Personnel Issues in School-Based Occupational Therapy: Supply and Demand, Preparation, Certification and Licensure

Prepared for the Center on Personnel Studies in Special Education

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

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CONTENTS

ABSTRACT

State and local district personnel have long expressed concern about Occupational Therapists (OTs) shortages and OT preservice preparation for work in schools and early childhood programs. This paper explores the existing OT literature on supply and demand of school practitioners, their professional preparation, and how they are certified and licensed. Findings suggest that there may be a shortage of OTs within the next 5 years; some content specific to school settings is usually included in preservice preparation; and most school-based OT practitioners have a state certification or license but it may not be specific to educational settings.

INTRODUCTION AND OVERVIEW OF OCCUPATIONAL THERAPY (OT) SERVICES

The Individuals with Disabilities Education Act (IDEA, 1997) requires schools and early intervention programs to utilize appropriately qualified personnel to provide special education, related services, and intervention services. These services are designed to help meet the educational and developmental needs of eligible children with disabilities. IDEA, via its Comprehensive System of Personnel Development (CSPD) and State Improvement Grant (SIG) provisions, also requires states to ensure that they have an adequate supply of qualified providers who can offer special education, related services, and early intervention services.

Over the past years, concerns have been voiced about the preservice preparation of occupational therapy (OT) practitioners to work in schools and early childhood programs. States and local districts have long complained of shortages of occupational therapists (OTs) in these settings. In addition, the *Twenty-Second Annual Report to Congress on the Implementation of the IDEA* (2000) highlighted the need for additional full-time therapy positions. This paper will explore OT personnel issues with particular emphasis on OTs' role under IDEA.

OT developed in the early 1900s and flourished as a profession during World War I. At that time, OTs worked to assist wounded soldiers and returning veterans to gain independence in their daily self-care, social, and work activities. Within 20 years, the profession had expanded in response to social and economic trends to provide services to a variety of adult populations, children, and the elderly.

Today, OTs address the occupational performance needs (the ability to participate in life activities) of individuals of all ages. For a majority of practitioners, the focus of work has been with individuals with disabilities. Offering preventative services, however, and working with non-disabled individuals who are experiencing occupational performance (participation) problems, are growing areas of practice. Occupations are the "ordinary and familiar things that people do every day" (American Occupational Therapy Association [AOTA], 1995, p. 1015) that bring purpose and meaning to their lives in home, school, work, community, and leisure settings. Thus, OT practitioners focus on restoring and promoting performance and participation in daily life occupations relevant to an individual's (a) developmental and chronological age; (b) role as student, family member, and worker; and (c) his or her social participation within the physical, social, and cultural context. The focus of OT in a particular setting is guided by the setting, reimbursement mandates, and client (student) needs**.**

Table 1 illustrates how OT services differ across the four settings in which OTs typically provide their services.

Table 1. Comparison of OT in Four Settings

Component	Educational	Medical	Industrial	Community (e.g., 0-3; psychosocial)
Client	Student with special needs; parents; caregivers; teachers, aides and other school personnel	Individual of any age with disability, developmental delay, or chronic illness; family members; caregivers; medical personnel	Injured workers on-the-job; employers interested in prevention programs	Individuals with needs in the broad array of social services: developmental skills, community living, housing, income support, vocational preparation, transportation, and shelters; family members, caregivers.
Service Site	Public and private schools; community preschool; vocational training sites	Hospitals, public and private clinics, home health agencies, skilled nursing homes	Work sites across broad array of industrial settings; medical site for injured worker	Child and adult day care; clubhouses; transitional living programs (group homes); outpatient mental health services; recreation programs (e.g., YMCA, camps) wellness clinics
Focus of Assessment/ Intervention	Student performance/ participation in education, activities of daily living, work, play and social occu-pations relevant to school life or transition to work or community living	Performance of activities of daily living appropriate to home, school, and/or work responsibilities	Performance of job-related skills specific to worker's responsibilities and position	Performance of activities of daily living appropriate to home, school, work, or community living
Outcomes of Intervention	Improved student learning, behavior, and progress in the general curriculum & school environment; role competence; adaptation for transition to work, community, and/or post-secondary education.	Ability to care for self independently or with adapted devices to engage in home, school and/or work occupations	Return to work and/or improved work performance/ participation	Independent functioning in all areas self care and community daily living without need of support or decreased levels of support
Payment for OT Services	State and local public education funds; Individuals with Disabilities Education Act; Medicaid; Rehab Act (504)	Medicare, Medicaid, private insurance, CHAMPUS (military), VA, individual pay	Workman's comp.; employer training funds; state vocational rehabilitation	Medicaid, charitable, and private funding, governmental support.

