences on their professional growth. The participants reported engaging in workshops, in-service training programs, conferences, and personally guided professional reading. Many participants reported that non-traditional CPD activities, such as working in non-school settings or being trained in organizational development, had a lasting and meaningful impact of their professional development.

Results related to supervision indicated that 64% of the respondents reported having one or more persons who they considered to be mentors during their careers; however, 36% recalled no mentors, but indicated that mentors would have been helpful, if available, early in their career. Most of the mentoring experiences reported by participants were informal in nature. Many school psychologists reported that they were “thrust into the field on their own” (p. 245). Only 8% of the respondents reported having had a formal mentor assigned to them when they entered the field. Those did not have a mentor assigned said they would have liked regular meetings with mentors, weekly meetings to discuss cases, and help with organizational facets of the job. It was important for the respondents to consult with other school psychologists concerning issues other than administrative issues (i.e., professional).

In summary, this study revealed that these particular school psychologists believed CPD was an important component of their work and that both traditional and non-traditional forms of CPD were important to their career development. However, non-traditional CPD had a greater impact on the participants' professional growth. They perceived their career paths as being a series of “mini careers” (p. 251) (as opposed to a

fluid, straightforward process), which may suggest that school psychologists' CPD needs are more contingent upon contextual factors and are changing and dynamic over time. Furthermore, this study revealed that participants received minimal supervision and career guidance.

### *Supervision*

McIntosh and Phelps (2000) define supervision within the field of school psychology as,

Supervision is an interpersonal interaction between two or more individuals for the purpose of sharing knowledge, assessing professional competencies, and providing objective feedback with the terminal goals of developing new competencies, facilitating effective service delivery of psychological services, and maintaining professional competencies (p. 33-34).

Little attention has been given to supervision in the school psychology literature. Bahr et al. (1996) conducted a literature search using the PSYLIT database over the 15 years between 1982 and 1996 and found 34 references relating to school psychology, as compared to 100 in counseling psychology, 125 in clinical psychology, and 468 in counselor education references. Despite the limited research base, studies examining supervision are essential to the examination of CPD because supervision is essential to the professional development of school psychologists (Chafouleas et al., 2002; NASP, 2000, APA, 1981; Murphy, 1981; Ross-Reynolds & Grimes, 1981). Supervision provides the opportunity for ongoing professional development as the professional is ideally challenged to improve their practices and be held accountable for their work (Knoff, 1986; Knoff, Curtis, & Batsche, 1997). However, the bulk of supervisory activities is

administrative rather than clinical in nature and is not directly linked to the provision of effective services in the schools (Murphy, 1981). As Murphy (1981) noted, “evaluation, of course, is not synonymous with supervision”, (p. 423) which means that supervision is far more comprehensive and complicated than yearly paper and pencil evaluations. Instead, supervision is a process that ideally fosters and promotes the professional development of the supervisee. Supervisors are required to fulfill numerous responsibilities such as the orientation and motivation of staff, the promotion of professional growth, the design and provision of in-service training, evaluation of staff performance, problem-solving with supervisees, and improving educational outcomes for students (Hunley et al., 2000; NASP, 2004).

Most studies investigating supervision in school psychology have examined supervision as a unitary construct (e.g., Chafouleas et al., 2002; Knoff, 1986; Ross & Goh, 1993; Williams, Williams, & Ryer, 1990; Zins et al., 1989). However, an important distinction should be made between clinical and administrative supervision.

Administrative supervision focuses on the monitoring and improvement of job duties, personnel issues, logistics of service delivery, and consumer satisfaction (as opposed to the improvement and expansion of professional skills and competencies) (NASP, 2004).

The NASP (2004) acknowledged that administrative supervision can be provided by individuals trained and credentialed in school administration and not necessarily school psychology. Clinical, or professional, supervision focuses on supporting practices that are consistent with professional standards, promoting CPD, and developing evaluation systems that are consistent with professional standards (NASP, 2004). The NASP (2004) recommended that clinical/professional supervision be provided only by a credentialed

school psychologist or someone holding an equivalent title (e.g., school psychology specialist, school psychology service provider). The NASP stated that supervision should include both professional/clinical and administrative supervision. Also, NASP recommended that supervisors themselves engage in CPD to maintain their supervisory skills as well as to be evaluated on their supervision methods and skills.

It is essential that all practicing school psychologists have access to quality supervision because they can benefit from the process regardless of level of experience (NASP, 2004). Supervisory techniques may include didactic readings, modeling, role-playing, direct observation, reviewing audiotapes and reports as well as alternative supervisory techniques such as peer mentoring, peer coaching, peer supervision, and video conferencing. In fact, group supervision (Bahr et al., 1996), and internet community support and networking (e.g., Global School Psychology Network) (Kruger, Shribert, Donovan, & Burgess, 1999; Macklem et al., 2001) have been cited as specific techniques that can be beneficial to the field of school psychology. Participants from several countries and over 30 states in the United States participate in the Global School Psychology Network (GSPN). The GSPN offers school psychologists opportunities to engage in discussion groups, on-line study groups, live text-based chats and interviews, listservs, and community-wide discussion forums. The GSPN provides school psychologists with professional support that is important considering factors such as professional isolation, insufficient or sporadic feedback, and lack of supervision.

Both NASP and APA delineated standards for the frequency of supervision practices. The NASP (2000) stated that interns, first-year school psychologists, and others for whom supervision is necessary should receive at least two hours of supervision per

week. Supervision and peer review should continue to be available after the first year of professional practice to ensure continued professional development and provide support for challenging cases. The APA (1981) delineated more stringent criteria that require non-doctoral psychologists receive one hour of face-to-face supervision each week from a doctoral-level psychologist throughout one's career. However, in spite of the standards of these professional associations, research indicates that many school psychologists in the United States (Chafouleas et al., 2002; Fischetti & Crespi, 1999; Ross & Goh, 1993; Zins et al., 1989) and in other countries (Lam & Yuen, 2004) do not receive these recommended levels of supervision.

Ross and Goh (1993) conducted a national survey to assess supervision practices for 331 NASP members. Results indicated that only 31.1% of respondents received supervision. Among those who received supervision, 69.1% reported receiving supervision on an "as needed" basis, 37.2% reported receiving four or more hours per month, and 34.3% reported receiving one hour or less per month. Respondents receiving supervision rated feedback and evaluation as the most important aspects of supervision and endorsed supervision as an important CPD activity. Additionally, over half (58.8%) of participants reported that they would like to receive more supervision than was being provided. Participants reported engaging in supervision activities such as informal consultation (74.7%), reading books/articles (48%), and workshops/lectures (45.3%).

Fischetti and Crespi (1999) examined responses from 323 NASP members to assess clinical supervision trends. Ninety-eight percent of the sample was employed in a public school setting. For the purposes of their study, clinical supervision was defined as "direct, one-on-one efforts on the part of the supervisor to help improve professional

skills of a school psychologist” (p. 279). Results indicated that 90% of the respondents were not receiving any clinical supervision; however, 76% of participants perceived clinical supervision as helpful in increasing skills associated with service delivery. Of those school psychologists who reported receiving clinical supervision, many reported receiving less supervision than they believed appropriate based on their years of experience. Additionally, about 80% of participants reported receiving less supervision than the levels recommended by NASP and APA. An examination of supervisor characteristics indicated that the majority of supervisors held the title of coordinator of psychological services (50%) followed by school/clinical psychologist (23%). The majority (79%) of clinical supervisors held a doctoral-level degree, but only 53% held a degree in school psychology. Despite these data, 91% of the participants believed that school psychologists should be supervised by those holding a school psychologist degree.

Hunley et al. (2000) surveyed 107 NASP members who identified themselves as supervisors. Data indicated that 45% of the supervisors held a doctoral-level degree, 17% held a specialist degree, and 39% held a masters degree. Approximately 90% of the supervisors reported having little or no training in school psychology supervision before becoming a supervisor, and of those supervisors, 83% reported that they had received minimal additional training since becoming a supervisor. The majority (65%) of the supervisors indicated that they were responsible for between one to 30 personnel, 19% reported being responsible for 31 to 50 personnel, and 15% reported being responsible for 51 or more personnel. Results also revealed that these supervisors engaged in a variety of supervisory activities, such as program administration (74%), personnel issues (63%), program development (58%), and individual supervision (46%). Finally, they expressed a

need for CPD to help them become more knowledgeable of and competent in the use of supervision techniques and practices (e.g., listervs, mentoring program).

Chafouleas et al. (2002) conducted a national survey of supervision and evaluation practices of 189 nationally certified school psychologists. For the purposes of their study, supervision was defined as “the opportunity for direction and oversight of an individual’s professional development” (p. 321). The study found that participants’ satisfaction with the evaluation component of supervision was moderate, that evaluation was primarily conducted by an administrator unfamiliar with school psychology, and that evaluation was not viewed as an opportunity for CPD (but, rather, as a means to document work performance). Results indicated that 51% of the participants who had supervision available reported receiving it on an as needed basis or receiving less than two hours per month. Approximately 10% of the participants reported receiving 3 or more hours per month of supervision. Additionally, respondents indicated a preference for more contact with a supervisor as well as having a supervisor who was familiar with school psychology practice.

Curtis et al. (2002) examined supervision received by school psychologists based on the 1999-2000 school year. Results indicated that 47.2% of school psychologists reported receiving no supervision. Of those school psychologists who received supervision, 21.9% were supervised by a professional who held a degree in school psychology, and 34.1% were supervised by a professional who held a doctoral degree. Of note, supervision was not differentiated between administrative and clinical. Curtis et al. (2006) examined both clinical and administrative supervision received based on the 2004-2005 school year. Results indicated that 48.7% of school psychologists reported



receiving administrative supervision, and 12.1% reported receiving clinical supervision. Of the respondents who received administrative supervision, over half (65.6%) of their supervisors held a degree in administration followed by 32.8% who held a degree in school psychology. Approximately 25% of the administrative supervisors held a doctoral degree, and 35% held a masters/specialist degree. Of the small percentage of school psychologists who received clinical supervision, 55.2% of their supervisors held a degree in school psychology, and 62.2% held a doctoral degree. These results indicated that school psychologists continue to not receive the recommended levels of supervision. It is especially clear that school psychologists are lacking clinical supervision on a national level.

Overall, these studies reveal that many school psychologists are not receiving the recommended levels of supervision delineated by APA and NASP, although the majority of respondents believed that supervision is an important professional practice. Also, data suggested that school psychologists are often not supervised by those familiar with the field or who hold school psychology degrees. To date, no research was found that specifically examined the relationship between supervisors' characteristics (e.g., supervisors' degree area or degree level) in relationship with CPD practices of school psychologists.

### *Conclusion*

Few empirical studies have investigated CPD as it relates to the field of school psychology. Limited evidence exists regarding the relationship(s) between CPD activities and the demographic characteristics, professional practices, and employment conditions of school psychologists. Although few significant relationships have been found among

these variables, these studies have provided greater insight regarding the CPD activities of school psychologists, their perceptions of CPD, and perceived relevance of CPD.

Limitations of these studies include the use of a limited range of areas as a focus for CPD (i.e., assessment, consultation, direct service, program planning and evaluation, research, and supervision). Few studies examined other areas of focus for CPD, such as curriculum-based measurement, crisis intervention, and progress monitoring.

The broader literature base suggests that school psychologists consider CPD an important and essential professional practice that can enhance their skills and the effectiveness of service delivery. Furthermore, CPD is recognized through federal programs and funding, by professional accreditation bodies, professional associations, and in the school psychology literature as imperative in advancing the field and promoting positive student outcomes. However, few school psychologists report receiving authentic CPD opportunities, especially clinical supervision. Finally, the literature has documented several elements essential for effective CPD; however, few studies have specifically assessed the presence of these elements in school-based settings.

## Chapter Three

### Method

#### *Purpose of the Study*

This study examined the continuing professional development (CPD) subject areas among school psychologists who are employed full-time in school settings and the relationship of those areas with selected demographic characteristics, professional practices, and employment conditions using data from the National Association of School Psychologists (NASP) national database. The data that were analyzed represented information provided by practicing school psychologists based on the 2004-2005 school year. Demographic variables that were examined included gender, age, years of experience in school psychology, and highest degree earned. Professional practice variables that were examined included percentage of total work time in activities related to special education, number of psycho-educational evaluations completed relating to initial determination of special education eligibility, and number of special education reevaluations conducted during the school year. Employment condition variables that were examined included school setting, ratio of individual students to school psychologist, whether or not administrative and/or clinical supervision was received, clinical supervisor's degree area (i.e., school psychology or other) and degree level (i.e., non-doctoral or doctoral), and geographic region of the United States. Data relating to these variables were used to perform secondary analyses of the existing national database. This chapter includes two sections: (a) description of the national database

utilized for the present study; and (b) data analysis procedures that were used to answer each research question.

### *Creation of the National Database*

The following section describes participants, ethical considerations, historical background, and procedures relating to the 2004-2005 national database.

*Participants.* The national database represents survey responses from 1,748 Regular members of NASP. Regular NASP members are those individuals who are (a) currently working or credentialed as a school psychologist; (b) trained as a school psychologist and working as a consultant or supervisor of psychological services; or (c) primarily engaged in the training of school psychologists at a college or university (NASP, <http://www.nasponline.org/membership/faq.html#6>). Respondents represented all 50 states, the District of Columbia, and Puerto Rico. Data were not solicited from student and affiliate members. Of the 1,748 respondents, 80.44% were practicing school psychologists, 6.04% were university faculty, 5.29% were administrators, 0.63% were state department employees, and 7.60% were working in other settings (e.g., district testing coordinator, behavioral specialist, educational consultant, guidance counselor, private consultant, and school adjustment counselor).

Demographic characteristics of this sample were compared to the 2005 NASP membership data. Chi-square goodness of fit tests indicated that the 2004-2005 national database respondents were comparable to the 2005 NASP membership for gender  $\chi^2(1, 1748) = .22436, p = .63574$  but not for ethnicity  $\chi^2(5, 1748) = 36.3449, p = <.0001$  (effect size = .14) or highest degree earned  $\chi^2(3, 1748) = 197.704, p = <.0001$  (effect

size= 2.9). On average, the 2004-2005 national database respondents were statistically significantly younger than the 2005 NASP membership ( $\bar{x}$  = 4.7, 95% CI = 4.92-5.21). A comparison of 2005 NASP membership and 2004-2005 NASP database respondents is displayed in Appendix A.

Only the responses of school psychologists whose primary employment was reported to be full-time in a public, private, or faith-based preschool, elementary school, middle/junior high school, and/or high school were included for the purpose of this study. Participants whose responses comprise the database included both males and females who represent varying demographic characteristics (e.g., age, ethnicity, geographic region, years of experience), professional practices (e.g., activities related to special education), and employment conditions (e.g., ratio of students to school psychologist, amount of supervision received).

*Ethical considerations.* The study through which the national database was created was approved by the University of South Florida Institutional Review Board (IRB) for the protection of human participants in the social and behavioral sciences. The IRB process ensures that research protects the rights and welfare of the participants (University of South Florida Institutional Review Board, <http://www.research.usf.edu/cs/irb.htm>). The procedures used in the national database data collection preserved the confidentiality and privacy of each participant.

*Historical background of the national database.* Graden and Curtis (1991) detailed the creation of the NASP national database. The NASP leadership determined that empirical investigations were needed to systematically monitor the field of school psychology over time. Consequently, NASP adopted a policy to create a national

database that reflected information pertaining to the demographic characteristics, training background, credentialing, and professional practices of school psychologists across the United States. Furthermore, the policy required that a national study be conducted by the Research Committee every five years to maintain the currency of the database. In accordance with the policy, a survey was to be used to collect data from the association's membership. The first draft of a survey instrument was examined by NASP leadership, and received a full review and feedback, which was used to modify the instrument. A pilot study also was conducted with five practicing school psychologists to elicit feedback on the clarity, structure, and response options for each question as well as on the ease of completion of the survey and amount of time required for survey completion. Feedback was collected and revisions were made accordingly. Subsequently, the survey instrument received approval from both the NASP Delegate Assembly and Executive Board in the spring of 1990.

The first study using the survey was based on the 1989-90 school year (Graden & Curtis, 1991); the second study was based on the 1994-95 school year (Curtis et al., 1999); and the third study was based on the 1999-2000 school year (Curtis et al., 2002). The current database represented the fourth wave of data collection and was based on the 2004-2005 school year.

The Research Committee considered it important that major changes not be made to the instrument to allow for consistent and repeated measurement over time of specific variables related to school psychology (Curtis et al., 1999) as well as for the examination of historical trends in the field (Curtis et al., 2002). Consequently, the survey content has remained highly consistent over time. Specific to the current database, minor changes

were incorporated into the 2004-2005 survey. Among these changes were the additions of a question (i.e., Item 35) pertaining to continuing professional development as well as more detailed questions regarding supervision (i.e., Items 36 and 37).

The purpose of the most recent survey (see Appendix B) was to gain information regarding the demographic characteristics, employment conditions, and professional practices of school psychologists during the 2004-2005 school year. The survey consisted of 38 items. All respondents were asked to complete items 1 through 18, which pertained to demographic variables. Items 19 through 38 included questions regarding professional practices and employment conditions and were completed only by school psychologists whose primary employment was full-time in a public, private, or faith-based preschool, elementary school, middle/junior high school, and/or high school.

*Procedure for creation of the database.* A computerized random selection of potential participants was conducted by the NASP central office. The resulting electronic file was then used to generate duplicate sets of mailing labels. The survey initially was mailed to 2,998 Regular NASP members, which represented a 20% random selection by state. Participation in the study was voluntary and no information reported on the survey could be used to identify participants. These steps were taken to ensure the privacy and confidentiality of the participants. Each participant was assigned a code number that was written on a postage-paid pre-addressed return envelope. This code number was assigned (a) to ensure that those participants who returned surveys were not included in subsequent mailings; and (b) to provide a mechanism through which participants who completed and returned surveys could be randomly selected to receive incentive rewards.

Participants were asked to return the survey within three weeks of receipt. A cover letter (see Appendix C) from Dr. Michael Curtis, Principle Investigator on behalf of the NASP Research Committee, provided a rationale for the study and explained the procedures to be used and the confidential nature of the survey information. Data collection was initiated in July of 2005 and continued through November of 2005. Data collection included three complete mailings and one postcard reminder mailing. Participants initially were informed that 10 persons who completed and returned the survey would be randomly selected to receive 50 “NASP Bucks” that could be used for such purposes as the purchase of publications or payment toward conference and/or workshop registration. In the fourth and final mailing, participants were informed that, in addition, five persons would be randomly selected to receive a free year of membership in NASP. The first three mailings included the offer of the 50 “NASP Bucks” due to a NASP Executive Council budgetary decision. Informal feedback received during the data collection phase indicated that the 50 “NASP Bucks” reward was not an effective incentive. Therefore, a decision was made to reinstate the original free year of NASP membership as an incentive. Notification of both the free NASP membership and the 50 “NASP Bucks” was included in the fourth mailing. However, all participants were eligible to receive both incentive rewards regardless of when they returned the survey.

Returned surveys were immediately removed from the return envelope to preserve the anonymity of the respondent. The respondent’s name was crossed off the mailing list and the return envelope with the code number was placed in an alternate location for the sole purpose of awarding the incentives for participation. Response data from the returned surveys were entered into an Excel database. A data entry check was conducted



for 10% (n= 175) randomly selected surveys. The error rate was found to be 0.18% (i.e., 12 errors out of 6,650 entries). Survey data were imported into SAS® software, Version 9.1 (SAS Institute, 2002-2003) for data analysis. SAS® is a statistical package and data management system that can be used to describe data and produce a variety of statistical analyses (Cody & Smith, 2006). Subsequently, data were winzorized using SAS® software in order to eliminate error introduced by extreme response outliers (Yuen, 1974). Specifically, parameters for acceptable responses were identified by examining box plots, means, and standard deviations calculated for each survey item. Minimum and maximum values were set for selected demographic characteristics, professional practices, and employment condition variables (see Appendix D).

The four mailings resulted in a total return of 1,748 usable surveys for a 59.3% response rate. Reschly and Wilson (1995) suggested that return rates of less than 50% may limit the ability to make valid conclusions about the population of interest. However, because there is no empirical basis to this suggestion, demographic characteristics of the sample in the database will be compared to the total NASP membership data to assess their degree of comparability. This procedure will be used to determine whether the sample used in the creation of the database demonstrates an acceptable comparison to the larger population of interest.

#### *Description of the Current Study*

This study examined the CPD subject areas endorsed by school psychologists employed full-time in school settings and the relationship of those areas with selected demographic characteristics, professional practices, and employment conditions. Continuing professional development subject areas included: (a) standardized

psychoeducational assessment; (b) academic screening/progress monitoring (e.g., curriculum-based assessment/measurement); (c) academic interventions; (d) behavioral assessment; (e) behavioral interventions; (f) social/emotional assessment; (g) social/emotional interventions; (h) consultation/problem-solving; (i) response to intervention; and (j) crisis intervention. Respondents were asked to select their top three subject areas of CPD during the 2004-2004 school year.

### *Data Analysis*

Each research question is stated below and the corresponding survey items are identified in parentheses. Descriptive statistics were performed on all variables of interest. Data were subjected to the appropriate statistical analyses for each research question as indicated below.