AOTA was founded in 1917. OT practitioners include OTs and OTAs. Currently, there are approximately 50,000 members of the Association (including both OTs and OTAs). According to the U. S. Bureau of Labor Statistics (USBLS) 2002-2003 *Occupational Outlook Handbook* (2001a, 2001b, 2001c), there were over 78,000 OTs and 25,000 OTAs in the U. S. Most OT practitioners are certified through the National Board for Certification in Occupational Therapy (NBCOT). Board-certified practitioners are designated Occupational Therapist Registered (OTR for OTs) or Certified Occupational Therapy Assistant (COTA for OTAs). All OTs and OTAs must pass a national certification exam and are initially certified through NBCOT. Depending on the preference of the therapist and state licensure/certification requirements, some therapists and therapy assistants may choose not to maintain their NBCOT certification. If this is the case, they drop the R or the C from their title. OTs have at least a bachelors degree, and OTAs have at least a 2-year associates degree. A majority of therapists are female and Caucasian.

UNIQUE ROLE OF OT IN THE SCHOOLS

OT practitioners work with children and youth who have physical, behavioral/psychosocial, and cognitive delays or diagnosed disabilities from birth to age 21, as well as with their family members. They may also provide services to other professionals (e.g., medical staff, educational staff, support staff) who work with these children, families, and systems (e.g., school district, departments of education). Services are provided in a variety of settings, including schools, early intervention programs, hospitals and rehabilitation centers, private clinics, homes, community/institutional mental health programs, and juvenile correction facilities.

The majority of OT practitioners who work with children provide their services in public school and early intervention programs under Parts B and C of the IDEA. IDEA Part B identifies OT as a related service for eligible children ages 3-21 years who require assistance to benefit from special education. Under Part C, OT is a primary service for eligible infants and toddlers from birth through age 2, and their families. In early intervention, OT services enhance young children's development and functional performance (ability to participate) in daily settings and support family members and other key adults in their parenting and childcare responsibilities. Although this paper focuses on OT services under IDEA Part B, many of the core issues regarding preparation, supply/demand, and certification/licensure of OT practitioners are similar for Part C programs. See Case-Smith (1998), Hanft & Anzalone (2001), Hanft, Burke, & Swenson-Miller (1996), Humphry & Link (1990), and Schultz-Krohn & Cara (2000) for discussions of the role and preparation of OTs in early intervention programs.

The public school is identified by almost 25% of AOTA members as their primary work setting (AOTA, 2001a). This percentage underscores the need for school-based practice to be an integral part of OT professional preparation (Swinth, 2002). In an educational setting, OT practitioners focus on helping students engage in meaningful and purposeful daily school *occupations*—the activities that make a student successful and engaged in school life. The *school-related* outcomes of the primary occupational areas (i.e., activities of daily living, education, work, play/leisure, and social participation) are described in **Table 2**.

Table 2. School-Related Occupations Addressed during OT Assessment and Intervention

Occupational Area	Educational Outcome
Activities of Daily Living (Basic and Instrumental)	Cares for basic self needs in school (e.g., eating, toileting, managing shoes and coats); uses transportation system and communication devices to interact with others; develops health management routines and when appropriate, home management skills for independent living (e.g., cleaning, shopping, meal preparation, budgeting, safety and emergency responses)
Education	Achieves in a learning environment including academic (e.g., math, reading), nonacademic (e.g., lunch, recess), prevocational and vocational activities (e.g., career and technical education)
Work	Develops interests, habits, and skills necessary for engaging in work or volunteer activities for transition to community life upon graduation from school
Play/Leisure	Identifies and engages in age-appropriate toys, games, and leisure experiences; participates in art, music, sports, and after-school activities
Social Participation	Develops appropriate social relationships (and behavioral strategies) at school with peers, teachers, and other educational personnel within classroom, extracurricular activities, and preparation for work activities.

(AOTA, 2002)

OT practitioners assess three interrelated elements that affect participation in goal-directed activities or occupations in school: individual functions, performance skills/patterns, and contextual/activity demands. Each student has unique physical *structures*; sensory, neurological, emotional, and mental *functions*; and challenges that affect successful school-related performance in education, self-care, play, and social participation (AOTA, 2002; Hanft, 1999a , 1999b). *Performance skills* (i.e., motor, process, and communication/interaction) are the observable goal-directed actions with a purpose in daily life. Both the *context* (e.g., the physical, cultural, and social environment) (Orr & Schade, 1997) and specific *activity demands* (e.g., child's body functions and structures, performance skills, properties of an object, and use of space and timing) affect how well a student performs a given task or role. To illustrate:

- A 4-year old girl with congenital deformities in her forearms limiting motions of her hands (*physical functions and structure*) is taught to use adapted scissors and heavy construction paper (*activity demands*) to complete her much-loved art projects and classroom lessons (*performance skills*).

- An 8-year old boy with an attention deficit disorder who has difficulty completing assignments and following directions due to perceptual and sensory motor problems (*neurological functions and structure*) can benefit from reorganization of his work space (*physical and social context*) and additional time (*activity demands)* to complete assignments (*performance skills*).

- A 15-year-old adolescent with mental retardation and extreme sensitivity to sounds and touch (*mental, emotional, sensory functions, and structure*) that limits her speech and social interactions (*performance skills*) may benefit from slow and rhythmical exercise periods (*activity demands*) just before play and meals (*social and cultural context*) to learn sign language to communicate with peers and family.

Incorporating the dimensions of educational relevance into assessment and intervention is a critical yet complex aspect of school-based practice. OT practitioners analyze what a student does to participate successfully in a school setting by assessing the combined influence of individual characteristics, performance skills, performance patterns (i.e., routines, habits, and roles), the educational context, and specific activity demands. OT intervention is directed toward helping a student achieve the educational goals and objectives agreed upon by the entire team, including family members (Giangreco, 1995). Therapists must assess the student's functions in the school environment and describe how their intervention will improve performance/participation in academic and nonacademic parts of the educational program (Hanft & Place, 1996).

When OT services can support a student's ability to benefit from the educational program, OTs choose a practice model or frame of reference to study the factors that are supporting or interfering with the student's performance/participation in an educational setting. The nine most commonly used pediatric practice models (see **Appendix 1** for definitions) applicable to educational settings are: developmental, sensory integration, neuro-developmental, biomechanical, motor control, coping, occupational adaptation, behavioral, and cognitive (Dunn, 2000; Kramer & Hinojosa, 1999). The therapist must also choose an approach (e.g., to establish/restore, adapt/modify, maintain, prevent, create, or promote) to specify *how* intervention will promote functional performance (ability to participate) in school activities (AOTA, 1999). An example of the establish/restore approach is guiding movement and postural adjustments on playground equipment during recess for a child who is very unsteady and unsure about the orientation of his or her body in space. A modify/adapt approach is analyzing the environment to find a quiet spot with little traffic for a child who overreacts to sensory input.

Intervention by an OT may include working with children individually, co-leading small groups in the classroom, consulting with a teacher about a specific student, providing inservice for groups of educational personnel and/or family members, and serving on a curriculum or other systems-level committee. Service delivery needs to be considered within the total school environment (or home and community environments for Part C and transition). Rather than choosing one model of service delivery, recommended practice emphasizes choosing from and moving among a continuum of service models throughout the course of intervention as student performance/participation improves (Case-Smith & Cable, 1996; Hanft & Place, 1996; AOTA, 1995).