*Research Question 1:* What is the distribution of continuing professional development subject areas among school psychologists who are employed full-time in school settings? (Survey Item 35)

Frequency counts and percentages were calculated for each CPD subject area identified in survey Item 35. Percentages were converted to proportions, and 95% confidence intervals were calculated for each CPD subject area. Phi correlation coefficients were calculated to determine the relationship between each CPD subject area, using an alpha significance level of .005 (i.e., .05/11 continuing professional development subject areas). An 11 x 11 correlation matrix was used to display the results of the correlational analyses.

*Research Question 2:* What is the direction and strength of the relationship between selected demographic characteristics of school psychologists and each continuing professional development subject area?

- a.) gender (Survey Items 1 and 35)
- b.) age (Survey Items 2 and 35)
- c.) years of experience in school psychology (Survey Items 6 and 35)
- d.) highest degree earned (i.e., Masters, Masters plus 30 semester hours/Educational Specialist, or Doctorate) (Survey Items 11 and 35)
- e.) Nationally Certified School Psychologist credential held (NCSP) (i.e., yes or no) (Survey Items 13 and 35)

Various types of correlational analyses were calculated based on variable type. Phi correlation coefficients were calculated to determine relationship between gender and each CPD subject area and between NCSP held and each CPD subject area. A point biserial correlation coefficient was calculated for the variables of age and years of experience in school psychology. A rank biserial correlation coefficient was calculated for the variable of highest degree earned. Additional correlations were calculated between each demographic characteristic variable to determine whether multicollinearity was present among the independent variables. All correlations were conducted using an alpha significance level of .005.

A logistic regression was performed in order to determine which demographic characteristic variables were most predictive of participation in each CPD subject area. Data were entered into a logistic regression model to examine the unique contribution of gender, age, years of experience in school psychology, highest degree earned, and NCSP

held with each subject area of CPD while holding all other variables constant. The outcome variable, participation in a specified subject area of continuing professional development, was coded as 1=Yes and 0=No. Predictor variables were coded: gender was coded as 1=male and 0=female, with males as the referent; highest degree earned was dummy coded for Educational Specialist or equivalent degree (1=Yes, 0=No) and Doctorate (1=Yes, 0=No), with Masters serving as the referent; and NCSP was coded as 1=Yes and 0=No, with holding NCSP as the referent.

Tests of significance included the likelihood ratio test, Hosmer and Lemeshow's chi-square goodness of fit test, and Wald test. The likelihood ratio test and Hosmer and Lemeshow goodness of fit test examined the overall model fit. The Wald test indicated the significance of individual logistic regression coefficients for each independent variable. Analyses were conducted at the alpha .005 significance level. Odds ratios and 95% confidence intervals for the odds ratios were calculated and reported. Measures of strength of association included an examination of odds ratios and the Pseudo-R-Squared statistic, which is an approximation to the Ordinary Least Squares R-squared used in multiple regression analysis. Regression diagnostics also were run for each logistic regression model in order to detect outliers and influential data points, or those cases which are poorly fitted by the model. Specifically, the Pearson and deviance residual (i.e., distance), hat matrix diagonal (i.e., leverage), dfbeta, and Cook's D (i.e., influence) statistics were examined.

*Research Question 3:* What is the direction and strength of the relationship between selected professional practices of school psychologists and each continuing professional development subject area?

- a.) percentage of total work time in activities related to special education (Survey Items 33 and 35)
- b.) number of psychoeducational evaluations completed relating to initial determination of special education eligibility (Survey Items 26 and 35)
- c.) number of special education reevaluations completed (Survey Items 27 and 35)

Point biserial correlations were calculated to determine the relationship between each professional practice variable and each CPD subject area. Additional correlations were calculated between each professional practice variable to determine whether multicollinearity was present among the independent variables. All correlations were conducted using an alpha significance level of .005.

A logistic regression was performed in order to determine which professional practice variables were most predictive of participation in CPD subject areas. Data were entered into a logistic regression model to examine the unique contribution of the percentage of total work time in activities related to special education, number of psychoeducational evaluations completed relating to initial determination of special education eligibility, and number of special education reevaluations completed with each CPD subject area while holding all other variables constant. The outcome variable, participation in a specified subject area of continuing professional development, was coded as 1 = Yes and 0 = No.

Tests of significance included the likelihood ratio test, Hosmer and Lemeshow's chi-square goodness of fit test, and Wald test. The likelihood ratio test and Hosmer and Lemeshow goodness of fit test examined the overall model fit. The Wald test indicated the significance of individual logistic regression coefficients for each independent

variable. Analyses were conducted at the alpha .005 significance level. Odds ratios and 95% confidence intervals for the odds ratios were calculated and reported. Measures of strength of association included an examination of odds ratios and the Pseudo-R-Squared statistic, which is an approximation to the Ordinary Least Squares R-squared used in multiple regression analysis. Regression diagnostics also were run for each logistic regression model in order to detect outliers and influential data points, or those cases which are poorly fitted by the model. Specifically, the Pearson and deviance residual (i.e., distance), hat matrix diagonal (i.e., leverage), dfbeta, and Cook's D (i.e., influence) statistics were examined.

*Research Question 4:* What is the direction and strength of the relationship between selected employment conditions of school psychologists and each continuing professional development subject area?

- a.) school setting (i.e., urban, suburban, rural) (Survey Items 19 and 35)
- b.) ratio of individual students to school psychologist (Survey Items 23 and 35)
- c.) administrative supervision received in practice (Survey Items 36 and 35)
- d.) clinical supervision received in practice (Survey Items 37 and 35)
- d.) clinical supervisor's degree area (i.e., school psychology, psychology, or other) (Survey Items 37 and 35)
- e.) clinical supervisor's degree level (i.e., non-doctoral or doctoral) (Survey Items 37 and 35)

Various types of correlational analyses were conducted based on variable type. Phi correlation coefficients were calculated for the variables of school setting, supervision received in practice, clinical supervisor's degree area, and clinical

supervisor's degree level and each CPD subject area. A point biserial correlation was calculated for the variable of ratio of individual students to school psychologist.

Additional correlations were calculated between each employment condition variable to determine whether multicollinearity was present among the independent variables. All correlations were conducted using an alpha significance level of .005.

A logistic regression was performed in order to determine which employment condition variables were most predictive of participation in CPD subject areas. Data were entered into a logistic regression model to examine the unique contribution of school setting, ratio of individual students to school psychologist, administrative supervision received in practice, clinical supervision received in practice, clinical supervisor's degree area, and clinical supervisor's degree level with each subject area of continuing professional development while holding all other variables constant. The outcome variable, participation in a specified subject area of continuing professional development, was coded as 1 = Yes and 0 = No. Predictor variables were coded: school setting was dummy coded for urban (1=Yes, 0=No) and rural (1=Yes, 0=No), with suburban as the referent; administrative supervision received in practice was coded as 1=Yes and 0=No, with receiving supervision as the referent; clinical supervision received in practice was coded as 1=Yes and 0=No, with receiving supervision as the referent; clinical supervisor's degree area as 1=Yes and 0=No, with holding a particular degree as the referent; clinical supervisor's degree area as 1=Yes and 0=No, with holding a degree in a particular area as the referent.

Tests of significance included the likelihood ratio test, Hosmer and Lemeshow's chi-square goodness of fit test, and Wald test. The likelihood ratio test and Hosmer and

Lemeshow goodness of fit test examined the overall model fit. The Wald test indicated the significance of individual logistic regression coefficients for each independent variable. Analyses were conducted at the alpha .005 significance level. Odds ratios and 95% confidence intervals for the odds ratios were calculated and reported. Measures of strength of association included an examination of odds ratios and the Pseudo-R-Squared statistic, which is an approximation to the Ordinary Least Squares R-squared used in multiple regression analysis. Regression diagnostics also were run for each logistic regression model in order to detect outliers and influential data points, or those cases which are poorly fitted by the model. Specifically, the Pearson and deviance residual (i.e., distance), hat matrix diagonal (i.e., leverage), dfbeta, and Cook's D (i.e., influence) statistics were examined.

*Research Question 5:* What is the relationship between the distribution of selected continuing professional development subject areas and geographic region? (Survey Items 35 and 10)

Chi-square tests of independence were run to determine the relationship between geographic region (i.e., Northeast, Mid-Atlantic, South Atlantic, East South Central, East North Central, West South Central, West North Central, Mountain, and Pacific), as delineated by the United States Census (Hosp & Reschly, 2002), and each subject area of continuing professional development at the alpha significance level of .005. An index of effect size for significant chi-square tests of association was calculated to assess the practical significance of the relationship(s).



## Chapter Four

### Results

This purpose of this study was to examine the continuing professional development (CPD) subject areas endorsed by school psychologists who were employed full-time in school settings and the relationship of those areas with selected demographic characteristics, professional practices, and employment conditions using data from the National Association of School Psychologists (NASP) national database. The data analyzed represented information provided by practicing school psychologists based on the 2004-2005 school year. This chapter begins with a description of the sample used in this study. Next, the results of the analyses are provided for each research question. The data were analyzed using SAS Version 9.1, and an alpha significance level of .005 was set for all statistical analyses.

#### *Description of the Sample*

The national database represented survey responses from 1,748 Regular members of NASP. Respondents represented all 50 states, the District of Columbia, and Puerto Rico. Of the 1,748 respondents, 80.44% were practicing school psychologists, 6.04% were university faculty, 5.29% were administrators, 0.63% were state department employees, and 7.60% were working in other settings. The total practitioner sample size in the database included responses from 1,398 practicing school psychologists whose primary employment was reported to be full-time in a public, private, or faith-based preschool, elementary school, middle/junior high school, and/or high school during the

2004-2005 school year. Of the 1,398 practitioners, 1,155 (approximately 83%) provided responses to Item 35, which assessed CPD subject areas. Therefore, 1,155 practitioner responses comprised the total sample size used for the current study. Non-responders to the CPD item included 243 participants, which represented approximately 17% of the practicing school psychologists. Non-responders were those participants who did not complete the second portion of the survey (Items 1-18 were located on the front side of the survey and were to be completed by all participants including school psychologists who were not practitioners, while Items 19-38 were located on the back side) or completed only the first few items on the back side. Appropriate statistical analyses were run to determine if there was statistically significant relationship between response type (i.e., responders and non-responders) and selected demographic variables. Data indicated that there were no statistically significant relationships between response type and ethnicity  $\chi^2(3, 1363) = 4.2587, p = .2349$ . No statistically significant differences were found between responders and non-responders for age  $t(1384) = 1.48, p = .1400$ . Statistically significant relationships were found between response type and the following variables: a) gender  $\chi^2(1, 1397) = 9.4736, p = .0021$  (Cramer's  $V = .08$ ); b) highest degree earned  $\chi^2(2, 1395) = 24.5264, p = <.0001$  (Cramer's  $V = .13$ ); and c) years of experience in school psychology  $t(1392) = 2.04, p = .0411$ . Notably, the effect size for years of experience was small (Cohen's  $d = .14$ ) (Cohen, 1992). Demographic statistics for responders and non-responders are presented in Table 2.

Table 2

*Descriptive Statistics for Responders and Non-Responders*

Variable	Responders	Non-Responders
Gender*		
Female	80.82%	19.18%
Male	88.24%	11.76%
Ethnicity		
African American	92.86%	7.14%
Caucasian	82.46%	17.54%
Hispanic	76.92%	23.08%
Other	75.00%	25.00%
Highest Degree Earned*		
Masters	83.53%	16.47%
Specialist	86.69%	13.31%
Doctorate	73.90%	26.10%
Age	45.03	46.19
Years of Experience*	13.74	15.07

\* $p > .05$ .

Respondents were asked to indicate the top three CPD subject areas that they addressed during the 2004-2005 school year; however, of the 1,155 respondents, approximately 3% endorsed more than three CPD areas, and approximately 5% of the respondents endorsed less than three CPD areas. These results are presented in Table 3. The responses of those 8% of respondents who indicated more or less than three CPD subject areas were included in- the analyses.

Table 3

*Number of CPD Subject Areas Endorsed by Respondents*

# of Categories Endorsed	Total # of Respondents	Approximate % of Respondents
0	12	1.039
1	21	1.818
2	28	2.424
3 <sup>a</sup>	1057	91.515
4	23	1.991
5	6	0.519
6	6	0.519
7	0	0.000
8	1	0.087
9	0	0.000
10	0	0.000
11	1	0.087

<sup>a</sup>Number of CPD areas respondents were asked to indicate on survey.

*Demographic characteristics, professional practices, and employment conditions of respondents.* The following tables provide descriptive statistics on demographic characteristic, professional practice, and employment condition variables pertinent to the study. Data on ethnicity is presented solely for descriptive purposes as this is not a variable that was specifically examined in the current study. Demographic characteristics of those respondents who answered Item 35 are presented in Tables 4 and 5. Notably, the majority of school psychologists are female and Caucasian.

Table 4

*Age and Years of Experience in School Psychology*

Variable	N	Mean	SD	Skewness	Kurtosis
Age	1148	45.037	10.975	-0.171	-1.171
Exp Psy	1151	13.739	9.251	0.437	-1.004

Table 5

*Gender, Ethnicity, and Highest Degree Earned, and National Certification in School Psychology (NCSP) Credential Held*

Variable	N	%
Gender	1155	
Male	285	24.68
Female	870	75.32
Ethnicity	1124	
Caucasian	1041	92.62
African American	26	2.31
Hispanic	30	2.67
American Indian/Alaska Native	9	.80
Asian American/Pacific Islander	11	.98
Other	7	.62
Highest Degree	1152	
Masters	417	36.20
Specialist	482	41.84
Doctorate	253	21.96
NCSP	1154	
Yes	552	47.83
No	602	52.17

Professional practice descriptive statistics are presented in Table 6. Distributions found to be non-normal are indicated by an asterisk. The most significant illustration of non-normality was found for the “Number of Psychoeducational Evaluations Completed Relating to Initial Determination of Special Education Eligibility” and “Number of Special Education Reevaluations Completed” variables. Employment condition descriptive statistics are presented in Table 7. Non-normality was found for the “Ratio of Individual Students to School Psychologist” variable as indicated in Table 7. Table 8 provides descriptive information on school setting and supervision. Notably, very few school psychologists reported receiving clinical supervision (12.29%) and almost one-half (47.74%) reported receiving no supervision of any kind.

Table 6

*Percentage of Total Work Time in Activities Related to Special Education, Number of Psychoeducational Evaluations Completed Relating to Initial Determination of Special Education Eligibility, and Number of Special Education Reevaluations Completed*

Variable	N	Mean	SD	Skewness	Kurtosis
% of Total Work Time	1114	80.433	21.177	-1.568	2.214
Initial Evaluations	1140	34.729	29.259	1.878	5.877*
Reevaluations	1144	34.247	26.009	1.515	3.732*

*Note.* Asterisk indicates non-normality.

Table 7

*Ratio of Individual Students to School Psychologist*

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Variable	N	Mean	SD	Skewness	Kurtosis
Ratio	972	1482.950	1028.607	2.289	9.908*

---

*Note.* Asterisk indicates non-normality.

Table 8

*School Setting, Supervision Received in Practice, Clinical Supervisor's Degree Area, and Clinical Supervisor's Degree Level*

Variable	N	%
School Setting <sup>a</sup>		
Urban	298	21.32
Suburban	536	38.34
Rural	293	20.96
Supervision Received		
Administrative (Total)	1150	
Yes	563	48.96
No	587	51.04
Clinical (Total)	1147	
Yes	141	12.29
No	1006	87.71
Both Admin & Clinical	98	8.48
Neither Admin nor Clinical	549	47.53
Clinical Supervisor's Degree Area <sup>b</sup>		
School Psychology	77	54.61
Psychology	53	37.59
Other	19	13.48
Clinical Supervisor's Degree Level <sup>c</sup>		
Doctoral	88	62.41
Masters/Specialist	18	12.77

<sup>a</sup>Some respondents reported working in more than one type of setting. For the purposes of the present study, random assignment was used to assign respondents to only one setting.

<sup>b</sup>Some respondents reported their clinical supervisor held a degree in more than one area. Percentages were calculated based on total number of participants who received clinical supervision. <sup>c</sup>Some respondents reported their clinical supervisor held both a doctoral and master/specialist degree. For the purposes of the present study, highest degree earned was used to perform the analyses. Percentages were calculated based on total number of participants who received clinical supervision.



## *Research Questions*

*Research Question 1:* What is the distribution of continuing professional development subject areas among school psychologists who are employed full-time in school settings? (Survey Item 35)

Both frequency counts and percentages for each continuing professional development subject area identified in survey Item 35 were calculated. Percentages were converted to proportions, and 95% confidence intervals were calculated for each CPD subject area. These calculations are presented in Table 9. The two most commonly reported CPD subject areas were behavioral interventions and standardized psychoeducational assessment. The two least commonly endorsed subject areas included other and crisis intervention. The CPD areas most commonly reported for the other category included assessment and intervention of autism and other low incidence disabilities, legal issues/compliance (e.g., IDEIA, NCLB), and neuropsychological assessment and intervention.

Table 9

*Frequencies, Percentages, Proportions, and 95% Confidence Intervals for Each CPD Subject Area*

	N	%	Proportion	95% CI
Behavioral Interv	544	47.10%	.4710	.4422-.4998
Stan Psychoed Assess	462	40.00%	.4000	.3717-.4283
Acad Interv	381	32.99%	.3299	.3027-.3570
Consult/Prob-solving	364	31.52%	.3152	.2883-.3420
Social/Emot Interv	331	28.66%	.2866	.2605-.3127
Response to Interv	304	26.32%	.2632	.2378-.2886
Behavioral Assess	247	21.39%	.2139	.1902-.2375
Acad Scr/Prog Mon	238	20.61%	.2061	.1827-.2294
Social/Emot Assess	194	16.80%	.1680	.1464-.1896
Crisis Interv	187	16.19%	.1619	.1406-.1832
Other	173	14.98%	.1498	.1292-.1704

Phi correlation coefficients were calculated to determine the relationship between each continuing professional development subject area. An 11 x 11 correlation matrix is presented in Table 10 to display the results of the correlational analyses. Notable correlation coefficients included the negative relationships between standardized psychoeducational assessment and response to intervention ( $r = -.20$ ), academic screening/progress monitoring and behavioral intervention ( $r = -.21$ ), and academic screening/progress monitoring and social/emotional intervention ( $r = -.20$ ), and the positive relationship between academic screening/progress monitoring and response to intervention ( $r = .28$ ).

Table 10

*Phi Correlation Coefficients among Dependent Variables*

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	1	2	3	4	5	6	7	8	9	10	11
1. Stan Psychoed Assess	----										
2. Acad Scr/Prog Mon	-.13*	----									
3. Acad Interv	-.12*	.08	----								
4. Behavioral Assess	.10*	-.18*	-.12*	----							
5. Behavioral Interv	-.19*	-.21*	.00	-.04	----						
6. Social/Emot Assess	.13*	-.18*	-.18*	.13*	-.19*	----					
7. Social/Emot Interv	-.17*	-.20*	-.18*	-.15*	.06	-.01	----				
8. Consult/Prob-solving	-.15*	-.07	-.08	-.12*	-.09*	-.08	-.08	----			
9. Response to Interv	-.20*	.28*	.01	-.16*	-.15*	-.14*	-.16*	-.06	----		
10. Crisis Interv	-.10*	-.11*	-.18*	-.02	-.02	-.05	.09*	-.05	-.15*	----	
11. Other	-.05	-.09*	-.19*	-.11*	-.09*	-.08	-.04	-.10*	-.11*	-.05	----

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\* $p < .005$ .

*Research Question 2:* What is the direction and strength of the relationship between selected demographic characteristics of school psychologists and each continuing professional development subject area?

- a.) gender (Survey Items 1 and 35)
- b.) age (Survey Items 2 and 35)
- c.) years of experience in school psychology (Survey Items 6 and 35)
- d.) highest degree earned (i.e., Masters, Masters plus 30 semester hours/Educational Specialist, or Doctorate) (Survey Items 11 and 35)
- e.) Nationally Certified School Psychologist credential held (i.e., yes or no) (Items 11 and 35)

Correlation coefficients were calculated to determine the relationship between the following independent variables and each CPD subject area: (a) gender; (b) age; (c) years of experience in school psychology; (d) highest degree earned; and (e) Nationally Certified School Psychologist credential held. The results of these analyses are reported in Table 11. A notable correlation coefficient included the negative relationship between age and response to intervention ( $r = -.14$ ).

Additional correlation coefficients were calculated between each professional practice characteristic variable and tolerance statistics were run to assess for multicollinearity. Table 12 indicates a statistically significant positive relationship between age and years of experience in school psychology ( $r = .73$ ). Tolerance values for age (.46) and years of experience in school psychology (.44) also indicated that some multicollinearity was present among independent variables. This finding is not surprising considering that age and total years of experience data parallel each other and

Table 11

*Correlation Coefficients among Dependent and Independent Variables*

	Age	Gender	Exp Psy	MA	EDS	PHD	NCSP
1. Stan Psychoed Assess	.04	.00	.00	-.03	.00	.02	-.04
2. Acad Scr/Prog Mon	-.07	.01	-.06	.01	.02	-.04	-.03
3. Acad Interv	-.05	-.04	-.04	-.04	.12*	-.10*	.03
4. Behavioral Assess	.06	-.01	.01	-.01	.00	.01	-.08
5. Behavioral Interv	-.10*	-.04	-.08*	-.02	.04	-.02	.01
6. Social/Emot Assess	.06	.02	.06	-.02	-.02	.05	.01
7. Social/Emot Interv	.01	.00	-.00	-.05	-.05	.11*	.03
8. Consult/Prob-solving	.07	.06	.10*	.08*	-.06	-.02	.06
9. Response to Interv	-.14*	-.05	-.08**	-.02	.04	-.01	.03
10. Crisis Interv	-.01	.04	.00	.00	-.02	.03	.01
11. Other	.09*	.01	.08	.00	-.05	.07	-.02

\* $p < .005$ . \*\* $p = .005$ .