SUPPLY AND DEMAND

Employment Characteristics

According to AOTA (2001b), the median age for OTs and OTAs in the U. S. is 39 and 40 years, respectively. Approximately 69% of therapists work full time (30 hours or more), and 25% work in two settings. Among those working in two settings, 10.5% work in schools. Three out of ten therapists change jobs every 2 years. It is projected that the characteristics of the job of an OT practitioner (e.g., workload, physical demands) may impact retention. Additionally, 18.2% of the respondents are considering leaving the OT profession: 42.8% of these desire to work in a different field; 15.2% plan to stop work temporarily, 11% plan to retire or stop working permanently, and the rest were not accounted for. Within AOTA, about 94% of the OTs are women and 6% men. The percentage of male OTAs is steadily decreasing from 8.2% in 1990 to 6.6% in 1997 and 4.1% in 2000. AOTA members are predominantly white (90%); the distribution across ethnicities is shown in **Table 3**. The ratio of male therapists to female therapists and the diversity percentages may be similar for OT personnel working in schools, but there are no specific data available.

Table 3. AOTA Members (OT/OTA) by Ethnic Origin

Ethnic Origin	OT	OTA
No Information Available	5,072	1,024
African American	488	123
American Indian	41	7
Asian	1,052	55
Asian American	74	9
Hispanic/Latino/Latina	454	71
Multiracial	40	7
Other	228	23
White	21,409	2,652
Total	28,858	3,971

(AOTA, 2001b)

Projected Growth

According to the USDOE (2001), by 2010 the OT profession will experience a faster growth than average for all occupations. Although OT employment growth was stunted in the late 1990s, in certain practice settings due to imposed federal reimbursement limits for therapy services, employment opportunities are projected to increase by 21%-35% for OTs and OTAs. Job openings due to the growth of the profession (accounting for net replacements) are projected to reach 46,000 by 2010. Three main population trends influence the outlook for employment: increased number of middle-aged and elderly Americans, increased life expectancy, and the expansion of the school-aged population and the population of students with disabilities who require extended services (USBLS, 2001a).

AOTA recently reported the results of the 2000 Member Compensation Survey (2001a). About 25% of the 2,417 respondents (a 53.7% return) worked in schools, the largest primary work setting. This represents a 7% growth in school-based practice since 1997. Approximately 68.8% of the respondents work full time (30 hours or more per week), and 25% of respondents work in two settings. Over 10% work part-time in schools, and 6.4% work in early intervention as a secondary job (AOTA, 2001b).

Factors Influencing Supply and Demand

Shortages of school OT practitioners have been reported to Congress for many decades. In the 2000-2001 accounting, 12,915 OTs were employed in public schools of whom 12,727 were fully certified (Ideadata.org, 2003). An additional 6,395 OTs were employed to serve infants and toddlers with disabilities (Ideadata.org, 2003). Many contextual factors affect the supply of and demand for OTs. As in special education in general, it is difficult to predict the exact shortages and demands due to the ever-changing environment and the multiple ways data are collected on state and national surveys (Boyer, 2000; Federal Resource Center for Special Education, 1999, 2000, 2001). Three critical factors may affect future supply and demand of OTs: trends in the health care environment, trends in the educational environment, and trends in institutions of higher education (IHE).

After the passage of the Balanced Budget Amendment of 1997, demand for OTs in medical settings dropped. This increased the pool of OTs available for schools; school OTs increased dramatically from 9,561 in 1998-1999 to 12,915 in 2000-2001; and the percentage fully certified increased from 97% in 1998-1999 to 98.5% in 2000-2001. These employment trends are not likely to prove enduring, however, and other changes are on the horizon. With Baby Boomers aging, employment opportunities for OTs in medical and nursing facilities are likely to grow. Furthermore, because OT training programs have had declining enrollments since 1997, fewer new practitioners will enter the OT job market. In 2007, when master's degrees will be required for entry to the profession, bachelors-level programs will be outmoded, and the supply of new practitioners will be diminished further.