Table 12

*Correlation Coefficients among Independent Variables*

	1	2	3	4	5	6	7
1. Age	----						
2. Gender	.16*	----					
3. Exp Psy	.73*	.19*	----				
4. MA	.08	.02	.11	----			
5. EDS	-.23*	-.11*	-.25*	-.64*	----		
6. PHD	.19*	.12*	.17*	-.40*	-.45*	----	
7. NCSP	.12*	-.03	.22*	-.07	.05	.02	----

\* $p < .005$ .

indicate that practitioners continue to mature in age and experience (Curtis et al., 2004).

Therefore, the variable of age was removed from the analysis in order to gain a more accurate estimation of each independent variable's unique contribution to the prediction equation. Multicollinearity was reassessed via examination of the tolerance statistic for

each independent variable. An examination of tolerance statistics indicated that each independent variable was found to be within acceptable limits (Berry, 1993).

To determine which demographic characteristic variables were most predictive of participation in each continuing development subject area, data were subjected to a logistic regression analysis. Data were entered into a logistic regression model to examine the unique contribution of gender, years of experience in school psychology, highest degree earned (i.e., MA, EDS, and PHD), and NCSP credential held with each CPD subject area while holding all other variables constant. The outcome variable, participation in a specified subject area of continuing professional development, was treated as a dichotomous variable (Yes=1 and No=0). Five explanatory variables were entered into each model: (a) gender; (b) years of experience in school psychology; (c) highest degree earned (i.e., MA, EDS, and PHD); and (d) NCSP certification held.

*CPD Subject Area: Psychoeducational Standardized Assessment.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 461 observations were included in the “1” category (i.e., yes for participation in psychoeducational standardized assessment CPD subject area), and 689 were included in the “0” category (i.e., no for participation). Results of the logistic regression analysis are shown in Table 13. An examination of regression diagnostics indicated that there were no significant outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2(5, N=1150) = 3.5432, p = .6169$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in standardized

psychoeducational assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 13

*Logistic Regression Analysis: Standardized Psychoeducational Assessment*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-0.4055	0.1472	7.5874	1	0.0059	NA	
Gender	-0.0414	0.1434	0.0833	1	0.7729	0.959	0.724-1.271
Exp Psy Degree	0.0021	0.0071	0.0905	1	0.7636	1.002	0.988-1.016
EDS	0.0930	0.1409	0.4357	1	0.5092	1.097	0.833-1.446
PHD	0.1781	0.1634	1.1876	1	0.2758	1.195	0.867-1.646
NCSP	-0.1965	0.1250	2.4721	1	0.1159	0.822	0.643-1.050

Test	$\chi^2$	df	p
Overall model evaluation			
Likelihood ratio test	3.5432	5	0.6169
Score test	3.5400	5	0.6173
Wald test	3.5318	5	0.6186
Goodness of fit test			
Hosmer & Lemeshow	5.2747	8	0.7279

*Note.* Cox and Snell  $R^2 = .0031$ . \* $p < .005$ .

*CPD Subject Area: Academic Screening/Progress Monitoring.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 235 observations were included in the “1” category, and 915 were included in the “0” category. Results of the logistic regression analysis are shown in

Table 14. An examination of regression diagnostics indicated that there were no significant outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 5.9611, p = .3106$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in academic screening/progress monitoring CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.



Table 14

*Logistic Regression Analysis: Academic Screening/Progress Monitoring*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.1305	0.1757	41.3887	1	<.0001*	NA	
Gender	0.1086	0.1735	0.3916	1	0.5315	1.115	0.793-1.566
Exp Psy	-0.0152	0.0087	3.0397	1	0.0812	0.985	0.968-1.002
Highest Degree							
EDS	0.0307	0.1684	0.0333	1	0.8552	1.031	0.741-1.435
PHD	-0.1833	0.2069	0.7852	1	0.3756	0.833	0.555-1.249
NCSP	-0.0608	0.1519	0.1602	1	0.6890	0.941	0.679-1.267
Test					$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation							
Likelihood ratio test					5.9611	5	0.3106
Score test					5.8558	5	0.3205
Wald test					5.8188	5	0.3243
Goodness of fit test							
Hosmer & Lemeshow					8.1564	8	0.4183

Note. Cox and Snell  $R^2 = .0052$ . \* $p < .005$ .

*CPD Subject Area: Academic Interventions.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 381 observations were included in the “1” category, and 769 were included in the “0” category (i.e., no for participation). Results of the logistic regression analysis are shown in Table 15. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 22.0196, p = .0005$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in academic interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the prediction was .0190 according to Cox's and Snell's  $R^2$ . However, the Wald chi-square statistic indicated that there were no individual predictors that were statistically significant (see Table 15). Therefore, the full model with the four factors was statistically significant, but no one predictor could be identified as making a significant unique contribution to the model.

Table 15

*Logistic Regression Analysis: Academic Interventions*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.7779	0.1551	25.1496	1	<.0001*	NA	
Gender	-0.1220	0.1531	0.6351	1	0.4255	0.885	0.656-1.195
Exp Psy	-0.0022	0.0074	0.0875	1	0.7674	0.998	0.983-1.012
Highest Degree							
EDS	0.3565	0.1449	6.0527	1	0.0139	1.428	1.015-1.898
PHD	-0.3610	0.1827	3.9033	1	0.0482	0.697	0.487-0.997
NCSP	0.1053	0.1309	0.6475	1	0.4210	1.111	0.860-1.436
Test					$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation							
Likelihood ratio test					22.0196	5	0.0005*
Score test					21.6608	5	0.0006*
Wald test					21.3132	5	0.0007*
Goodness of fit test							
Hosmer & Lemeshow					6.5934	8	0.5811

Note. Cox and Snell  $R^2 = .0190$ . \* $p < .005$ .

*CPD Subject Area: Behavioral Assessment.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 247 observations were included in the “1” category, and 903 were included in the “0” category. Results of the logistic regression analysis are shown in Table 16. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2$  (5, N=1150) = 10.1554,  $p = .0709$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in behavioral assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 16

*Logistic Regression Analysis: Behavioral Assessment*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.2473	0.1753	50.6191	1	<.0001*	NA	
Gender	-0.1460	0.1737	0.7064	1	0.4006	0.864	0.615-1.215
Exp Psy	0.0107	0.0085	1.6091	1	0.2046	1.011	0.994-1.028
Highest Degree							
EDS	0.0684	0.1686	0.1644	1	0.6852	1.071	0.769-1.490
PHD	0.0830	0.1950	0.1813	1	0.6703	1.087	0.741-1.592
NCSP	-0.4626	0.1515	9.3276	1	0.0023	0.630	0.468-0.847
Test					$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation							
Likelihood ratio test					10.1554	5	0.0709
Score test					10.0709	5	0.0733
Wald test					9.9789	5	0.0758
Goodness of fit test							
Hosmer & Lemeshow					3.6635	8	0.8861

*Note.* Cox and Snell  $R^2 = .0088$ . \* $p < .005$ .

*CPD Subject Area: Behavioral Interventions.* A total of 1147 observations were included in the analysis, and 8 observations were excluded due to missing data. A total of 541 observations were included in the “1” category, and 606 were included in the “0” category. Results of the logistic regression analysis are shown in Table 17. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 9.9247, p = .0774$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in behavioral interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 17

*Logistic Regression Analysis: Behavioral Interventions*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	0.0578	0.1445	0.1599	1	0.6893	NA	
Gender	-0.0837	0.1413	0.3511	1	0.5535	0.920	0.697-1.213
Exp Psy	-0.0176	0.0070	6.3819	1	0.0115	0.983	0.969-0.996
Highest Degree							
EDS	0.0904	0.1381	0.4287	1	0.5126	1.095	0.835-1.435
PHD	0.0043	0.1617	0.0007	1	0.9787	1.004	0.731-1.379
NCSP	0.1039	0.1230	0.7137	1	0.3982	1.110	0.872-1.412
Test					$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation							
Likelihood ratio test					9.9247	5	0.0774
Score test					9.8779	5	0.0788
Wald test					9.9075	5	0.0809
Goodness of fit test							
Hosmer & Lemeshow					9.3278	8	0.3154

Note. Cox and Snell  $R^2 = .0086$ . \* $p < .005$ .

*CPD Subject Area: Social/Emotional Assessment.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 194 observations were included in the “1” category, and 956 were included in the “0” category. Results of the logistic regression analysis are shown in Table 18. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 5.5706, p = .3503$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in social/emotional assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 18

*Logistic Regression Analysis: Social/Emotional Assessment*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-1.8794	0.1984	89.7563	1	<.0001*	NA	
Gender	0.0127	0.1850	0.0047	1	0.9453	1.013	0.705-1.455
Exp Psy	0.0156	0.0091	2.9051	1	0.0883	1.016	0.998-1.034
Highest Degree							
EDS	0.0547	0.1881	0.4287	1	0.7710	1.056	0.731-1.527
PHD	0.2634	0.2072	1.6160	1	0.2036	1.301	0.867-1.953
NCSP	-0.0496	0.1638	0.0919	1	0.7618	0.952	0.690-1.312
Test					$\chi^2$	df	p
Overall model evaluation							
Likelihood ratio test					5.5706	5	0.3503
Score test					5.6850	5	0.3381
Wald test					5.6486	5	0.3419
Goodness of fit test							
Hosmer & Lemeshow					3.9261	8	0.8637

Note. Cox and Snell  $R^2 = .0048$ . \* $p < .005$ .

*CPD Subject Area: Social/Emotional Interventions.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 329 observations were included in the “1” category, and 821 were included in the “0” category. Results of the logistic regression analysis are shown in Table 19. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 14.7602, p = .0114$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in social/emotional interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.



Table 19

*Logistic Regression Analysis: Social/Emotional Interventions*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.0085	0.1618	38.8385	1	<.0001*	NA	
Gender	-0.0198	0.1560	0.0161	1	0.8890	0.980	0.722-1.331
Exp Psy	-0.0070	0.0077	0.8485	1	0.3570	0.993	0.978-1.008
Highest Degree							
EDS	-0.0461	0.1565	0.0869	1	0.7681	0.955	0.703-1.298
PHD	0.5418	0.1724	9.8775	1	0.0017	1.719	1.226-2.410
NCSP	0.1767	0.1359	1.6889	1	0.1937	1.193	0.914-1.558
Test					$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation							
Likelihood ratio test					14.7602	5	0.0114
Score test					15.2216	5	0.0095
Wald test					15.0021	5	0.0104
Goodness of fit test							
Hosmer & Lemeshow					6.5870	8	0.5807

Note. Cox and Snell  $R^2 = .0128$ . \* $p < .005$ .

*CPD Subject Area: Consultation/Problem-Solving.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 363 observations were included in the “1” category, and 787 were included in the “0” category. Results of the logistic regression analysis are shown in Table 20. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 21.6815, p = .0006$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in consultation/problem-solving CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the prediction was .02 according to Cox's and Snell's  $R^2$ . However, the Wald chi-square statistic indicated that there were no individual predictors that were statistically significant (see Table 20). Therefore, the full model with the four factors was statistically significant, but no one predictor could be identified as making a significant unique contribution to the model.

Table 20

*Logistic Regression Analysis: Consultation/Problem-Solving*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.9640	0.1556	38.3621	1	<.0001*	NA	
Gender	0.2266	0.1488	2.3187	1	0.1278	1.254	0.937-1.679
Exp Psy	0.0175	0.0074	5.6178	1	0.0178	1.018	1.003-1.032
Highest Degree							
EDS	-0.3299	0.1484	4.7354	1	0.0295	0.724	0.541-0.968
PHD	-0.3755	0.1734	4.6922	1	0.0303	0.687	0.489-0.965
NCSP	0.2000	0.1328	2.2687	1	0.1320	1.221	0.942-1.584
Test				$\chi^2$	<i>df</i>	<i>p</i>	
Overall model evaluation							
Likelihood ratio test				21.6815	5	0.0006*	
Score test				21.8380	5	0.0006*	
Wald test				21.4510	5	0.0007*	
Goodness of fit test							
Hosmer & Lemeshow				5.5012	8	0.7029	

Note. Cox and Snell  $R^2 = .0187$ . \* $p < .005$ .

*CPD Subject Area: Response to Intervention.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 302 observations were included in the “1” category, and 848 were included in the “0” category. Results of the logistic regression analysis are shown in Table 21. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 12.8994, p = .0243$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in response to intervention CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 21

*Logistic Regression Analysis: Response to Intervention*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-0.8346	0.1636	26.0287	1	<.0001*	NA	
Gender	-0.2005	0.1658	1.4616	1	0.2267	0.818	0.591-1.133
Exp Psy	-0.0222	0.0081	7.6067	1	0.0058	0.978	0.963-0.994
Highest Degree							
EDS	0.0644	0.1569	0.1686	1	0.6813	1.067	0.784-1.450
PHD	0.0810	0.1860	0.1898	1	0.6631	1.084	0.753-1.561
NCSP	0.2043	0.1394	2.1493	1	0.1426	1.227	0.933-1.612
Test					$\chi^2$	df	p
Overall model evaluation							
Likelihood ratio test					12.8994	5	0.0243
Score test					12.6499	5	0.0269
Wald test					12.5022	5	0.0285
Goodness of fit test							
Hosmer & Lemeshow					4.3020	8	0.8289

Note. Cox and Snell  $R^2 = .0112$ . \*  $p < .005$ .

*CPD Subject Area: Crisis Intervention.* A total of 1150 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 186 observations were included in the “1” category, and 964 were included in the “0” category. Results of the logistic regression analysis are shown in Table 22. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=1150) = 3.3060, p = .6529$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in crisis intervention CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 22

*Logistic Regression Analysis: Crisis Intervention*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.6862	0.1960	74.0109	1	<.0001*	NA	
Gender	0.2639	0.1832	2.0751	1	0.1497	1.302	0.909-1.864
Exp Psy	-0.0049	0.0094	0.2713	1	0.6025	0.995	0.977-1.014
Highest Degree							
EDS	-0.0703	0.1892	0.1382	1	0.7101	0.932	0.643-1.351
PHD	0.1354	0.2121	0.4074	1	0.5233	1.145	0.756-1.735
NCSP	0.0739	0.1661	0.1661	1	0.6565	1.077	0.778-1.491
Test				$\chi^2$	<i>df</i>	<i>p</i>	
Overall model evaluation							
Likelihood ratio test				3.3060	5	0.6529	
Score test				3.3863	5	0.6407	
Wald test				3.3717	5	0.6429	
Goodness of fit test							
Hosmer & Lemeshow				5.2980	8	0.7253	

*Note.* Cox and Snell  $R^2 = .0029$ . \* $p < .005$ .

*CPD Subject Area: Other.* A total of 1155 observations were included in the analysis, and 5 observations were excluded due to missing data. A total of 172 observations were included in the “1” category, and 978 were included in the “0” category. Results of the logistic regression analysis are shown in Table 23. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2$  (5, N=1150) = 11.7408,  $p = .0385$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in other CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 23

*Logistic Regression Analysis: Other*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-2.0261	0.2086	94.3395	1	<.0001*	NA	
Gender	-0.0931	0.1963	0.2250	1	0.6352	0.911	0.620-1.339
Exp Psy	0.0235	0.0096	6.0247	1	0.0141	1.024	1.005-1.043
Highest Degree							
EDS	-0.0332	0.2000	0.0276	1	0.8680	0.967	0.654-1.432
PHD	0.3335	0.2129	2.4550	1	0.1171	1.396	0.920-2.119
NCSP	-0.2055	0.1732	1.4083	1	0.2353	0.814	0.580-1.143
Test					$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation							
Likelihood ratio test					11.7408	5	0.0385
Score test					11.9948	5	0.0349
Wald test					11.8175	5	0.0374
Goodness of fit test							
Hosmer & Lemeshow					2.3949	8	0.9665

*Note.* Cox and Snell  $R^2 = .0102$ . \* $p < .005$ .

*Research Question 3:* What is the direction and strength of the relationship between selected professional practices of school psychologists and each continuing professional development subject area?

a.) percentage of total work time in activities related to special education (Survey Items 33 and 35)

b.) number of psychoeducational evaluations completed relating to initial determination of special education eligibility (Survey Items 26 and 35)

c.) number of special education reevaluations completed (Survey Items 27 and 35)

Correlation coefficients were calculated to determine the relationship between the following independent variables and each subject area of continuing professional development: (a) total work time in activities related to special education; (b) number of psychoeducational evaluations completed relating to initial determination of special education eligibility; and (c) number of special education reevaluations completed. The results of these analyses are reported in Table 24. Notable correlation coefficients included the positive relationship between standardized psychoeducational assessment CPD and the percentage of total work time related to special education ( $r = .14$ ) and initial evaluations ( $r = .16$ ) as well as the negative relationship between social/emotional interventions CPD and initial evaluations ( $r = -.15$ ).



Table 24

*Correlation Coefficients among Dependent and Independent Variables*

---

	% of Total Time	Initial Eval	Reevaluations
1. Stan Psychoed Assess	.14*	.16*	.00
2. Acad Scr/Prog Mon	-.01	.06	.01
3. Acad Intervent	-.05	-.01	.02
4. Behavioral Assess	.08	.02	.00
5. Behavioral Interv	.04	-.06	-.04
6. Social/Emot Assess	.02	.08*	.01
7. Social/Emot Interv	-.05	-.15*	-.08
8. Consult/Prob-solving	-.11*	-.04	-.02
9. Response to Interv	-.11*	.00	.04
10. Crisis Interv	-.06	-.09*	.01
11. Other	.02	.03	-.01

---

\* $p < .005$ .

Additional correlation coefficients were calculated between each professional practice characteristic variable and tolerance statistics were run to assess for multicollinearity. Table 25 indicates that no correlations were of such significance to warrant removal from the analyses. An examination of tolerance statistics indicated that each independent variable was found to be within acceptable limits (Berry, 1993).

Table 25

*Correlation Coefficients among Independent Variables*

---

	1	2	3
1. % of Total Time	---		
2. Initial Eval	.16*	---	
3. Reevaluations	.22*	.02	---

---

\* $p < .005$ .

To determine which professional practice variables are most predictive of participation in each continuing development subject area, data were subjected to a logistic regression analysis. Data were entered into a logistic regression model to examine the unique contribution of total work time in activities related to special education, number of psychoeducational evaluations completed relating to initial determination of special education eligibility, and number of special education reevaluations completed with each subject area of continuing professional development while holding all other variables constant. The outcome variable, participation in a specified subject area of continuing professional development, was treated as a dichotomous variable (Yes=1 and No=0). Five explanatory variables were entered into each model: (a) total work time in activities related to special education; (b) number of psychoeducational evaluations completed relating to initial determination of special education eligibility; and (c) number of special education reevaluations completed.

*CPD Subject Area: Standardized Psychoeducational Assessment.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 444 observations were included in the “1” category, and 657 were included in the “0” category. Results of the logistic regression analysis are shown in Table 26. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the three factors in the equation was found to be significantly different from the constant-only model  $\chi^2(3, N=1101) = 45.3643, p < .0001$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in standardized

psychoeducational assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the prediction was .04 according to Cox's and Snell's  $R^2$ . The Wald chi-square statistic indicated that initial evaluations completed  $\chi^2(1, N=1101) = 20.0379$ ,  $p < .0001$  and total percentage of time in activities related to special education  $\chi^2(1, N=1101) = 16.1285$ ,  $p < .0001$  each made a statistically significant unique contribution while holding all other variables constant (see Table 26). Those school psychologists who reported completing a greater number of initial evaluations were more likely to participate in standardized psychoeducational assessment CPD as compared to those who reported completing a fewer number of initial evaluations (OR= 1.010, 95% CI = 1.006-1.014). Those school psychologists who reported spending a greater percentage of time in activities related to special education were more likely to participate in standardized psychoeducational assessment CPD as compared to those who reported spending a less percentage of time in activities related to special education (OR= 1.013, 95% CI= 1.007-1.020). Figures 1 and 2 display a probability plot of the interaction between number of initial evaluations and total percentage of time in activities related to special education each with participation in standardized psychoeducational assessment CPD.

Table 26

*Logistic Regression Analysis: Standardized Psychoeducational Assessment*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.7650	0.2776	40.4238	1	<.0001*	NA	
Initial Eval	0.0099	0.0022	20.0379	1	<.0001*	1.010	1.006-1.014
Reevaluations	-0.0019	0.0025	0.5502	1	0.4582	0.998	0.993-1.003
% of Total Time	0.0134	0.0033	16.1285	1	<.0001*	1.013	1.007-1.020
Test				$\chi^2$	<i>df</i>	<i>p</i>	
Overall model evaluation							
Likelihood ratio test				45.3643	3	<.0001*	
Score test				44.1388	3	<.0001*	
Wald test				41.1915	3	<.0001*	
Goodness of fit test							
Hosmer & Lemeshow				7.4694	8	0.4869	

*Note.* Cox and Snell  $R^2 = .0404$ . \* $p < .005$ .