Salaries

According to the 2000 AOTA Compensation Survey, average income for full-time and part-time OTs remained the same since 1997, while OTAs' average full-time income decreased slightly and part-time income increased by 18.5% (AOTA, 2001b). Although incomes for OTs and OTAs increased 33 to 41% during the 1990s, most of that growth occurred in the first 7 years of the decade. There is concern that salary stagnation may lead to dissatisfaction in earning power and the profession. According to AOTA (2001a), the overall median full time annual salary for OTs in school settings was $42,000 (a median hourly salary of $23.08). USBLS (2001b) estimated the median annual salary for therapists in elementary and secondary schools to be $45,320. According to AOTA (2001a), OTAs who work in schools make a median annual salary of $28,000 (a median hourly salary of $14.90). USBLS (2001c) estimated the median annual salary for OTAs in general (not school-based specifically) at $34,340. Because of questions about the economy and reimbursement procedures, future salary levels are unknown (Salsberg & Martiniano, 2002).

Recruitment and Retention

A variety of strategies have been used to recruit OT practitioners to work in the public schools and to retain them. States like Washington and Virginia have had specific programs through their departments of education, although Washington's was discontinued in the fall of 2002 due to budget cuts and the end of Virginia's CSPD/SIG grant. **Table 4** provides examples of educational strategies, incentives, and follow-up supports that have been mentioned in the literature. Although recruitment activities (e.g., educational stipends in return for years of service, continuing education support for school-based therapists, development of recruitment materials for high school students, and support for recruitment at job fairs around the country) are mentioned in the literature, no research that evaluated the success or effectiveness of these activities could be identified.

Table 4. Possible Recruitment and Retention Strategies for OT Practitioners

Educational Strategies	Incentives	Everyday Supports
Partnerships with IHE and state DOE to allocate funds for educating therapists: - Tuition support - Stipends for living - Textbook financial support - Collaborative service learning in the community - Mentorship prior to leaving the IHE - Distance education/online courses with flexible scheduling (e.g., a portion of a course, a course, or a sequence of specialized courses) - Exposure to field through field trips, fieldwork experiences - Interdisciplinary training Specialized training in school-based practice Provide professional development that specifically links OT and educational environments Provide professional development with all stakeholders (e.g., educators and therapists together) Transition to school practice training for therapists in other practice settings Market the profession at job fairs, career development, volunteer experiences	Increased starting salaries: - Sign-on bonuses - Pay-back scholarships or loan-forgiveness programs - Community-based discounts (e.g., help with banking set up, moving expenses, recreation membership etc) - Stipends for critical needs areas Monies for additional training Free workshops and materials Salary pay incentives for additional training or coursework Specialized training (e.g., assistive technology, state conference, or different treatment approaches) Co-research or program development with IHEs Encourage personal growth	Professional mentorship local or long distance; formal or informal; within and outside the OT profession: - Family mentorship programs - Follow-up support: (e.g., telephone calls, email contacts, buddy systems, consultation, or field visits) - Awareness and use of existing state resources Reduce paperwork and help OT personnel be part of the team: - Interdisciplinary learning and service - Peer reviews - Journal clubs Yearly retreats or state conferences on school-based practice Lending library Local special interest club Local support group Online “chats” to share questions and information

(Compiled from: Hanft & Anzalone, 2001; Peters & Shepherd, 1999; Salsberg, 2001; U. S. Dept. of Health & Human Services, 1999,2000,2001)

PREPARATION AND EDUCATION OF OTS

There are multiple entry routes into the OT profession. For most of the 20th century, the baccalaureate degree was the entry-level degree. In the late 1960s and early 1970s, entry-level masters degree programs were developed to offer professional preparation for individuals with bachelors degrees in other fields. Such programs offered either a Master's of Occupational Therapy (MOT) or a Master's of Science degree. By the mid-1980s, professional masters programs were open to students without bachelor degrees who had completed 2 to 3 years of undergraduate education. The ratio of masters entry level to bachelors entry-level programs equalized in the mid-1990s. By January 2007, AOTA will require the masters degree as the entry-level degree for all OTs.