Figure 1

*Probability Plot: Initial\*Standardized Psychoeducational Assessment CPD*

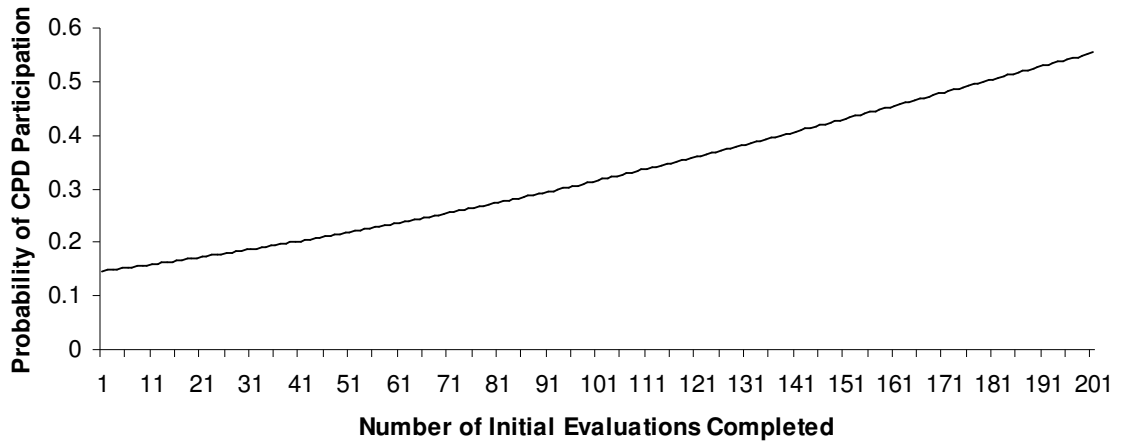
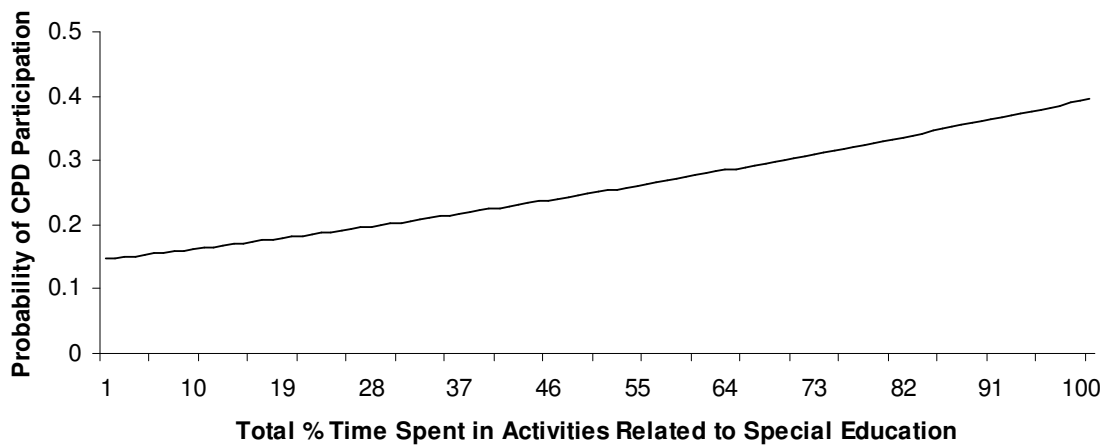


Figure 2

*Probability Plot: % of Total Time \*Standardized Psychoeducational Assessment CPD*



*CPD Subject Area: Academic Screening/Progress Monitoring.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 229 observations were included in the “1” category, and 872 were included in the “0” category. Results of the logistic regression analysis are shown in Table 27. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the three factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (3, N=1101) = 4.3890, p = .2224$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in academic screening/progress monitoring CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 27

*Logistic Regression Analysis: Academic Screening/Progress Monitoring*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.3984	0.2952	22.4432	1	<.0001*	NA	
Initial Eval	0.0050	0.0024	4.3022	1	0.0381	1.005	1.000-1.010
Reevaluations	0.0015	0.0029	0.2733	1	0.6011	1.002	0.996-1.007
% of Total Time	-0.0021	0.0036	0.3389	1	0.5604	0.998	0.991-1.005
Test				$\chi^2$	<i>df</i>	<i>p</i>	
Overall model evaluation							
Likelihood ratio test				4.3890	3	0.2224	
Score test				4.5782	3	0.2054	
Wald test				4.5301	3	0.2096	
Goodness of fit test							
Hosmer & Lemeshow				10.7229	8	0.2179	

*Note.* Cox and Snell  $R^2 = .0040$ ; \* $p < .005$ .

*CPD Subject Area: Academic Interventions.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 366 observations were included in the “1” category, and 735 were included in the “0” category. Results of the logistic regression analysis are shown in Table 28. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the three factors in the equation was not found to be significantly different from the constant-only model  $\chi^2$  (3,

N=1101) = 4.4281,  $p = .2188$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in academic interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 28

*Logistic Regression Analysis: Academic Interventions*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-0.3310	0.2500	1.7527	1	0.1855	NA	
Initial Eval	-0.0002	0.0022	0.0116	1	0.9144	1.000	0.995-1.004
Reevaluations	0.0032	0.0025	1.6082	1	0.2047	1.003	0.998-1.008
% of Total Time	-0.0058	0.0031	3.5517	1	0.0595	0.994	0.988-1.000

Test	$\chi^2$	df	p
Overall model evaluation			
Likelihood ratio test	4.4281	3	0.2188
Score test	4.4795	3	0.2141
Wald test	4.4515	3	0.2167
Goodness of fit test			
Hosmer & Lemeshow	15.8838	8	0.0441

*Note.* Cox and Snell  $R^2 = .0040$ . \* $p < .005$ .

*CPD Subject Area: Behavioral Assessment.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 234 observations were included in the “1” category, and 867 were included in the “0” category. Results of the logistic regression analysis are shown in Table 29. An



examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the three factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (3, N=1101) = 8.3570, p=. 0392$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in behavioral assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 29

*Logistic Regression Analysis: Behavioral Assessment*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-2.1536	0.3371	40.8109	1	<.0001*	NA	
Initial Eval	0.0011	0.0025	0.1980	1	0.6564	1.001	0.996-1.006
Reevaluations	-0.0020	0.0030	0.4537	1	0.5006	0.998	0.992-1.004
% of Total Time	0.0107	0.0040	6.9845	1	0.0082	1.011	1.003-1.019

Test	$\chi^2$	df	p
Overall model evaluation			
Likelihood ratio test	8.3570	3	0.0392
Score test	7.8654	3	0.0489
Wald test	7.7533	3	0.0514
Goodness of fit test			
Hosmer & Lemeshow	4.4308	8	0.8163

*Note.* Cox and Snell  $R^2 = .0076$ . \* $p < .005$ .

*CPD Subject Area: Behavioral Interventions.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 519 observations were included in the “1” category, and 582 were included in the “0” category. Results of the logistic regression analysis are shown in Table 30. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the three factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (3, N=1101) = 8.5576, p = .0358$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in behavioral interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 30

*Logistic Regression Analysis: Behavioral Interventions*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.3079	0.2449	1.5805	1	0.2087	NA	
Initial Eval	-0.0048	0.0021	4.9309	1	0.0264	0.995	0.991-0.999
Reevaluations	-0.0033	0.0024	1.8164	1	0.1777	0.997	0.992-1.001
% of Total Time	0.0058	0.0030	3.7307	1	0.0534	1.006	1.000-1.012
Test				$\chi^2$	<i>df</i>	<i>p</i>	
Overall model evaluation							
Likelihood ratio test				8.5576	3	0.0358	
Score test				8.4815	3	0.0370	
Wald test				8.3800	3	0.0388	
Goodness of fit test							
Hosmer & Lemeshow				9.2635	8	0.3206	

*Note.* Cox and Snell  $R^2 = .0077$ . \* $p < .005$ .

*CPD Subject Area: Social/Emotional Assessment.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 186 observations were included in the “1” category, and 915 were included in the “0” category. Results of the logistic regression analysis are shown in Table 31. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the three factors in the equation was not found to be significantly different from the constant-only model  $\chi^2$  (3,

N=1101) = 6.7518,  $p = .0113$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in social/emotional assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 31

*Logistic Regression Analysis: Social/Emotional Assessment*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-1.9551	0.3348	34.1057	1	<.0001*	NA	
Initial Eval	0.0064	0.0025	6.4105	1	0.0113	1.006	1.001-1.011
Reevaluations	0.0001	0.0032	0.0008	1	0.9772	1.000	0.994-1.006
% of Total Time	0.0016	0.0041	0.1433	1	0.7050	1.002	0.994-1.010

Test	$\chi^2$	df	p
Overall model evaluation			
Likelihood ratio test	6.7518	3	0.0113
Score test	7.2558	3	0.9772
Wald test	7.0979	3	0.7050
Goodness of fit test			
Hosmer & Lemeshow	3.4323	8	0.9044

Note. Cox and Snell  $R^2 = .0061$ . \* $p < .005$ .

*CPD Subject Area: Social/Emotional Interventions.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 316 observations were included in the “1” category, and 785 were included in the “0” category. Results of the logistic regression analysis are shown in Table 32. An

examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was found to be significantly different from the constant-only model  $\chi^2 (3, N=1101) = 32.5575, p < .0001$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in social/emotional interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the prediction was .03 according to Cox's and Snell's  $R^2$ . The Wald chi-square statistics indicated that initial evaluations completed  $\chi^2 (1, N=1101) = 21.0972, p < .0001$  made a statistically significant unique contribution while holding all other variables constant (see Table 32). Those school psychologists who reported completing fewer initial evaluations were more likely to participate in social/emotional interventions CPD as compared to those who reported completing a greater number of initial evaluations (OR= 0.987, 95% CI= 0.982-0.993). Figure 3 displays a probability plot of the interaction between number of initial evaluations and participation in social/emotional interventions CPD.

Table 32

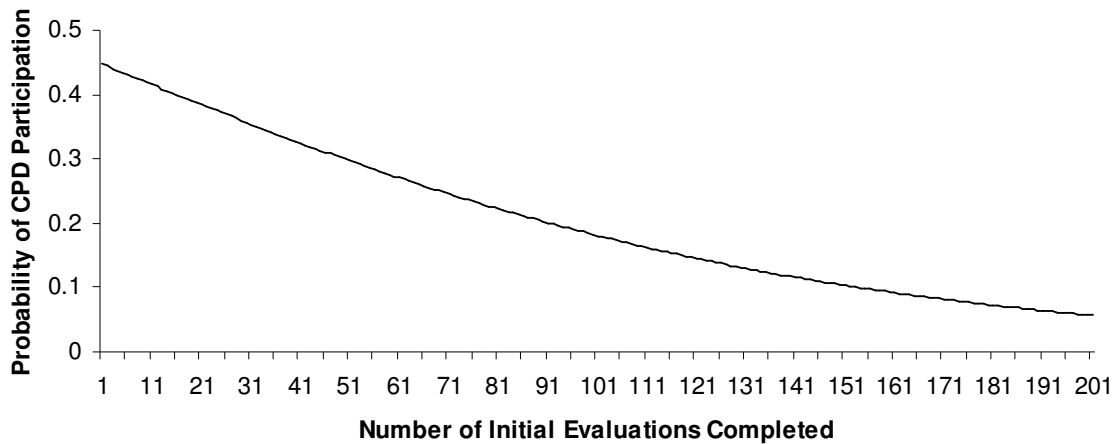
*Logistic Regression Analysis: Social/Emotional Interventions*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.2124	0.2636	0.6495	1	0.4203	NA	
Initial Eval	-0.0130	0.0028	21.0972	1	<.0001*	0.987	0.982-0.993
Reevaluations	-0.0067	0.0029	5.5674	1	0.0183	0.993	0.992-1.001
% of Total Time	-0.0007	0.0032	0.0495	1	0.8240	0.999	1.000-1.012
Test				$\chi^2$	<i>df</i>	<i>p</i>	
Overall model evaluation							
Likelihood ratio test				32.5575	3	<.0001*	
Score test				29.5461	3	<.0001*	
Wald test				28.5757	3	<.0001*	
Goodness of fit test							
Hosmer & Lemeshow				12.9478	8	0.1137	

*Note.* Cox and Snell  $R^2 = .0291$ . \* $p < .005$ .

Figure 3

*Probability Plot: Initial\*Social/Emotional Intervention CPD*



*CPD Subject Area: Consultation/Problem-Solving.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 346 observations were included in the “1” category, and 755 were included in the “0” category. Results of the logistic regression analysis are shown in Table 33. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was found to be significantly different from the constant-only model  $\chi^2 (3, N=1101) = 12.8619, p = .0049$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in consultation/problem-solving CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the

prediction was .01 according to Cox's and Snell's  $R^2$ . The Wald chi-square statistics indicated that total percentage of time in activities related to special education  $\chi^2$  (1, N=1101) = 8.8580,  $p$ = .0029 made a statistically significant unique contribution while holding all other variables constant (see Table 33). Those school psychologists who reported a less total percentage of time in activities related to special education were more likely to participate in consultation/problem-solving CPD as compared to those who reported a greater total percentage of time (OR= 0.991, 95% CI= 0.985-0.997). Figure 4 displays a probability plot of the interaction between total percentage of time in activities related to special education and participation in consultation/problem-solving CPD.



Table 33

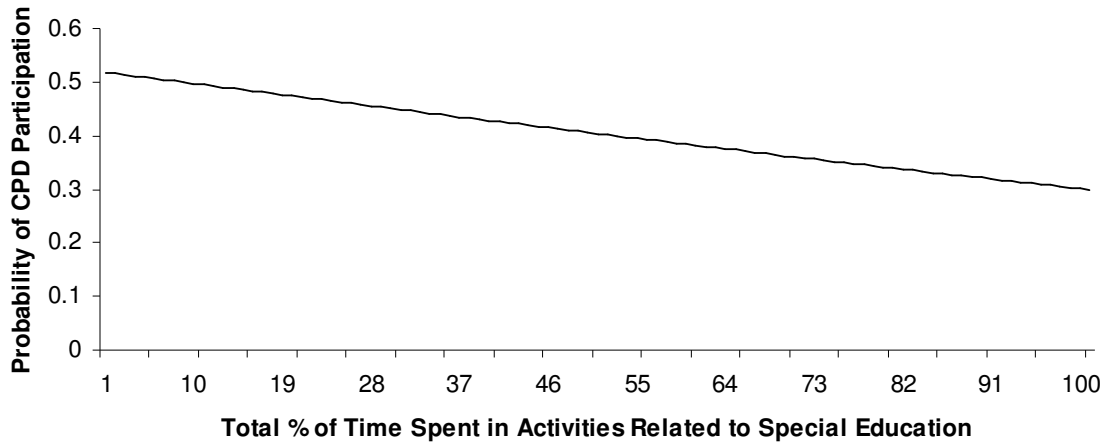
*Logistic Regression Analysis: Consultation/Problem-Solving*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	0.0695	0.2497	0.0774	1	0.7808	NA	
Initial Eval	-0.0032	0.0024	1.7741	1	0.1829	0.997	0.992-1.001
Reevaluations	-0.0003	0.0026	0.0112	1	0.9158	1.000	0.995-1.005
% of Total Time	-0.0092	0.0031	8.8580	1	0.0029*	0.991	0.985-0.997
Test				$\chi^2$	<i>df</i>	<i>p</i>	
Overall model evaluation							
Likelihood ratio test				12.8619	3	0.0049*	
Score test				13.1040	3	0.0044*	
Wald test				12.8532	3	0.0050*	
Goodness of fit test							
Hosmer & Lemeshow				6.5109	8	0.5902	

*Note.* Cox and Snell  $R^2 = .0116$ . \* $p < .005$ .

Figure 4

*Probability Plot: % of Total Time\*Consultation/Problem-Solving CPD*



*CPD Subject Area: Response to Intervention.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 292 observations were included in the “1” category, and 809 were included in the “0” category. Results of the logistic regression analysis are shown in Table 34. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was found to be significantly different from the constant-only model  $\chi^2 (3, N=1101) = 16.4787, p = .0009$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in response to intervention CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the prediction was .01 according to Cox’s and Snell’s  $R^2$ . The Wald chi-square statistics

indicated that total percentage of time in activities related to special education  $\chi^2$  (1, N=1101) = 14.4634,  $p = .0001$  made a statistically significant unique contribution while holding all other variables constant (see Table 34). Those school psychologists who reported a less total percentage of time in activities related to special education were more likely to participate in response to intervention CPD as compared to those who reported a greater total percentage of time (OR= 0.988, 95% CI= 0.982-0.994). Figure 5 displays a probability plot of the interaction between total percentage of time in activities related to special education and participation in response to intervention CPD.

Table 34

*Logistic Regression Analysis: Response to Intervention*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.3301	0.2563	1.6590	1	0.1977	NA	
Initial Eval	0.0021	0.0024	0.7936	1	0.3730	1.002	0.997-1.007
Reevaluations	0.0061	0.0026	5.4180	1	0.0199	1.006	1.001-1.011
% of Total Time	-0.0123	0.0032	14.4634	1	0.0001*	0.988	0.982-0.994

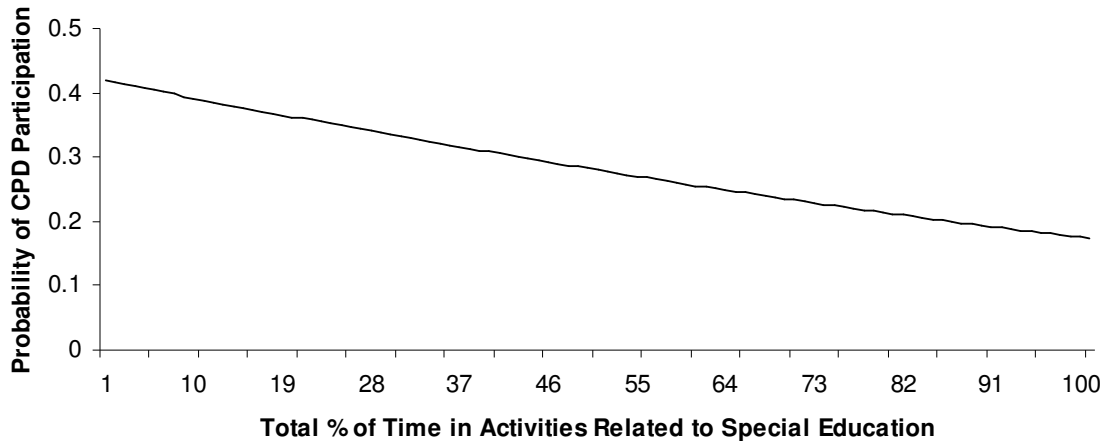
  

Test	$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation			
Likelihood ratio test	16.4787	3	0.0009*
Score test	16.9821	3	0.0007*
Wald test	16.5681	3	0.0009*
Goodness of fit test			
Hosmer & Lemeshow	6.0581	8	0.6407

*Note.* Cox and Snell  $R^2 = .0149$ . \* $p < .005$ .

Figure 5

*Probability Plot: % of Total Time\*Response to Intervention CPD*



*CPD Subject Area: Crisis Intervention.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 181 observations were included in the “1” category, and 920 were included in the “0” category. Results of the logistic regression analysis are shown in Table 35. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=1101) = 12.5974, p = .0056$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in crisis intervention CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 35

*Logistic Regression Analysis: Crisis Intervention*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.9099	0.3033	9.0023	1	0.0027*	NA	
Initial Eval	-0.0095	0.0034	7.8287	1	0.0051	0.991	0.984-0.997
Reevaluations	0.0008	0.0032	0.0563	1	0.8124	1.001	0.994-1.007
% of Total Time	-0.0055	0.0038	2.1435	1	0.1432	0.994	0.987-1.002

Test	$\chi^2$	<i>df</i>	<i>p</i>
Overall model evaluation			
Likelihood ratio test	12.5974	3	0.0056
Score test	11.5848	3	0.0089
Wald test	11.4329	3	0.0096
Goodness of fit test			
Hosmer & Lemeshow	11.7086	8	0.1647

*Note.* Cox and Snell  $R^2 = .0114$ . \* $p < .005$ .

*CPD Subject Area: Other.* A total of 1101 observations were included in the analysis, and 54 observations were excluded due to missing data. A total of 165 observations were included in the “1” category, and 936 were included in the “0” category. Results of the logistic regression analysis are shown in Table 36. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the three factors in the equation was not found to be significantly different from the constant-only model  $\chi^2$  (3,

N=1101) = 1.4933,  $p = .6838$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in social/emotional assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 36

*Logistic Regression Analysis: Other*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-1.9365	0.3498	30.6507	1	<.0001*	NA	
Initial Eval	0.0020	0.0028	0.4991	1	0.4799	1.002	0.997-1.007
Reevaluations	-0.0027	0.0035	0.5942	1	0.4408	0.997	0.991-1.004
% of Total Time	0.0027	0.0043	0.4081	1	0.5229	1.003	0.994-1.011

Test	$\chi^2$	df	p
Overall model evaluation			
Likelihood ratio test	1.4933	3	0.6838
Score test	1.4966	3	0.6831
Wald test	1.4940	3	0.6836
Goodness of fit test			
Hosmer & Lemeshow	6.4533	8	0.5966

Note. Cox and Snell  $R^2 = .0014$ . \* $p < .005$ .

*Research Question 4:* What is the direction and strength of the relationship between selected employment conditions of school psychologists and each continuing professional development subject area?

- a.) school setting (i.e., urban, suburban, rural) (Survey Items 19 and 35)

- b.) ratio of individual students to school psychologist (Survey Items 23 and 35)
- c.) supervision received in practice (i.e., administrative only, clinical only, both administrative and clinical, and no administrative or clinical supervision) (Survey Items 36, 37, and 35)
- d.) clinical supervisor's degree area (i.e., school psychology, psychology, or other) (Survey Item 37 and 35)
- e.) clinical supervisor's degree level (i.e., non-doctoral or doctoral) (Survey Item 37 and 35)

Correlation coefficients were calculated to determine the relationship between the following independent variables and each subject area of continuing professional development: (a) school setting; (b) ratio of individual students to school psychologist; (c) supervision received in practice; (d) clinical supervisor's degree area; (e) clinical supervisor's degree level. The results of these analyses are reported in Table 37. Notable correlation coefficients included the negative relationship between social/emotional interventions CPD and ratio of individual students to school psychologist ( $r = -.11$ ).

Additional correlation coefficients were calculated between each professional practice characteristic variable and tolerance statistics were run to assess for multicollinearity. Table 38 indicates a statistically significant positive relationship between receiving clinical supervision and clinical supervisor degree in school psychology ( $r = .72$ ), receiving clinical supervision and clinical supervisor holding a Ph.D. degree, ( $r = .77$ ), and clinical supervisor holding a Ph.D. and clinical supervisor degree in psychology ( $r = .64$ ). The tolerance values for these four variables were as follows: receiving clinical supervision (.15), clinical supervisor degree in school psychology (.42);

clinical supervisor holding a Ph.D. (.29), and clinical supervisor degree in psychology (.52). These data indicated that multicollinearity was present among independent variables. As a result, both the clinical supervisor's degree area and clinical supervisor's degree level variables were dropped from the analysis. This decision was made because one of the aims of the current study is to differentiate between administrative and clinical supervision and how each uniquely related to CPD. The alternative solution would have been to combined clinical supervision, clinical supervisor's degree area, and clinical supervisor's degree level into one composite variable, which would not allow one to determine the unique contribution of clinical supervision to CPD. Therefore, the following analyses were conducted with only the following three independent variables: (a) school setting; (b) ratio of individual students to school psychologist; and (c) supervision received in practice. Multicollinearity was reassessed via examination of the tolerance statistic. An examination of tolerance statistics indicated that each independent variable was found to be within acceptable limits (Berry, 1993).



Table 37

*Correlation Coefficients among Dependent and Independent Variables*


---

	Urban	Suburb	Rural	Ratio	Admin	Clin	SP	Psy	Oth	MA/EDS	PHD
1. Stan Psychoed Assess	.05	.01	-.04	.03	-.02	.01	-.01	-.02	-.04	.00	.00
2. Acad Scr/Prog Mon	-.09*	.02	.06	.05	.04	-.06	-.05	-.01	-.05	-.01	-.04
3. Acad Interv	-.00	-.08	.10*	.02	.00	-.04	-.02	-.06	-.02	.03	-.06
4. Behavioral Assess	.06	-.04	-.04	-.04	-.02	-.01	-.01	-.02	.00	.02	-.04
5. Behavioral Interv	.02	-.04	.03	-.09	.00	-.01	.00	.00	-.03	-.03	.01
6. Social/Emot Assess	.04	.02	-.09*	.06	-.02	.02	.01	.03	-.02	.00	.04
7. Social/Emot Interv	-.02	.04	-.04	-.11*	-.03	.05	.01	.05	.08*	.01	.04
8. Consult/Prob-solving	-.01	.03	-.03	-.02	.03	-.01	.01	-.05	.02	.01	-.01
9. Response to Interv	-.01	-.04	.06	.10*	-.01	-.04	-.01	.02	-.03	-.04	-.02
10. Crisis Interv	.00	.03	-.05	-.03	.03	.03	.01	.04	.02	-.02	.02
11. Other	-.04	.06	-.02	.02	.00	.05	.04	.05	.02	.03	.07

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\* $p < .005$ .

Table 38

*Correlation Coefficients among Independent Variables*

	1	2	3	4	5	6	7	8	9	10	11
1. Urban	----										
2. Suburb	-.41*	----									
3. Rural	-.27*	-.41*	----								
4. Ratio	.05	-.06	.02	----							
5. Admin	-.02	.02	-.01	-.03	----						
6. Clin	.05	.01	-.07	-.06	.16*	----					
7. SP	.06	-.03	-.04	-.04	.13*	.72*	----				
8. Psy	-.03	.03	.00	-.02	.06	.59*	.26*	----			
9. Oth	-.03	.06	-.03	-.04	.08	.35*	.16*	.00	----		
10. MA/EDS	.04	.00	-.04	.00	.09*	.34*	.25*	.01	.31*	----	
11. PHD	.01	.00	-.01	-.04	.10*	.77*	.54*	.64*	.07	-.04	----

\* $p < .005$ .

To determine which employment condition variables were most predictive of participation in each continuing development subject area, data were subjective to a logistic regression analysis. Data were entered into a logistic regression model to examine the unique contribution of setting, ratio of individual students to school psychologist, and supervision received (i.e., administrative and clinical) with each CPD subject area while holding all other variables constant. The outcome variable, participation in a specified subject area of continuing professional development, was treated as a dichotomous variable (Yes=1 and No=0). Four explanatory variables were entered into each model: (a) setting; (b) ratio of individual students to school psychologist; (c) administrative supervision received; and (d) clinical supervision received. Of note, all values for the ratio variable were converted to z-scores.

*CPD Subject Area: Standardized Psychoeducational Assessment.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 384 observations were included in the “1” category, and 578 were included in the “0” category. Results of the logistic regression analysis are shown in Table 39. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N= 962) = 5.7353, p= .3328$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in standardized psychoeducational assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 39

*Logistic Regression Analysis: Standardized Psychoeducational Assessment*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.4296	0.1150	13.9591	1	0.0002*	NA	
Setting							
Urban	0.2801	0.1662	2.8412	1	0.0919	1.323	0.955-1.833
Rural	-0.0180	0.1583	0.0130	1	0.9093	0.982	0.720-1.339
Ratio (z-score)	0.0647	0.0656	0.9728	1	0.3240	1.067	0.938-1.213
Admin	-0.1145	0.1341	0.7292	1	0.3932	0.892	0.686-1.160
Clin	0.1395	0.2060	0.4584	1	0.4984	1.150	0.768-1.722
Test							
Overall model evaluation							
Likelihood ratio test				5.7353	5		0.3328
Score test				5.7696	5		0.3293
Wald test				5.7311	5		0.3333
Goodness of fit test							
Hosmer & Lemeshow				2.9869	8		0.9352

Note. Cox and Snell  $R^2 = .0059$ . \* $p < .005$ .

*CPD Subject Area: Academic Screening/Progress Monitoring.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 215 observations were included in the “1” category, and 747 were included in the “0” category. Results of the logistic regression analysis are shown in Table 40. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was found to be significantly different from the constant-only model  $\chi^2 (5, N=962) = 18.4145, p=.0025$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in academic screening/progress monitoring CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the prediction was .02 according to Cox's and Snell's  $R^2$ . However, the Wald chi-square statistic indicated that there were no individual predictors that were statistically significant (see Table 40). Therefore, the full model with the four factors was statistically significant, but no one predictor could be identified as making a significant unique contribution to the model.

Table 40

*Logistic Regression Analysis: Academic Screening/Progress Monitoring*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.2696	0.1369	86.0442	1	<.0001*	NA	
<b>Setting</b>							
Urban	-0.5209	0.2196	5.6274	1	0.0177	0.594	0.386-0.913
Rural	0.1559	0.1774	0.7727	1	0.3794	1.169	0.826-1.655
Ratio (z-score)	0.1131	0.0745	2.3022	1	0.1292	1.120	0.968-1.296
Admin	0.2645	0.1580	2.8012	1	0.0942	1.303	0.956-1.776
Clin	-0.5518	0.2801	3.8821	1	0.0488	0.576	0.333-0.997
<b>Test</b>							
				$\chi^2$	<i>df</i>	<i>p</i>	
<b>Overall model evaluation</b>							
				18.4145	5	0.0025*	
				17.5553	5	0.0036*	
				17.0920	5	0.0043*	
<b>Goodness of fit test</b>							
				2.7577	8	0.9486	

*Note.* Cox and Snell  $R^2 = .0190$ . \* $p < .005$ .

*CPD Subject Area: Academic Interventions.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 332 observations were included in the “1” category, and 630 were included in the “0” category. Results of the logistic regression analysis are shown in Table 41. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=962) = 15.2306, p = .0094$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in academic interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 41

*Logistic Regression Analysis: Academic Interventions*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-0.8635	0.1219	50.1633	1	<.0001*	NA	
<b>Setting</b>							
Urban	0.2556	0.1747	2.1404	1	0.1435	1.291	0.917-1.819
Rural	0.5692	0.1599	12.6686	1	0.0004	1.767	1.291-2.417
Ratio (z-score)	0.0264	0.0678	0.1512	1	0.6974	1.027	0.899-1.173
Admin	0.0685	0.1386	0.2439	1	0.6214	1.071	0.816-1.405
Clin	-0.2907	0.2237	1.6887	1	0.1938	0.748	0.482-1.159
<b>Test</b>							
				$\chi^2$	df	p	
<b>Overall model evaluation</b>							
Likelihood ratio test				15.2306	5	0.0094	
Score test				15.2988	5	0.0092	
Wald test				15.1165	5	0.0099	
<b>Goodness of fit test</b>							
Hosmer & Lemeshow				9.6673	8	0.2892	

*Note.* Cox and Snell  $R^2 = .0157$ . \* $p < .005$ .

*CPD Subject Area: Behavioral Assessment.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 203 observations were included in the “1” category, and 759 were included in the “0” category. Results of the logistic regression analysis are shown in Table 42. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N= 962) = 8.4149, p= .1348$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in behavioral assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.



Table 42

*Logistic Regression Analysis: Behavioral Assessment*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.3589	0.1390	95.5141	1	<.0001*	NA	
<b>Setting</b>							
Urban	0.4472	0.1922	5.4161	1	0.0200	1.564	1.073-2.279
Rural	-0.0216	0.1953	0.0123	1	0.9118	0.979	0.667-1.435
Ratio (z-score)	-0.1069	0.0846	1.5962	1	0.2064	0.899	0.761-1.061
Admin	-0.1422	0.1616	0.7750	1	0.3787	0.867	0.632-1.191
Clin	0.0116	0.2480	0.0022	1	0.9627	1.012	0.622-1.645
<b>Test</b>							
				$\chi^2$	<i>df</i>	<i>p</i>	
<b>Overall model evaluation</b>							
				8.4149	5	0.1348	
				8.6242	5	0.1250	
				8.5209	5	0.1298	
<b>Goodness of fit test</b>							
				14.9964	8	0.0592	

Note. Cox and Snell  $R^2 = .0087$ . \* $p < .005$ .

*CPD Subject Area: Behavioral Interventions.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 448 observations were included in the “1” category, and 514 were included in the “0” category. Results of the logistic regression analysis are shown in Table 43. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2$  (5, N= 962) = 11.1397,  $p$ = .0487, which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in behavioral interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 43

*Logistic Regression Analysis: Behavioral Interventions*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.2086	0.1133	3.3298	1	0.0680	NA	
<b>Setting</b>							
Urban	0.2294	0.1655	1.9220	1	0.1656	1.258	0.909-1.740
Rural	0.2371	0.1953	0.0123	1	0.9118	1.268	0.936-1.716
Ratio (z-score)	-0.1913	0.0689	7.6966	1	0.0055	0.826	0.722-0.945
Admin	-0.0805	0.1320	0.3718	1	0.5420	0.923	0.712-1.195
Clin	-0.0784	0.2048	0.1464	1	0.7020	0.925	0.619-1.381
<b>Test</b>							
				$\chi^2$	<i>df</i>	<i>p</i>	
<b>Overall model evaluation</b>							
Likelihood ratio test				11.1397	5	0.0487	
Score test				10.9111	5	0.0532	
Wald test				10.6425	5	0.0589	
<b>Goodness of fit test</b>							
Hosmer & Lemeshow				11.4415	8	0.1779	

*Note.* Cox and Snell  $R^2$  = .0115. \* $p$  < .005.

*CPD Subject Area: Social/Emotional Assessment.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 166 observations were included in the “1” category, and 796 were included in the “0” category. Results of the logistic regression analysis are shown in Table 44. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N= 962) = 14.1429, p= .0147$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in social/emotional assessment CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 44

*Logistic Regression Analysis: Social/Emotional Assessment*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.5044	0.1469	104.8651	1	<.0001*	NA	
<b>Setting</b>							
Urban	0.2099	0.2031	1.0686	1	0.3013	1.234	0.829-1.837
Rural	-0.5633	0.2277	6.1227	1	0.0133	0.569	0.364-0.889
Ratio (z-score)	0.1466	0.0781	3.5253	1	0.0604	1.158	0.994-1.349
Admin	-0.0103	0.1750	0.0035	1	0.9531	0.990	0.702-1.395
Clin	0.1100	0.2616	0.1768	1	0.6742	1.116	0.668-1.864
<b>Test</b>							
				$\chi^2$	<i>df</i>	<i>p</i>	
<b>Overall model evaluation</b>							
				14.1429	5	0.0147	
				13.9641	5	0.0158	
				13.5416	5	0.0188	
<b>Goodness of fit test</b>							
				12.5216	8	0.1294	

*Note.* Cox and Snell  $R^2 = .0146$ . \* $p < .005$ .

*CPD Subject Area: Social/Emotional Interventions.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 263 observations were included in the “1” category, and 699 were included in the “0” category. Results of the logistic regression analysis are shown in Table 45. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was found to be significantly different from the constant-only model  $\chi^2 (5, N=962) = 21.3591, p = .0007$ , which indicates that the set of predictors reliably distinguished between those school psychologists who engaged in social/emotional interventions CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant. This strength of the prediction was .02 according to Cox's and Snell's  $R^2$ . The Wald chi-square statistics indicated that ratio of individual students to school psychologist  $\chi^2 (1, N=962) = 9.8658, p = 0.0017$  made a statistically significant unique contribution while holding all other variables constant (see Table 45). Those school psychologists who reported a lower ratio were likely to participate in social/emotional interventions CPD as compared to those who reported a higher ratio (OR= 0.762, 95% CI= 0.643-0.903). Figure 6 displays a probability plot of the interaction between individual student to school psychologist ratio and participation in social/emotional intervention CPD.

Table 45

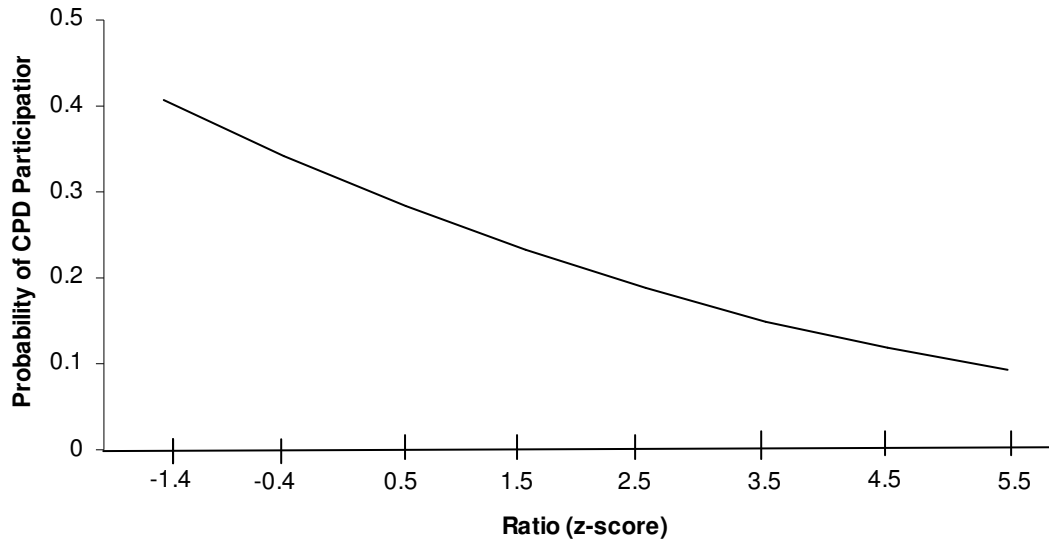
*Logistic Regression Analysis: Social/Emotional Interventions*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.7700	0.1234	38.9472	1	<.0001*	NA	
Setting							
Urban	-0.2891	0.1875	2.3758	1	0.1232	0.749	0.519-1.082
Rural	-0.3832	0.1784	4.6165	1	0.0317	0.682	0.481-0.967
Ratio (z-score)	-0.2724	0.0867	9.8658	1	0.0017*	0.762	0.643-0.903
Admin	-0.2092	0.1489	1.9736	1	0.1601	0.811	0.606-1.086
Clin	0.3158	0.2200	2.0610	1	0.1511	1.371	0.891-2.111
Test							
Overall model evaluation							
Likelihood ratio test				21.3591	5		0.0007*
Score test				20.0791	5		0.0012*
Wald test				19.6039	5		0.0015*
Goodness of fit test							
Hosmer & Lemeshow				3.0914	8		0.9285

*Note.* Cox and Snell  $R^2 = .0220$ . \* $p < .005$ .

Figure 6

*Probability Plot: Ratio\*Social/Emotional Interventions CPD*



*CPD Subject Area: Consultation/Problem-Solving.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 312 observations were included in the “1” category, and 650 were included in the “0” category. Results of the logistic regression analysis are shown in Table 46. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N= 962) = 2.2725, p= .8103$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in consultation/problem-solving CPD and those who did not. The Wald and score tests also confirm this finding.

The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 46

*Logistic Regression Analysis: Consultation/Problem-Solving*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-0.7257	0.1200	36.5849	1	<.0001*	NA	
<b>Setting</b>							
Urban	-0.1145	0.1759	0.4234	1	0.5153	0.892	0.632-1.259
Rural	-0.1608	0.1653	0.9465	1	0.3306	0.851	0.616-1.177
Ratio (z-score)	-0.0378	0.0703	0.2898	1	0.5903	0.963	0.839-1.105
Admin	0.1232	0.1399	0.7752	1	0.3786	1.131	0.860-1.488
Clin	-0.0105	0.2159	0.0024	1	0.9611	0.990	0.648-1.511
<b>Test</b>							
				$\chi^2$	<i>df</i>	<i>p</i>	
<b>Overall model evaluation</b>							
Likelihood ratio test				2.2725	5	0.8103	
Score test				2.2657	5	0.8113	
Wald test				2.2610	5	0.8120	
<b>Goodness of fit test</b>							
Hosmer & Lemeshow				7.2055	8	0.5146	

*Note.* Cox and Snell  $R^2 = .0024$ . \* $p < .005$ .

*CPD Subject Area: Response to Intervention.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 267 observations were included in the “1” category, and 695 were included in the “0” category. Results of the logistic regression analysis are shown in Table 47. An examination of regression diagnostics indicated that there were no outliers or influential data points.



The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N=962) = 15.0633, p = .0101$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in response to intervention CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 47

*Logistic Regression Analysis: Response to Intervention*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-1.0191	0.1277	63.6827	1	<.0001*	NA	
<b>Setting</b>							
Urban	-0.0262	0.1889	0.0193	1	0.8895	0.974	0.673-1.411
Rural	0.2993	0.1686	3.1508	1	0.0759	1.349	0.969-1.877
Ratio (z-score)	0.1959	0.0692	8.0184	1	0.0046	1.216	1.062-1.393
Admin	0.0267	0.1470	0.0330	1	0.8559	1.027	0.770-1.370
Clin	-0.3640	0.2468	2.1750	1	0.1403	0.695	0.428-1.127
<b>Test</b>							
				$\chi^2$	df	p	
<b>Overall model evaluation</b>							
				15.0633	5	0.0101	
				15.3220	5	0.0091	
				14.8358	5	0.0111	
<b>Goodness of fit test</b>							
				8.7644	8	0.3626	

Note. Cox and Snell  $R^2 = .0155$ . \* $p < .005$ .