Many universities also offer post-professional masters programs, which OTs with bachelors degrees often seek; the status of these programs after 2007 is unknown. Finally, a few universities now offer the Doctorate of Occupational Therapy—clinical degrees with different curricula for individuals with/without an entry-level OT degree. Increasingly, some OTs, particularly those who want to teach or complete research, have earned a doctoral degree (Ph.D. or Ed.D.) in another field. Common fields include educational psychology, special education, and anthropology.

All preservice educational programs for OTs or OTAs must meet Standards for Accreditation established by the American Council on Occupational Therapy Education (ACOTE, 1999). Only graduates of programs accredited by ACOTE may take the NBCOT professional examination, the basis for entry into the profession in all states.

ACOTE Accreditation Standards indicate all the content that must be included in accredited OT educational programs, allowing flexibility to reflect the mission and philosophy of individual programs. An extensive review process that includes OTs and consumers is used to develop the standards. Once the new Standards have been adopted, ongoing Standards review becomes the responsibility of the ACOTE Standards and Ethics Committee, a standing committee of ACOTE. This Committee is responsible for review of the feedback obtained through the Standards Evaluation Forms and other evaluation instruments. Five years after new accreditation standards are adopted, ACOTE will appoint members to serve on the ACOTE Educational Standards Review Committee. Over a 4-year period, this Committee conducts a complete evaluation and revision of the Standards.

All OT programs are evaluated every 5, 7, or 10 years, depending on whether it is an initial accreditation or re-accreditation and the performance during the last review**.** The Standards define what all entry-level practitioners must know to be able to work in *any* service setting. The purpose of OT entry-level education is to provide students with a foundation for working in any setting rather than to teach specific expertise in any given setting (e.g., schools). It has been reported that it is not uncommon for OTs working in the schools to get an advanced degree (in OT or a field related to school-based therapy) to support expertise development, but no empirical data could be found to support this report. One Standard specifically mentions the educational environment, and most OT educational programs include content related to school practice in course(s) related to pediatrics. OT programs can add additional course content not included in the Standards. Some programs have received federal grants to add content related to educational practice settings. Thus, a few programs have specific courses related to school and early

intervention (Amundson, 1995; Brandenburg-Shasby & Trickery, 2001; Chandler, 1994, 2002; Powell, 1994).

One study addressing preparation of OTs for school-based practice was found in the literature (Brandenburg-Shasby & Trickery, 2001). This study included therapists with 1959–1999 graduations. Less than 50% of 1990-1999 graduates had completed any fieldwork in a school setting as part of their preparation. They reported an average of 81 hours of pediatric content, and 19% reported that their curriculum had a separate school-based course. The authors concluded that their results "suggest that a large percentage of entry-level therapists are accepting positions in school-based practice with minimal to no time spent addressing this practice area in their preservice education" (p. 1).

The Standards, which have little content specific to school-based practice, provide a knowledge base that is a foundation for practice in educational settings. The Standards require course work in anatomy, neurology, and lifespan human development with particular emphasis on occupational development at each stage of life. Content on disease, disability (including developmental disability), injury, aging, and environmental causes of dysfunction is included. The OT process—that parallels determining eligibility and identifying need for specially designed instruction in the schools—is a major component of the preservice curriculum. Course work on the major approaches to intervention, such as assistive technology, addresses all age levels and a variety of occupational dysfunctions. Systems of service provision (e.g., working as a team, transitioning between settings, community linkages, and advocacy) and funding of services are included. Finally, the Standards emphasize clinical reasoning and problem solving in most OT curricula. Based on the Standards, entry-level OTs should have a strong foundational knowledge that supports practice in school-based settings. The Standards also bring a needed perspective to student performance/participation in the schools.