*CPD Subject Area: Crisis Intervention.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 143 observations were included in the “1” category, and 819 were included in the “0” category. Results of the logistic regression analysis are shown in Table 48. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N= 962) = 9.0407, p= .1075$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in crisis intervention CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 48

*Logistic Regression Analysis: Crisis Intervention*

Predictor	<i>B</i>	SEB	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio	95% CI
Constant	-1.7687	0.1593	123.3018	1	<.0001*	NA	
<b>Setting</b>							
Urban	-0.0748	0.2245	0.1111	1	0.7389	0.928	0.598-1.441
Rural	-0.5162	0.2348	4.8322	1	0.0279	0.597	0.377-0.946
Ratio (z-score)	-0.0721	0.0963	0.5602	1	0.4542	0.930	0.770-1.124
Admin	0.2890	0.1857	2.4212	1	0.1197	1.335	0.928-1.921
Clin	0.0925	0.2714	0.1161	1	0.7333	1.097	0.644-1.867
<b>Test</b>							
				$\chi^2$	<i>df</i>	<i>p</i>	
<b>Overall model evaluation</b>							
Likelihood ratio test				9.0407	5	0.1075	
Score test				8.7205	5	0.1207	
Wald test				8.5896	5	0.1266	
<b>Goodness of fit test</b>							
Hosmer & Lemeshow				7.1885	8	0.5164	

*Note.* Cox and Snell  $R^2 = .0094$ . \* $p < .005$ .

*CPD Subject Area: Other.* A total of 962 observations were included in the analysis, and 193 observations were excluded due to missing data. A total of 140 observations were included in the “1” category, and 822 were included in the “0” category. Results of the logistic regression analysis are shown in Table 49. An examination of regression diagnostics indicated that there were no outliers or influential data points.

The likelihood ratio test revealed that the model with the four factors in the equation was not found to be significantly different from the constant-only model  $\chi^2 (5, N= 962) = 9.9809, p= .0758$ , which indicates that the set of predictors did not reliably distinguish between those school psychologists who engaged in other CPD and those who did not. The Wald and score tests also confirm this finding. The Hosmer-Lemeshow goodness-of-fit test was not significant.

Table 49

*Logistic Regression Analysis: Other*

Predictor	B	SEB	Wald's $\chi^2$	df	p	Odds Ratio	95% CI
Constant	-1.5694	0.1519	106.6849	1	<.0001*	NA	
<b>Setting</b>							
Urban	-0.5311	0.2502	4.5074	1	0.0337	0.588	0.360-0.960
Rural	-0.2665	0.2197	1.4722	1	0.2250	0.766	0.498-1.178
Ratio (z-score)	0.0905	0.0873	1.0740	1	0.3000	1.095	0.923-1.299
Admin	-0.2062	0.1876	1.2079	1	0.2717	0.814	0.563-1.175
Clin	0.5415	0.2612	4.2971	1	0.0382	1.719	1.030-2.867
<b>Test</b>							
					$\chi^2$	df	p
<b>Overall model evaluation</b>							
					9.9809	5	0.0758
					10.1498	5	0.0711
					9.9721	5	0.0760
<b>Goodness of fit test</b>							
					10.3411	8	0.2419

*Note.* Cox and Snell  $R^2 = .0103$ . \* $p < .005$ .

*Research Question 5:* What is the relationship between the distribution of selected continuing professional development subject areas and geographic region?

(Survey Items 35 and 10)

Chi-square tests of independence were conducted to test the relationship between each geographic region (i.e., Northeast, Mid-Atlantic, South Atlantic, East South Central, East North Central, West South Central, West North Central, Mountain, and Pacific) (see Appendix E), as delineated by the United States Census (Hosp & Reschly, 2002), and each subject area of continuing professional development at the alpha significance level of .005. Frequency counts and percentages for each region are displayed in Table 50.

Table 50

*Frequency Counts and Percentages of Practitioners for Each Region*

	N	%
Mid-Atlantic	290	20.86%
East North Central	255	18.35%
South Atlantic	245	17.63%
Pacific	156	11.22%
Northeast	131	9.42%
Mountain	109	7.84%
West North Central	98	7.05%
West South Central	57	4.10%
East South Central	49	3.53%

A total of 1,151 responses were used in these analyses, and 239 responses were excluded due to missing data. Results indicated that there was a significant relationship between selected CPD subject areas and region. A statistically significant association was

found between region and participation in the following CPD subject areas: (a) academic screening/progress monitoring ( $\chi^2 (8, 1151) = 89.9993, p < .0001$ ); (b) behavioral assessment ( $\chi^2 (8, 1151) = 44.0519, p < .0001$ ); (c) social/emotional assessment ( $\chi^2 (8, 1151) = 26.5853, p = .0008$ ); (d) social/emotional intervention ( $\chi^2 (8, 1151) = 22.1686, p = .0046$ ); (e) response to intervention ( $\chi^2 (8, 1151) = 35.6605, p < .0001$ ); and (f) crisis intervention ( $\chi^2 (8, 1151) = 35.5196, p < .0001$ ).

A statistically significant association was not found between region and participation in the following CPD subject areas: (a) standardized psychoeducational assessment ( $\chi^2 (8, 1151) = 16.5412, p = .0353$ ); (b) academic interventions ( $\chi^2 (8, 1151) = 20.1062, p = .0099$ ); (c) behavioral interventions ( $\chi^2 (8, 1151) = 14.2430, p = .0756$ ); (d) consultation/problem-solving ( $\chi^2 (8, 1151) = 16.8059, p = .0322$ ); and (e) other ( $\chi^2 (8, 1151) = 17.6469, p = .0240$ ). Details on those tests are presented below.

*Academic Screening/Progress Monitoring.* Results indicated that there was a statistically significant relationship between academic screening/progress monitoring CPD and region ( $\chi^2 (8, 1151) = 89.9993, p < .0001$ ). The strength of association was small to medium (Cramer's  $V = .28$ ). Upon reviewing the percentage of school psychologists that reported participating in academic screening/progress monitoring CPD, it appears that the East North Central and West South Central regions were different from the others. The East North Central region (40.85) had the highest percentage of school psychologists participating in academic screening/progress monitoring CPD. The West South Central region (4.17) had the lowest percentage of school psychologists participating in academic screening/progress monitoring CPD.

*Behavioral Assessment.* Results indicated that there was a statistically significant relationship between behavioral assessment CPD and region ( $\chi^2(8, 1151) = 44.0519, p < .0001$ ). The strength of association was small to medium (Cramer's  $V = .20$ ). Upon reviewing the percentage of school psychologists that reported participating in behavioral assessment CPD, it appears that the West South Central and East South Central regions were different from the others. The West South Central region (50) had the highest percentage of school psychologists participating in behavioral assessment CPD. The East South Central region (12.2) had the lowest percentage of school psychologists participating in behavioral assessment CPD.

*Social/Emotional Assessment.* Results indicated that there was a statistically significant relationship between social/emotional assessment CPD and region ( $\chi^2(8, 1151) = 26.5853, p = .0008$ ). The strength of association was small (Cramer's  $V = .15$ ). Upon reviewing the percentage of school psychologists that reported participating in social/emotional assessment CPD, it appears that the Northeast and East North Central regions were different from the others. The Northeast region (29.41) had the highest percentage of school psychologists participating in social/emotional assessment CPD. The East North Central region (10.8) had the lowest percentage of school psychologists participating in social/emotional assessment CPD.

*Social/Emotional Interventions.* Results indicated that there was a statistically significant relationship between social/emotional assessment CPD and region ( $\chi^2(8, 1151) = 22.1686, p = .0046$ ). The strength of association was small (Cramer's  $V = .14$ ). Upon reviewing the percentage of school psychologists that reported participating in social/emotional interventions CPD, it appears that the Northeast and East South Central

regions were different from the others. The Northeast region (43.14) had the highest percentage of school psychologists participating in social/emotional interventions CPD. The East South Central region (19.51) had the lowest percentage of school psychologists participating in social/emotional interventions CPD.

*Response to Intervention.* Results indicated that there was a statistically significant relationship between response to intervention CPD and region ( $\chi^2 (8, 1151) = 35.6605, p < .0001$ ). The strength of association was small (Cramer's  $V = .18$ ). Upon reviewing the percentage of school psychologists that reported participating in response to intervention CPD, it appears that the Mountain and Northeast regions were different from the others. The Mountain region (36.84) had the highest percentage of school psychologists participating in response to intervention CPD. The Northeast region (8.82) had the lowest percentage of school psychologists participating in response to intervention CPD.

*Crisis Intervention.* Results indicated that there was a statistically significant relationship between crisis intervention CPD and region ( $\chi^2 (8, 1151) = 35.5196, p < .0001$ ). The strength of association was small (Cramer's  $V = .18$ ). Upon reviewing the percentage of school psychologists that reported participating in crisis intervention CPD, it appears that the Mid-Atlantic region and West South Central regions were different from the others. The Mid-Atlantic region (23.77) had the highest percentage of school psychologists participating in crisis intervention CPD. The West South Central region (6.25) had the lowest percentage of school psychologists participating in crisis intervention CPD.



## Chapter Five

### Discussion

School psychologists are faced with a variety of contextual factors that impact their professional role. Changes in student demographic characteristics and educational law and policy require school psychologists to expand their repertoire of skills in order to meet the needs of their clients. Some school psychologists will be required to extend far beyond their educational training, while others may have to refine pre-existing skills. Despite training backgrounds, school psychologists are ethically responsible for providing appropriate and effective services to promote positive academic, behavioral, and social/emotional outcomes for all students.

Continuing professional development (CPD) has been identified as a critical means for providing school psychologists with relevant skills to meet a diverse range of student needs. The present study investigated the CPD subject areas endorsed by school psychologists who are employed full-time in school settings, and the relationship of those areas with selected demographic characteristics, professional practices, and employment conditions.

#### *Summary of the Findings*

This study was exploratory in nature due to the limited literature base relating to CPD activities of school psychologists. The study examined the CPD subject areas endorsed by practicing school psychologists and the relationship of those subject areas with demographic characteristics, professional practices, and employment conditions.

Findings indicated that the most to least commonly identified CPD subject areas were: behavioral interventions (47.10%); standardized psychoeducational assessment (40%); academic interventions (32.99%); consultation/problem-solving (31.52%); social/emotional intervention (28.66%); response to intervention (26.32%); behavioral assessment (21.39%); academic screening/progress monitoring (20.61%); social/emotional assessment (16.80%); crisis intervention (16.19%); and other (14.98%). The CPD areas most commonly reported for the “other” category included assessment and intervention with autism and other low incidence disabilities, legal issues/compliance (e.g., IDEIA, NCLB), and neuropsychological assessment and intervention. Overall, school psychologists in this particular sample reported engaging in a wide variety of CPD activities. The percentage of school psychologists who reported participation in specific CPD subject areas ranged from 14% to 47%.

The finding that standardized psychoeducational assessment was one of the most commonly endorsed CPD subject area is somewhat comparable to previous studies in which school psychologists reported engaging in assessment-related CPD areas (e.g., Fowler & Harrison, 2001). However, previous studies have not differentiated between authentic (e.g., Curriculum-Based Measurement [CBM]) and traditional (e.g., standardized psychoeducational) types of assessment, which makes it difficult to determine specific CPD activities of school psychologists. The current study clearly differentiated between different types of assessment and revealed that twice as many school psychologists reported engaging in standardized psychoeducational assessment CPD than in academic screening/progress monitoring (e.g., CBM). Furthermore, even fewer school psychologists reported engaging in behavioral and social/emotional

assessment. These results highlight the importance of distinguishing between types of assessment practices in order to gain a more accurate picture of school psychologists' specific CPD activities and needs.

Another possible explanation for these results includes the frequently cited finding that school psychologists continue to engage in more traditional job activities despite the recognized need for role change (Bramlett et al., 2002; Curtis et al., 2002; Curtis et al., 2006; Hosp & Reschly, 2002). School psychologists in this sample reported that an average of 80.4% of their time was devoted to activities related to special education (Curtis et al., 2006). A plausible explanation may include that school psychologists' day to day practice guides their CPD activities. Previous findings have shown that school psychologists rated their CPD needs as being likely to influence actual CPD involvement (Fowler & Harrison, 2001). On the other hand, if school psychologists want to engage in an expanded role, it might be argued that they need to engage in CPD activities that would prepare them for that expanded role.

Interestingly, behavioral intervention was the most commonly reported CPD subject area activity among school psychologists included in this sample. These results could be explained by a wide variety of reasons, such as personal interests, district/building-wide initiatives, and legal mandates. An interesting hypothesis is that the requirements of IDEA regarding manifestation determinations, functional behavioral assessment (FBA), and designing individualized behavior intervention plans (BIP) for those students who have not responded to intervention have required school psychologists to develop more skills in the area of behavioral assessment and intervention. Crimmins and Farrell (2006) explained how reauthorizations of IDEA have

required school personnel to gain skills related to behavioral assessment and intervention (e.g., FBA, BIP). School personnel are required to conduct a FBA and BIP for students who have been suspended for 10 days or placed in an alternative educational setting in order to determine whether their behavior relates to a disability. The law also specifies that BIPs should be reviewed and modified as necessary for those students with existing behavioral plans so that they receive appropriate services. Furthermore, the 2004 reauthorization of IDEA went a step further and identified the need to use system-wide, universal behavioral approaches in order to promote successful behavioral outcomes for students. These legal mandates most likely require school psychologists to acquire a greater repertoire of skills associated with behavioral assessment and intervention (e.g., systems change, implementation of universal supports). As a result, school psychologists may seek out CPD in these areas. This could be one possible reason why school psychologists in this sample most commonly endorsed the behavioral interventions CPD subject area.

Another notable finding of the present study indicates that approximately 26% of school psychologists reported that they participated in response to intervention CPD during the 2004-2005 school year. These findings are encouraging considering the recent focus on Response to Intervention (RtI) as a data-based decision-making process that can help students to meet academic, behavioral, and socio-emotional goals. The IDEIA (2004) includes requirements regarding how schools are to determine whether a child has a specific learning disability. The IDEIA (2004) provides schools with the option to use data-based evidence regarding how well a student responds to scientifically-based

interventions (i.e., RtI) to decide on the presence or absence of a specific learning disability (Brown-Chidsey, 2005).

Response to Intervention has growing empirical support and the potential to redefine service delivery in the schools (Case, Speece, & Molloy, 2003; Marston, Muyskens, Lau, & Canter, 2003; Vaughn, Linan-Thompson, & Hickman-Davis, 2003). It is encouraging that some school psychologists are engaging in CPD related to RtI as it shows that some practitioners are making strides to engage in the use of best professional practices and align their practices with both IDEIA and NCLB. However, one must be cautious because RtI may have many different meanings depending on the school setting, context, administrative leadership, and state specific regulations. Therefore, this particular finding should be interpreted with that possibility in mind.

Another noteworthy finding is that there was a statistically significant negative relationship between the engagement of school psychologists in CPD activities relating to standardized psychoeducational assessment and in CPD relating to response to intervention ( $r = -.20$ ). One possible explanation is that those practitioners who spend a substantial amount of time in activities related to psychoeducational assessment are most likely to not have time, or possibly the skill set, to work within a response to intervention framework. Furthermore, it is likely that a school district that employs the discrepancy model to determine special education eligibility would not be as supportive or knowledgeable of RtI practices. This finding also provides support to the current bifurcation of the school psychology field. Professionals within the field differ on which type of service delivery they believe is appropriate to effectively serve students. Debate is centered on whether the traditional IQ-achievement discrepancy or the RtI service

delivery framework is most efficient and effective. It is plausible that school psychologists who endorsed response to intervention CPD would be more likely to engage in professional practices related to RtI and believe that it is a more effective form of service delivery. These school psychologists would be less likely to report engaging in standardized psychoeducational assessment CPD as these types of CPD activities would not align with their professional beliefs and practices.

Another notable finding is that there was a statistically significant positive relationship between CPD relating to academic screening/progress monitoring and to response to intervention ( $r = .28$ ). This relationship is not surprising considering that academic screening/progress monitoring practices (e.g., CBM) are an integral part of successfully implementing a response to intervention service delivery framework (Batsche et al., 2005). The use of authentic assessments, such as CBM, is critical in detecting small changes in student progress within a response to intervention framework (Shinn, 2002). An examination of changes in student progress using CBM data is a defining feature within a RtI framework because data guides the decision-making process to determine a student's response to intervention and whether and intervention must be changed, modified, or discontinued (Batsche et al., 2005) Therefore, it is highly plausible that a school psychologist would engage in both academic screening/progress monitoring and response to intervention CPD due to the nature of the RtI service delivery framework.

Logistic regression analyses were performed in order to determine which demographic characteristic, professional practices, and employment condition variables

were most predictive of participation in each CPD subject area. A summary of the findings for each category is reported below.

*Demographic Characteristics.* Bivariate correlations revealed that there was a statistically significant negative relationship between age and response to intervention ( $r = -.14$ ), which suggests that those school psychologists who are older may engage in less response to intervention CPD. This finding, although of small practical significance, may be due to various factors, such as differences in pre-service training (e.g., older school psychologists receiving more traditional training), lack of perceived need to engage in response to intervention CPD, or personal interests. It is important to note that this finding is also significant considering that national data indicate that the field continues to grow older. Curtis et al. (2006) reported that between 1990 and 2005 the percentage of all school psychologists who were 40 years of age or younger declined 10% (i.e., 43.2 to 33.1), whereas those 50 years of age or older increased 27.3% (i.e., 20.2 to 47.5). Furthermore, almost one out of 10 (9%) school psychologists is now 60 years of age or older. The continued aging of the field may have implications for CPD participation, especially in CPD activities relating to more progressive knowledge areas and skill sets (e.g., RtI).

Demographic characteristic variables as a set (i.e., gender, years of experience, highest degree earned, and NCSP held) did not reliably distinguish between those school psychologists who engaged in the following CPD subject areas and those who did not: (a) standardized psychoeducational assessment; (b) academic screening/progress monitoring; (c) behavioral assessment; (d) behavioral interventions; (e) social/emotional assessment; (f) social/emotional interventions; (g) response to intervention; (h) crisis

intervention; and (i) other. Alternatively, the set of demographic characteristic variables reliably distinguished between those school psychologists who did and did not participate in the following CPD subject areas: (a) academic interventions; and (b) consultation/problem-solving. However, there were no individual predictors that were statistically significant in either of these logistic regression analyses. No one predictor could be identified as making a significant unique contribution to either model. These results suggest that these demographic variables together had some sort of synergistic effect that helped to explain participation in these CPD subject areas, or there are other variables not included in the analysis that are better predictors of CPD participation.

Despite the fact that the overall models for both academic interventions and consultation/problem-solving CPD were statistically significant, the strength of these predictions was very small ( $R^2=.0190$  for academic interventions;  $R^2=.02$  for consultation/problem-solving). Overall, gender, years of experience, highest degree earned, and NCSP held did not meaningfully predict participation/non-participation in the majority of CPD subject areas. In a related study, Fowler and Harrison (2001) found no relationship between demographic characteristic variables (i.e., age, gender, credential status, marital status, parental status, and years of experience) and CPD needs. Notably, their study compared needs with demographic characteristics, and the current study compared actual CPD engagement and demographic characteristics.

Conversely, the findings of the current study are somewhat surprising considering that relationships between demographic characteristics and professional practices have been found (Curtis et al., 2002). Curtis et al. (2002) found that school psychologists with more training and years of experience in school psychology spent more time in non-



traditional activities, such as individual counseling, consultation, and in-services and less time in more traditional activities, such as completing initial evaluations and total percentage of time spend in activities related to special education. One might anticipate that professional practices drive CPD activity. For example, it is plausible that school psychologists with more years of experience engage in more consultation, and, thus, more CPD in the area of consultation. However, this type of statement was not supported by the data generated from the current study.

The present study did not yield any findings indicating that gender played a significant role in participation in any CPD subject area. These findings were not surprising considering national data that has yielded mixed results regarding relationships between gender and professional roles. Although some studies have found that female school psychologists reported spending more time in assessment-related activities and males reported engaging in more systems-level change roles, the majority of the research findings on a national level indicated no clear results or trends related to gender and professional roles (Curtis et al., 2002; Wilson and Reschly, 1995).

*Professional Practices.* Bivariate correlations indicated that there was a statistically significant positive relationship between standardized psychoeducational assessment CPD and the percentage of total work time related to special education ( $r = .14$ ) and initial evaluations ( $r = .16$ ). This suggests that those school psychologists who engaged in standardized psychoeducational assessment CPD were more likely to spend a greater percentage of time in activities related to special education and complete a greater number of initial evaluations. This finding may lend support to the idea that actual professional practice is associated with CPD activity. A statistically significant negative

relationship was found between social/emotional interventions CPD and initial evaluations ( $r = -.15$ ). The data also suggest that school psychologists who engaged in social/emotional interventions CPD were more likely to complete fewer initial evaluations. Social/emotional interventions are considered a more non-traditional activity, which may limit the amount of time a school psychologist has to devote to more traditional activities related to special education eligibility.

Professional practice variables as a set (i.e., percentage of total work time in activities related to special education, number of psychoeducational evaluations completed relating to initial determination of special education eligibility, and number of special education reevaluations completed) did not reliably distinguish between those school psychologists who engaged in the following CPD subject areas and those who did not: (a) academic screening/progress monitoring; (b) academic interventions; (c) behavioral assessment; (d) behavioral interventions; (e) social/emotional assessment; (f) crisis intervention; and (g) other. Alternatively, the set of professional practice variables reliably distinguished between those school psychologists who did and did not participate in the following CPD subject areas: (a) standardized psychoeducational assessment; (b) social/emotional interventions; (c) consultation/problem-solving; and (d) response to intervention.

Findings indicated that initial evaluations, reevaluations, and total percentage of time spent in activities related to special education as a set reliably distinguished between those school psychologists who engaged in standardized psychoeducational assessment CPD and those who did not. However, the strength of the prediction was very small ( $R^2 = .04$ ). Furthermore, both initial evaluations completed and total percentage of time in

activities related to special education each made a statistically significant unique contribution to the regression equation. Odds ratios revealed that school psychologists who reported completing a greater number of initial evaluations were more likely to participate in standardized psychoeducational assessment CPD as compared to those who reported completing a fewer number of initial evaluations. Those school psychologists who reported spending a greater percentage of time in activities related to special education were more likely to participate in standardized psychoeducational assessment CPD as compared to those who reported spending a less percentage of time in activities related to special education.

Findings also indicated that the set of professional practice variables reliably distinguished between those school psychologists who engaged in social/emotional interventions CPD and those who did not. However, the strength of the prediction was very small ( $R^2 = .03$ ). Initial evaluations completed made a statistically significant unique contribution to the regression equation. Odds ratios revealed that school psychologists who reported completing fewer initial evaluations were more likely to participate in social/emotional interventions CPD as compared to those who reported completing a greater number of initial evaluations.

Additionally, results indicated that the set of professional practice variables reliably distinguished between those school psychologists who engaged in consultation/problem-solving CPD and those who did not. However, the strength of the prediction was very small ( $R^2 = .01$ ). Total percentage of time in activities related to special education evaluations made a statistically significant unique contribution to the regression equation. Odds ratios revealed that school psychologists who reported a less

total percentage of time in activities related to special education were more likely to participate in consultation/problem-solving CPD as compared to those who reported a greater total percentage of time.

Lastly, findings revealed that the set of professional practice variables reliably distinguished between those school psychologists who engaged in response to intervention CPD and those who did not. However, the strength of the prediction was very small ( $R^2 = .01$ ). Total percentage of time in activities related to special education evaluations made a statistically significant unique contribution to the regression equation. Odds ratios revealed that school psychologists who reported a less total percentage of time in activities related to special education were more likely to participate in response to intervention CPD as compared to those who reported a greater total percentage of time.

Collectively, these results suggested that professional practices have some influence, although very small, on whether school psychologists engage in certain areas of CPD. Professional practices variables did help to predict participation in standardized psychoeducational assessment, social/emotional interventions, consultation/problem-solving, and response to intervention CPD. School psychologists who were more likely to engage in non-traditional forms of CPD (i.e., social/emotional interventions, consultation/problem-solving, and response to intervention) were less likely to engage in professional practices related to special education (e.g., initial evaluations). Again, one might expect that actual job roles or activities drive CPD areas of need and participation. If this were the case, then school psychologists who engage in more traditional roles (e.g., completing initial evaluations) would endorse participation in CPD areas related to more traditional roles, and those school psychologists who spend less time in such roles could

have more time to engage in more non-traditional activities, and thus, may participate in corresponding CPD activities.

Interestingly, reevaluations did not make a significant unique contribution to any of the CPD subject areas. The reason for these findings is unclear considering that initial evaluations and total percentage of time in activities related to special education were found to be influential predictors of CPD participation in some areas. One possible explanation is that IDEIA (2004) requires that a reevaluation conducted under Section 614(a)(2)(A) occur not more frequently than once a year and at least once every three years (unless parent and LEA decide otherwise). Thus, the frequency of reevaluations may vary considerably depending upon the school year.

*Employment Conditions.* Bivariate correlations revealed that there was a statistically significant negative relationship between social/emotional interventions CPD and ratio of individual students to school psychologist ( $r = -.11$ ), indicating that school psychologists who report lower ratio are more likely to participate in social/emotional interventions CPD. Previous research has found that greater ratios are associated with more time spent in activities related to special education and lower ratios are associated with more time spent in direct service delivery (e.g., counseling groups, individual counseling) (Curtis et al., 2002; Curtis et al., 2002; Reschly, 2000; Smith, 1984). It can be argued that lower ratios allow school psychologists to engage in more non-traditional activities, such as social/emotional interventions, which may lead them to participate in social/emotional CPD.

Employment condition variables as a set (i.e., school setting, ratio of individual students to school psychologist, administrative supervision, and clinical supervision) did

not reliably distinguish between those school psychologists who engaged in the following CPD subject areas and those who did not: (a) standardized psychoeducational assessment; (b) academic interventions; (c) behavioral assessment; (d) behavioral interventions; (e) social/emotional assessment; (e) consultation/problem-solving; (f) response to intervention; (g) crisis intervention; and (h) other. Alternatively, the set of employment condition variables reliably distinguished between those school psychologists who did and did not participate in the following CPD subject areas: (a) academic screening/progress monitoring; and (b) social/emotional interventions.

Findings indicated that school setting, ratio, administrative supervision, and clinical supervision as a set reliably distinguished between those school psychologists who engaged in academic screening/progress monitoring CPD and those who did not. However, no one predictor could be identified as making a significant unique contribution to the model. These results suggest that these employment condition variables together had some sort of synergistic effect that helped to explain participation in academic screening/progress monitoring, or there are other variables not included in the analysis that are better predictors of CPD participation in this area. Despite the fact that the overall model for academic screening/progress monitoring CPD was statistically significant, the strength of this prediction was very small ( $R^2 = .02$ ).

Findings also indicated that the set of employment condition variables reliably distinguished between those school psychologists who engaged in social/emotional interventions CPD and those who did not. However, the strength of the prediction was very small ( $R^2 = .02$ ). Ratio of individual students to school psychologist made a statistically significant unique contribution to the regression equation. Odds ratios

revealed that school psychologists who reported a lower ratio were more likely to participate in social/emotional interventions CPD as compared to those who reported a higher ratio.

Overall, school setting, ratio, administrative supervision, and clinical supervision did not help to predict CPD participation in majority of subject areas. It was anticipated that school setting may have an impact on CPD participation, considering past research that has shown a relationship between professional practices and school setting (Curtis et al., 2002; Curtis et al., 2002). For example, Curtis et al. (2002) found that rural school psychologists conducted significantly more reevaluations as compared to urban and suburban practitioners. Additionally, practitioners in urban and suburban settings served significantly more students via consultation as compared to practitioners in rural settings. Again, one might anticipate that activity drive CPD needs. Another possible reason to suspect that school setting may be associated with CPD is that different CPD needs have been found among school psychologists from rural, suburban, and urban settings. Reschly and Connolly (1990) found statistically significant differences in continuing professional development needs among all groups. Rural practitioners reported greater CPD needs in assessment of neuropsychological functioning, remedial educational programs, and behavioral interventions in the general education classroom. Urban practitioners reported greater CPD needs in adaptive behavior assessment, nonbiased assessment techniques, and minority student education. Both urban and rural practitioners reported higher CPD needs in interventions for students who receive services in mild/educable mentally handicap programs. Rural, urban, and suburban all reported significant CPD needs in bilingual education. Notably, many of the CPD categories noted in the study were not

included in the current study, which may help explain inconsistent results. It would have been interesting to know if perceived needs correlated with actual CPD activity as other studies have found (Fowler & Harrison, 2001).

Conversely, one study examined the CPD activities of urban and rural school psychologists. That study revealed no significant differences in total hours spent in CPD and total number of different CPD activities of urban and rural school psychologists (Hughes and Clark, 1981), suggesting that school setting may not be a strong indicator of CPD activity among school psychologists. However, the results of that particular study should be interpreted with caution because only school psychologists from Virginia were surveyed. Interestingly, the respondents practicing in rural school settings perceived that they received generalist training, had fewer support services, had more involvement in program planning, and experienced more professional isolation as compared to school psychologists in urban settings. These perceived differences may have implications for CPD activities, although none were found in the present study.

The research exploring school setting in relation to professional roles and CPD practices is exploratory and inconclusive in nature. There are no known studies that specifically examined school setting and different types of CPD. The current study provides preliminary support that CPD activities of school psychologists are not necessarily related to school setting. It is possible that differences in roles and CPD needs may be more influenced by a combination of other factors (e.g., students to school psychologist ratios, district priorities, or funding influences) as well as school setting. Alternatively, one may hypothesize that school setting could be an important factor related to CPD. For example, larger school districts may be more likely to provide CPD



opportunities for school psychologists as opposed to small school districts. Large school district may have more resources available to provide CPD whereas smaller districts may be limited in their resource allocation. However, small districts may benefit from the presence of organizations (e.g., The Institute for Small and Rural Districts in Florida) that are specifically designed to provide services to small districts that may not have access to many CPD opportunities. These potential hypotheses related to school setting indicate that more research is needed to explore the impact of school setting on the CPD practices of school psychologists.

Additionally, the current study found that school psychologists who reported a lower ratio were more likely to participate in social/emotional interventions CPD as compared to those who reported a higher ratio. Ratio has been found to impact professional practices and service delivery. In fact, Reschly (2000) noted that student to school psychologist ratios are one of the most “robust of the influences on school psychology practice in the public schools” due to its significant impact on job satisfaction, assessment practices, and amount of time spent in activities related to special education (p. 513). Moreover, Curtis et al. (2002) stated the student to school psychologist ratio are useful data that can be utilized to inform legislators and policymakers about the influence of ratios on the nature of services school psychologists are able to provide in the schools.

There is a possibility that ratio also may impact the CPD activity of school psychologists due to its influence on professional practices. For example, role change and/or expansion (e.g., consultation, prevention) have been found to be associated with a student ratio of 1:1500 or lower (Smith, 1984). Two national studies also confirm that

ratios impact the types of services that are delivered in the schools. Curtis et al. (2002) reported that the greater ratio of student to school psychologist was associated with more initial special education evaluations completed, greater number of special education reevaluations completed, and a greater percentage of time spent in activities related to special education. Conversely, smaller ratios were associated with school psychologists who reported engaging in more counseling of individual students and group counseling as compared with school psychologist who reported greater ratios. Furthermore, Curtis et al. (2002) found that the greater the ratio, the greater the number of activities related to special education, which may limit the potential for role expansion. Results also indicated that low ratios were associated with school psychologists engaging in more preferred roles.

Hosp and Reschly (2002) examined relationships between ratios according to region and service delivery. It was found that those regions with low ratios (i.e., Northeast and Mid-Atlantic) administered more projective measures and conducted more anecdotal behavioral observations as compared to regions with higher ratios. Regions with high ratios (i.e., East South Central, West South Central, West North Central, and South Atlantic) spent more hours per week on assessment-related activities as compared to those regions with lower ratios.

Those findings lend support to the finding of the present study that school psychologists who reported lower ratios were more likely to engage in more non-traditional roles, such as engaging in social/emotional interventions CPD. It is possible that those school psychologists with lower ratios are more likely to engage in

social/emotional intervention and, thus, participate in CPD in that area to supplement their current role.

The literature on supervision and CPD activities of school psychologists is scant. However, the present study did support previous findings in that few school psychologists receive administrative and/or clinical supervision (Chafouleas, Clonan, & Vanauken, 2002; Fischetti & Crespi, 1999; Ross & Goh, 1993; Zins, Murphy, & Wess, 1989). Approximately 48% of school psychologists in this study reported receiving administrative supervision, and about 12% of practitioners reported receiving clinical supervision. Clearly, this is an area of concern for the field, considering that clinical supervision is one essential component of CPD. Findings indicated that administrative and clinical supervision received were not related to participation in any CPD subject area. These results may be attributed to the lack of overall supervision received by school psychologist in this sample. Another possibility is that administrative supervision, which consists of monitoring of job duties, logistics of service delivery, and consumer satisfaction, traditionally does not encompass CPD. One would anticipate that of these types of supervision, clinical supervision would be more associated with CPD activity. However, clinical supervision was not received by the majority of this sample, and it is unknown how frequently supervision occurred for those practitioners who did receive this type of supervision. It may be that school psychologists did not receive adequate amounts of supervision, which is not unlikely considering that past studies have found that supervision occurs on an as needed basis or less than NASP and APA recommendations (Chafouleas et al., 2002; Fischetti and Crespi, 1999). Supervision may

not be the most reliable avenue to obtain professional development for school psychologists when taking these issues related to supervision into consideration.

*Regional Differences.* Findings revealed that there was a statistically significant association between region and participation in academic screening/progress monitoring, behavioral assessment, social/emotional assessment, social/emotional intervention, response to intervention, and crisis intervention CPD. Overall, the Northeast, East North Central, and East South Central regions were regions of most interest in this study. The percentage of school psychologists in the Northeast region (i.e., CT, MA, ME, NH, RI, VT) appeared higher for participation in social/emotional assessment and intervention CPD and lower for response to intervention CPD as compared to other regions. Previous research has found that the Northeast region had one of the highest means of projective/personality tests administered per month (Hosp & Reschly, 2000). Projective measures are typically used to assess social/emotional functioning and planning for intervention, which may help to explain these findings. The Northeast region was also found to have low means for IQ/ability and achievement tests administered per month, suggesting that an emphasis on direct intervention and less emphasis on psychometrics (Hosp & Reschly, 2000). Furthermore, Hosp and Reschly (2000) found that the Northeast region had low ratios, which may add support to the previous finding of the current study that lower ratios were associated with social/emotional intervention CPD. The percentage of school psychologists in the Northeast region was lower than expected for response to intervention CPD. There is limited empirical support for the use of projective/personality assessments and their usefulness in linking assessment to intervention, suggesting that research may not be guiding practice (Seitz, 2001). On the other hand, response to

intervention is guided by evidence-based assessments and interventions and does not endorse the use of assessment and intervention that are not empirically validated by research.

Results for the East North Central region (i.e., IL, IN, MI, OH, and WI) indicated that the percentage of school psychologists in this region appeared higher for participation in academic screening/progress monitoring CPD and lower for social/emotional assessment CPD as compared to other regions. These findings are consistent with previous research that has found school psychologists in the East North Central and West North Central regions were more likely to use data-based, low inference methods of data collection and fewer projective measures (Hosp & Reschly, 2000). Notably, the percentage of school psychologists in the East North Central region was one of the highest for participation in response to intervention CPD. Academic screening/progress monitoring activities coincide with an RtI framework. More specifically, RtI incorporates the use of data-based academic screening/progress monitoring measures (e.g., CBM) in order to assess student performance and make data-based decisions (Batsche et al., 2005).

Results for the East South Central region (i.e., AL, KY, MS, and TN) indicated that the percentage of school psychologists in this region appeared lower for both social/emotional interventions and behavioral assessment CPD as compared to other regions. Previous research has found that school psychologists in the East South Central region administered more intelligence than every region except the South Atlantic, and administered the most achievement measures per month out of any region (Hosp & Reschly, 2002). These findings suggest that this particular region may devote a

substantial amount of time to more traditional school psychology activities, such as psychoeducational assessment, which would leave less time for engagement in more non-tradition activities. Furthermore, Hosp and Reschly (2002) reported that the East South Central region had a mean ratio well above 2,000 students per school psychologist. Previous research has found that greater ratios are associated with more time spent in special education activities (e.g., standardized psychoeducational assessment) and lower ratios are associated with more time spent in direct service delivery (i.e., social/emotional interventions) (Curtis et al., 2002). Collectively, these findings may help to explain the low percentage of school psychologists in this region who reported participating in social/emotional interventions CPD.

The finding that a low percentage of school psychologists reported participating in behavioral assessment CPD is unclear when compared to previous research. Previous research has found that school psychologists in the East South Central region completed the highest mean number of behavior rating scales as compared to all other regions (Hosp & Reschly, 2002). Although behavior rating scales are considered a part of a behavioral assessment, they are norm-referenced and their administration is typically limited to a parent or teacher completing the scale. Behavior rating scales are not as time consuming as compared to other behavioral assessment activities, such as FBA's and classroom observations. High ratios can impact service delivery and place more restrictions on a school psychologist's time (Curtis et al., 2002). Thus, the administration of behavioral rating scales may be a more feasible assessment method. School psychologists from this region may have administered more behavioral rating scales in previous research;

however, that may not necessarily reflect engagement in behavioral assessment or behavioral assessment CPD.

#### *Limitations of the National Database*

There are several potential threats to internal and external validity inherent in all survey research and, therefore, to the database to be used to answer the research questions posed in this study. These limitations need to be considered when reviewing the findings because potential threats to validity may represent competing explanations for the results of the study (Johnson & Christenson, 2004). Limitations to be considered include: (a) social desirability; (b) population validity; (c) comparability of 2005 NASP membership and the 2004-2005 NASP national database; (d) potential differences between responders and non-responders; (e) temporal validity; and (f) the retrospective nature of the data.

First, a threat to internal validity exists because participants may provide socially desirable responses. Social desirability bias is described as “the tendency of individuals to deny socially undesirable actions and behaviors and to admit socially desirable ones” (Chung & Monroe, 2003, p. 291). Consequently, participants who comprised the database may have responded to survey items in what they believed was a more socially desirable manner (e.g., responses that reflected what they believed others think school psychologists should be doing in terms of professional practices), which may have interfered with the accuracy of responses.

Second, a potential threat to external validity is that only responses from school psychologists who are members of NASP comprised the national database. The creation of the national database did not account for the possibility that those practitioners who join NASP may differ from those who either do not join or who join different

professional organizations (Reschly & Wilson, 1995). This is described by the term population validity, which refers to the ability to generalize findings from a sample to a larger target population of individuals who did not participate in the study (Johnson & Christensen, 2004).

Third, data indicated that the 2004-2005 national database respondents were comparable to the 2005 NASP membership for gender, but not ethnicity, highest degree earned, or age. The 2004-2005 national database may not necessarily reflect the 2005 NASP membership. Therefore, the results of this study should be interpreted with caution as this sample was taken from the 2004-2005 national database. It has been noted in the literature that sampling school psychologists is a challenging task because there is not a single comprehensive listing of all school psychologists practicing in the United States (Curtis et al., 2004). However, Fagan (1994) estimated that NASP membership represents approximately 70% of all school psychologists and suggests that NASP membership probably represents one of the best resources for sampling the field. In addition, the use of the NASP membership list to obtain participants has resulted in higher return rates (e.g., Curtis et al., 2002 return rate= 67.9%; Curtis et al., 1999 return rate= 74%; Graden & Curtis, 1991 return rate= 79%; Hosp & Reschly, 2002 return rate= 74%; Reschly & Wilson, 1995 return rate= 80%) as compared to other studies that have used alternative sampling methods (Smith, 1984 return rate=49%; Meacham & Peckham, 1978 return rate=20%; Chafouleas et al., 2002 return rate=37%).

Fourth, there may be a difference between respondents and non-respondents. These two groups may possess different demographic characteristics, engage in different professional practices, and represent different employment conditions that could impact



the content of the national database if non-respondents had chosen to participate (Curtis, et al., 2004). Fourth, Johnson and Christensen (2004) describe temporal validity as the extent to which the results of the study can be generalized across time. The database was cross-sectional because participants only reported on professional practices during the 2004-2005 school year. The database is comprised of responses from school psychologists at one point in time. There is no guarantee that primary and secondary analyses, as well as the respective findings, will be applicable in the future. On the other hand, the purpose for creating the database is to provide a description of the field of school psychology during one specific period of time.

Lastly, retrospective data comprised the database, which may have resulted in participants reporting inaccurate information (i.e., they had to recall and estimate information). In response to survey item 24, participants indicated that 72.02% had used estimates, 35.23% used a personal log, 10.05% used a central database, and 1.75% used an alternative method to collect data to answer Items 27 through 35 (the responses total more than 100% because respondents were able to endorse more than one option). Thus, the majority (72.02%) of participants reported estimation as the method to answer one or more of these items. Therefore, it should be noted that the database represents estimates of the demographic characteristics, professional practices, and employment conditions of school psychologists in the United States.

#### *Implications for Practice and Future Research*

There is limited research examining CPD within the field of school psychology. This dearth of research is unfortunate because school psychologists value and perceive CPD and supervision as important in their professional careers (Chafouleas et al., 2002;

Fowler & Harrison, 2001; Guest, 2000). The findings of this study indicate that school psychologists engaged in a variety of CPD activities during the 2004-2005 school year. These findings are encouraging as they suggest that school psychologists are branching out and engaging in more non-traditional types of CPD activities.

Even though school psychologists engaged in a variety of CPD activities, school psychologists most frequently reported participation in behavioral interventions and standardized psychoeducational assessment CPD subject areas. These findings coincide with what is typically thought of as the traditional school psychologist role—academic testing and behavioral intervention/modification. This speaks to the need for school psychologists to further expand their CPD activities to more non-traditional areas, such as academic screening/progress monitoring and response to intervention. In light of legislative mandates and increased accountability for outcomes, school psychologists would benefit from directing their CPD activity to areas that are in alignment with such initiatives. However, it should be noted that these data were only based on the 2004-2005 school year. As a result, the availability of more progressive types of CPD (e.g., RtI, academic screening/progress monitoring, and academic intervention) as well as professional interest in these CPD topics may not have been as great during 2004-2005 as compared to present day. Therefore, it is very encouraging that school psychologists endorsed more progressive CPD subject areas (e.g., RtI, academic screening/progress monitoring) considering the limited availability of CPD in these areas. Recently, professional associations (e.g., NASP) have hosted conferences and summer institutes that have focused on issues pertaining to accountability, use of evidence-based practices, academic assessment and intervention, and response to intervention. These opportunities

for CPD have likely provided school psychologists with the chance to gain knowledge and skills in more progressive forms of service delivery.

Few significant relationships were found between demographic characteristics professional practices, and employment conditions and CPD subject areas. These findings suggest that there are likely other variables, or factors, that impact the CPD of school psychologists. Efforts should be made to identify factors that may represent barriers or enablers to CPD. The identification of barriers and enablers can facilitate the development of more effective CPD programs and initiatives. Successful implementation of CPD at the district and school building level can contribute to improved service delivery. Lastly, regional differences found in this study, which suggest that some areas of the country are more likely to engage in certain areas of CPD. This information may be used to inform professional organizations, training institutions, or other agencies of regions that are practicing progressive forms of service delivery. Selected regions may be identified as models and should be viewed as exemplars of best practice in school psychological service delivery.

Future research should investigate issues beyond gaining general information on CPD (e.g., frequency, format, perceived needs) to more in-depth topics, such as: (a) identification of other key factors that are associated with CPD participation and non-participation; (b) how CPD is (or is not) linked to school-wide data or initiatives; (c) school psychologists' perceptions of CPD; and (d) how school psychologists can be integrated into effective models of CPD at the district and building levels. First, research should investigate what factors are most predictive of CPD activity. The results of this study did not find many variables that were predictive of participation. Data suggest that

there are other variables not included in the analyses that may better help to predict CPD. The present study only examined the CPD subject areas endorsed by school psychologists during the 2004-2004 school year. The study did not investigate the frequency, format, amount, or nature of CPD or who was responsible for the types of CPD endorsed by school psychologists because the survey did not solicit these types of information. It would be important to gain a more comprehensive picture of CPD in school psychology as there are likely systemic variables that influence CPD subject area participation, frequency, format, and amount. For example, state CPD requirements, guidelines for the renewal of professional practice credentials, presence of major statewide initiatives that include CPD components, and membership in state and/or national professional organizations may impact CPD of school psychologists. Future research might inquire about this type of detailed information related to CPD in order to gain a better understanding of factors that are related to CPD participation and non-participation.

Second, it is critical to examine actual CPD activity, how it relates to school needs, and whether CPD is directly addressing those needs. This is a key area of future research as recent educational legislation (i.e., NCLB, IDEIA) has emphasized student outcomes and accountability for those outcomes. Practitioners should go beyond selecting CPD because they are “interested in” or “think it might be useful” and make an effort to link CPD activity to student data. Future studies could investigate the consistency between student data and CPD activities of the district or school. Lack of consistency would warrant an in-depth investigation of what factors prevent linking CPD to student data. For example, lack of consistency could be a product of train and hope CPD models or unclear school-wide systems-change plans that are not driven by data.

Additionally, it would be important to determine what procedures or policies need to be in place in order to promote such linkages. Effective CPD evaluations methods also must be an integral part of such policies. It is recommended that CPD evaluation go beyond pre-post test knowledge measures to more authentic change, such as student outcomes and behavioral change (NSDC, 2001).

Third, future research may explore the perceptions of school psychologists regarding CPD. Only one qualitative study was found that asked school psychologists specific questions about their career development (Guest, 2000). It would be informative to gain the following information via qualitative inquiry: (a) What do school psychologists believe is the purpose of CPD?; (b) How do school psychologists perceive CPD fitting into their professional role?; (c) What are perceived barriers and enablers to CPD?; and (d) What are the primary reasons that school psychologists select certain CPD activities over others? Answers to these questions would guide future research and provide the field with description information that can be used to improve CPD efforts in the field.

Lastly, it would be beneficial to investigate how school psychologists can be integrated into effective models of CPD at the district and building levels. As previously mentioned, the NSDC (2001) advocated for building-level CPD plans that are driven by student data. However, NSDC does not specifically identify how different professionals may integrate themselves into such a CPD plan. It would be important to assess the skills of school psychologists and to determine how they could best be utilized in a CPD model. For example, school psychologists could collect data, facilitate meetings, determine CPD needs based on data, or serve as coaches. School psychologists have the potential to

contribute a great deal of knowledge and skills that are needed to facilitate school-wide CPD efforts.

### *Conclusion*

The present study examined the CPD activities of school psychologists, the relationship between demographic characteristics, professional practices, and employment conditions and CPD, and regional differences in CPD. Findings indicated that school psychologists did not engage in high percentages of CPD in any of the 11 subject areas. School psychologists reported the highest percentages of participation in behavioral interventions and standardized psychoeducational assessment CPD. Very few relationships were found among demographic characteristics, professional practices, and employment conditions and each CPD subject area, suggesting that other variables not included in the analyses may better predict CPD participation. Regional differences were found in the CPD subject areas of academic screening/progress monitoring, behavioral assessment, social/emotional assessment, social/emotional intervention, response to intervention, and crisis intervention. Several limitations were noted that are important to consider when interpreting the results of this study. Implications of the study were described for each major finding. Additional directions for future research were generated that can contribute to the CPD literature in school psychology.

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## Appendices



Appendix A: Comparison of 2005 NASP Membership to 2004-2005 NASP National  
Database Respondents

VARIABLES	2005 NASP Membership	2004-05 Database
<b>GENDER</b>		
Female	73.5%	74%
Male	26.5%	26%
Percent Responding	63.7%	99.9%
<b>ETHNICITY</b>		
White/Caucasian	88.5%	92.6%
American Indian/Alaska Native	0.9%	0.8%
Asian American/Pacific Islander	1.4%	0.9%
African American	3.1%	1.9%
Hispanic	3.8%	3.0%
Other	2.4%	0.8%
Percent Responding	73.8%	97.5%
<b>HIGHEST DEGREE</b>		
Bachelors	1.2%	0.1%
Master's	44.8%	32.6%
Specialist	22.9%	34.9%
Doctorate	28.0%	32.4%
Percent Responding	80.4%	99.8%
<b>MEAN AGE IN YEARS</b>		
Percent Responding	50.9	46.2
	80.4%	99.8%

Appendix B: 2004-2005 National Association of School Psychologists Demographic Characteristics, Employment Conditions,  
and Professional Practices Survey

1. Gender \_\_\_ female \_\_\_ male
2. Age \_\_\_
3. Ethnicity (optional)  
\_\_\_ American Indian/Alaska Native \_\_\_ Asian American/Pacific Islander  
\_\_\_ Black/African American \_\_\_ Caucasian \_\_\_ Hispanic \_\_\_ Other
4. What language(s) do you speak fluently other than English? \_\_\_\_\_  
If you speak another language, do you provide psychological services to students/families in that language? \_\_\_yes  
\_\_\_no
5. Disability \_\_\_no \_\_\_ yes, specify: \_\_\_\_\_
6. Years of experience in school psychology \_\_\_\_\_
7. Years of classroom teaching experience (Pre-K-High School) \_\_\_\_\_
8. Primary position (e.g., school psychologist, university faculty, administrator, state department) \_\_\_\_\_
9. Annual salary (primary position) \_\_\_\_\_
10. State in which employed \_\_\_\_\_
11. Highest degree earned (e.g., bachelors, masters, specialist, doctorate) \_\_\_\_\_
12. Total graduate-level training completed related to school psychology PRIOR TO ENTRY TO PROFESSIONAL PRACTICE (report total number of semester hours; 1 semester hour=1.5 quarter hour) \_\_\_\_\_

Appendix B: (Continued)

13. Certification/Licensure (Mark all that apply):

- Nationally Certified School Psychologist
- Certified by State Education Agency as School Psychologist
- Certified by State Education Agency as Psychometrist, or similar title  
(specify: \_\_\_\_\_ )
- Licensed School Psychologist (doctorate req'd; State Board of Psychology)
- Licensed Psychologist (doctorate req'd; State Board of Psychology)
- Licensed School Psychologist (non-doctoral; State Board of Psychology)
- Licensed Psychological Associate or similar title (non-doctoral; State Board of Psychology; specify: \_\_\_\_\_ )

14. If certified, does certificate allow for independent practice in non-school setting?  yes  no

15. If licensed, does license allow for independent practice in non-school setting?  
 yes  no

16. Membership (please check all that apply):

- State School Psychology Association
- National Education Association
- American Federation of Teachers
- Division of School Psychology (16), American Psychological Association
- Local Teachers' Union
- American Psychological Association
- American Counseling Association
- Council for Exceptional Children
- Other, specify: \_\_\_\_\_

17. For your PRIMARY employment, please estimate the average number of hours per week of employment in each of the following settings.

- Public Schools     Private Schools     Faith-Based Schools
- College/University     Independent Practice     State Department
- Hospital/Medical Setting     Other, specify: \_\_\_\_\_

Appendix B: (Continued)

18. For any SECONDARY employment, please estimate the average number of hours per week of employment in each of the following settings.  
\_\_\_\_\_ Public Schools    \_\_\_\_\_ Private Schools    \_\_\_\_\_ Faith-Based Schools  
\_\_\_\_\_ College/University    \_\_\_\_\_ Independent Practice    \_\_\_\_\_ State Department  
\_\_\_\_\_ Hospital/Medical Setting    \_\_\_\_\_ Other, specify: \_\_\_\_\_
19. Type of setting (i.e., urban, suburban, rural) \_\_\_\_\_
20. Please estimate average number of hours per week in each setting:  
\_\_\_\_\_ Preschool  
\_\_\_\_\_ Elementary School  
\_\_\_\_\_ Middle/Jr. High School  
\_\_\_\_\_ High School  
\_\_\_\_\_ Other, specify: \_\_\_\_\_
21. % of students in district who are ethnic minority \_\_\_\_\_
22. % of students you serve who are ethnic minority \_\_\_\_\_
23. Ratio of School Psychologists to Students for DISTRICT 1: \_\_\_\_\_  
How many students are YOU responsible for serving? \_\_\_\_\_
24. What data did you use to answer items 27 – 35  
\_\_\_\_\_ estimated    \_\_\_\_\_ personal log    \_\_\_\_\_ central database (e.g., dept)  
\_\_\_\_\_ other (please specify) \_\_\_\_\_
25. Number of SECTION 504 PLANS that you assisted in developing \_\_\_\_\_
26. Number of Psychoeducational Evaluations completed relating to INITIAL DETERMINATION of special education eligibility \_\_\_\_\_
27. Number of REEVALUATIONS \_\_\_\_\_

Appendix B: (Continued)

28. Number of CONSULTATION CASES (e.g., consultation for interventions, prereferral interventions, but NOT part of a multifactorial evaluation) \_\_\_\_\_
29. Number of students COUNSELED INDIVIDUALLY (not sessions) \_\_\_\_\_
30. Number of student GROUPS conducted (not sessions) \_\_\_\_\_
31. Total number of STUDENTS served in groups (not sessions) \_\_\_\_\_
32. Number of INSERVICE PROGRAMS conducted \_\_\_\_\_
33. % of TOTAL WORK TIME in activities relating to special education \_\_\_\_\_
34. % of TIME RELATING TO SPECIAL EDUCATION for each of following  
\_\_\_\_ conducting assessments  
\_\_\_\_ writing reports  
\_\_\_\_ attending team meetings  
\_\_\_\_ other (e.g., Medicaid documentation); specify: \_\_\_\_\_
35. Check the top 3 foci of your continuing professional development activities:  
\_\_\_\_ standardized psycho-educational assessment  
\_\_\_\_ academic screening/progress monitoring (e.g., CBM, DIBELS)  
\_\_\_\_ academic interventions  
\_\_\_\_ behavioral assessment  
\_\_\_\_ behavioral interventions  
\_\_\_\_ social/emotional assessment  
\_\_\_\_ social/emotional interventions  
\_\_\_\_ consultation/problem-solving  
\_\_\_\_ response to intervention  
\_\_\_\_ crisis intervention  
\_\_\_\_ other (specify) \_\_\_\_\_

Appendix B: (Continued)

36. Did you receive administrative (e.g., unit head, administrator) supervision during the past year?  yes  no; If yes, job title of that person \_\_\_\_\_  
Average number of supervision hours/month \_\_\_\_\_  
If yes, please indicate all of the following that describe that person:  
 degree in school psychology  degree in psychology  
 degree in admin  degree in other area;  doctoral degree  masters/specialist degree
37. Did you receive clinical supervision during the past year?  yes  no  
If yes, please indicate all of the following that describe your supervisor:  
 degree in school psychology  degree in psychology  degree in other area;  doctoral degree  
 masters/specialist degree  
 number of school psychologists your supervisor supervised
38. Number of days in your 2004-2005 Contract Period \_\_\_\_\_

## Appendix C: National Survey Cover Letter

June 17, 2005

Dear NASP Member,

On behalf of NASP, I am asking for your assistance. Each year, representatives of NASP and state school psychology associations work with legislators and policy-makers, as well as with representatives of other professional associations at both the state and national levels. Repeatedly, we find ourselves needing important information regarding many different aspects of school psychology.

It has become clear that our efforts to improve services for children and to advance school psychology depend on the availability of data for our field. To gather such data, NASP now conducts a national study of demographic characteristics and professional practices every five years. In the three previous studies, the willingness of school psychologists like you to participate has resulted in exceptionally strong response rates of as high as 79%. The availability of those data has been invaluable to NASP, state associations, school districts and individual school psychologists. We currently are conducting the next national study and are collecting information about the just completed 2004-2005 school year.

**We would be most appreciative if you would take a few minutes to complete the enclosed questionnaire and return it in the enclosed envelope within three weeks of receipt.** The survey will take only 12-15 minutes to complete. Because it is extremely important that the information NASP uses accurately reflects the field of school psychology, a high return rate is essential.

As an incentive for participation, **ten NASP members who return completed questionnaires will be randomly selected to each receive “50 NASP Bucks” that can be used toward the purchase of publications available from NASP.** In order for us to make these awards, a code number has been included on the return envelope. We want to assure you that data will be reported only in aggregate form and that the responses of individuals will be treated in the strictest confidence. When a questionnaire is returned, it is immediately separated from the envelope, so that the individual respondent cannot be identified.

Thank you in advance for your time and assistance with this NASP project.

Sincerely,  
Michael J. Curtis  
Research Committee

Appendix D: Minimum and Maximum Values for Selected Variables

1. Gender \_\_\_\_ female \_\_\_\_ male
2. Age **22-76** \_\_\_\_
3. Ethnicity (optional)  
\_\_\_\_ American Indian/Alaska Native \_\_\_\_ Asian American/Pacific Islander  
\_\_\_\_ Black/African American \_\_\_\_ Caucasian \_\_\_\_ Hispanic \_\_\_\_ Other
4. What language(s) do you speak fluently other than English? \_\_\_\_\_  
If you speak another language, do you provide psychological services to students/families in that language?  
\_\_\_\_yes \_\_\_\_no
5. Disability \_\_\_\_no \_\_\_\_ yes, specify: \_\_\_\_\_
6. Years of experience in school psychology **0-42** \_\_\_\_\_
7. Years of classroom teaching experience (Pre-K-High School) **0-30** \_\_\_\_\_
8. Primary position (e.g., school psychologist, university faculty, administrator, state department) \_\_\_\_\_
9. Annual salary (primary position) **0-200,000** \_\_\_\_\_
10. State in which employed \_\_\_\_\_
11. Highest degree earned (e.g., bachelors, masters, specialist, doctorate) \_\_\_\_\_
12. Total graduate-level training completed related to school psychology PRIOR TO ENTRY TO PROFESSIONAL PRACTICE (report total number of semester hours; 1 semester hour=1.5 quarter hour) **0-160** \_\_\_\_\_



Appendix D: (Continued)

13. Certification/Licensure (Mark all that apply):

- Nationally Certified School Psychologist
- Certified by State Education Agency as School Psychologist
- Certified by State Education Agency as Psychometrist, or similar title  
(specify: \_\_\_\_\_)
- Licensed School Psychologist (doctorate req'd; State Board of Psychology)
- Licensed Psychologist (doctorate req'd; State Board of Psychology)
- Licensed School Psychologist (non-doctoral; State Board of Psychology)
- Licensed Psychological Associate or similar title (non-doctoral; State Board of Psychology; specify: \_\_\_\_\_)

14. If certified, does certificate allow for independent practice in non-school setting?  yes  no

15. If licensed, does license allow for independent practice in non-school setting?  
 yes  no

16. Membership (please check all that apply):

- State School Psychology Association
- National Education Association
- American Federation of Teachers
- Division of School Psychology (16), American Psychological Association
- Local Teachers' Union
- American Psychological Association
- American Counseling Association
- Council for Exceptional Children
- Other, specify: \_\_\_\_\_

17. For your PRIMARY employment, please estimate the average number of hours per week of employment in each of the following settings. **Make each one 0 - 60**

- Public Schools  Private Schools  Faith-Based Schools
- College/University  Independent Practice  State Department
- Hospital/Medical Setting  Other, specify: \_\_\_\_\_

Appendix D: (Continued)

18. For any SECONDARY employment, please estimate the average number of hours per week of employment in each of the following settings. **Each one, 0 - 30**  
\_\_\_\_ Public Schools \_\_\_\_ Private Schools \_\_\_\_ Faith-Based Schools  
\_\_\_\_ College/University \_\_\_\_ Independent Practice \_\_\_\_ State Department  
\_\_\_\_ Hospital/Medical Setting \_\_\_\_ Other, specify: \_\_\_\_\_
19. Type of setting (i.e., urban, suburban, rural) \_\_\_\_\_
20. Please estimate average number of hours per week in each setting:  
\_\_\_\_ Preschool **Make each one, 0 - 60**  
\_\_\_\_ Elementary School  
\_\_\_\_ Middle/Jr. High School  
\_\_\_\_ High School  
\_\_\_\_ Other, specify: \_\_\_\_\_
21. % of students in district who are ethnic minority **\_ 0 - 100 \_**
22. % of students you serve who are ethnic minority **\_\_ 0 - 100 \_\_**
23. Ratio of School Psychologists to Students for DISTRICT 1: **0 - 8000**  
How many students are YOU responsible for serving? **\_\_ 0 - 8000 \_\_**
24. What data did you use to answer items 27 – 35  
\_\_\_\_ estimated \_\_\_\_ personal log \_\_\_\_ central database (e.g., dept)  
\_\_\_\_ other (please specify) \_\_\_\_\_
25. Number of SECTION 504 PLANS that you assisted in developing **\_ 0 - 100**
26. Number of Psychoeducational Evaluations completed relating to INITIAL DETERMINATION of special education eligibility **\_\_ 0 - 200 \_\_**
27. Number of REEVALUATIONS **\_\_ 0 - 200 \_\_**

Appendix D: (Continued)

28. Number of CONSULTATION CASES (e.g., consultation for interventions, prereferral interventions, but NOT part of a multifactorial evaluation) **\_0 - 400\_**
29. Number of students COUNSELED INDIVIDUALLY (not sessions) **\_0 - 200\_**
30. Number of student GROUPS conducted (not sessions) **\_0 - 40\_**
31. Total number of STUDENTS served in groups (not sessions) **\_0 - 200\_**
32. Number of INSERVICE PROGRAMS conducted **\_0 - 50\_**
33. % of TOTAL WORK TIME in activities relating to special education **\_0 - 100\_**
34. % of TIME RELATING TO SPECIAL EDUCATION for each of following  
**Make each of the following 0 - 100**  
\_\_\_\_ conducting assessments \_\_\_\_ writing reports  
\_\_\_\_ attending team meetings  
\_\_\_\_ other (e.g., Medicaid documentation); specify: \_\_\_\_\_
35. Check the top 3 foci of your continuing professional development activities:  
\_\_\_\_ standardized psycho-educational assessment  
\_\_\_\_ academic screening/progress monitoring (e.g., CBM, DIBELS)  
\_\_\_\_ academic interventions  
\_\_\_\_ behavioral assessment  
\_\_\_\_ behavioral interventions  
\_\_\_\_ social/emotional assessment  
\_\_\_\_ social/emotional interventions  
\_\_\_\_ consultation/problem-solving  
\_\_\_\_ response to intervention  
\_\_\_\_ crisis intervention  
\_\_\_\_ other (specify) \_\_\_\_\_

Appendix D: (Continued)

36. Did you receive administrative (e.g., unit head, administrator) supervision during the past year? \_\_ yes \_\_ no;  
If yes, job title of that person \_\_\_\_\_  
Average number of supervision hours/month **\_0 - 40\_**  
If yes, please indicate all of the following that describe that person:  
\_\_\_\_ degree in school psychology \_\_\_\_ degree in psychology  
\_\_\_\_ degree in admin \_\_\_\_ degree in other area; \_\_\_\_ doctoral degree \_\_\_\_ masters/specialist degree
37. Did you receive clinical supervision during the past year? \_\_yes \_\_no  
If yes, please indicate all of the following that describe your supervisor:  
\_\_\_\_ degree in school psychology \_\_\_\_ degree in psychology \_\_\_\_ degree in other area; \_\_\_\_ doctoral degree  
\_\_\_\_ masters/specialist degree  
**\_0 - 70\_** number of school psychologists your supervisor supervised
38. Number of days in your 2004-2005 Contract Period **\_80 - 260\_**

## Appendix E: United States Geographic Regions

Mountain: AZ, CO, ID, MT, NM, NV, UT, WY

Pacific: AK, CA, HI, OR, WA

Northeast: CT, MA, ME, NH, RI, VT

Mid-Atlantic: NJ, NY, PA

South Atlantic: DC, DE, FL, GA, MD, NC, SC, VA, WV

East South Central: AL, KY, MS, TN

East North Central: IL, IN, MI, OH, WI

West South Central: AR, LA, OK, TX

West North Central: IA, KS, MN, MO, ND, NE, SD