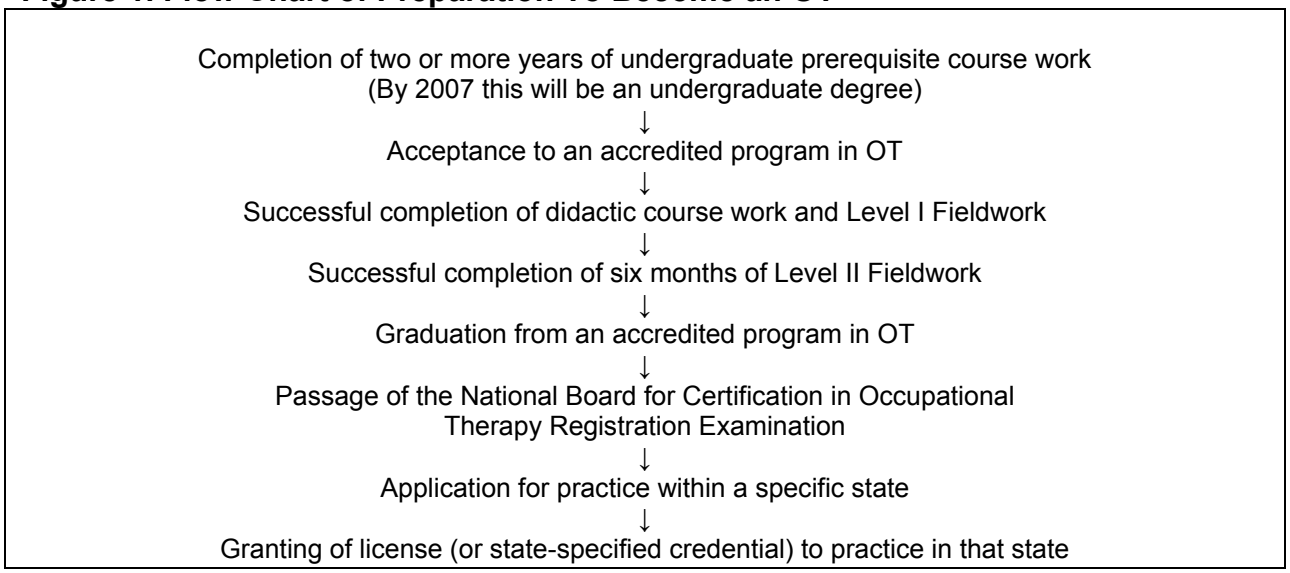
The Standards require internship or practicum experiences at two levels. Referred to as *field-work* in the Standards and in the profession, these supervised experiences teach the student to apply didactic information in an actual setting with clients. Level I Fieldwork experiences occur in a variety of ways while students are engaged in course work, often once a week or one week per semester, often in public schools (Chandler, 1995). The experiences are tied to the course work of that semester, either as part of the course or as a separate course that complements other courses. Faculty, practicing OTs, and other professionals may serve Level I Fieldwork supervisors. During Level I Fieldwork experiences, client contact is carefully monitored with observation and self-reflection of observations as predominant Level I experiences.

Level II Fieldwork, which moves the student into an entry-level practice role in several different practice settings, consists of a minimum of 24 weeks (6 months) of full-time work under the supervision of an OT. Practice settings for fieldwork are not specifically delineated in the Standards. Many OT educational programs have used a traditional Level II Fieldwork model of placing students in one setting with clients with physical disabilities and in another setting with clients with psychosocial diagnoses. More recently, programs have started to use a medical model/social model dichotomy for determining fieldwork sites. Others have used an institutional/community dichotomy. In the past, some IHEs were hesitant to use schools as a primary Level II Fieldwork site, but this restriction is rapidly disappearing. Pediatric sites, including schools and early intervention settings, are now clearly used as core Level I and Level II Fieldwork placements (Amundson, 1994; AOTA, 1993; Swinth, 2002). For example, a student may observe and participate in a preschool special education class once a week for a semester as

Level I Fieldwork and complete a three-month Level II Fieldwork experience in a public school under the supervision of an OT (who may be providing services in multiple schools).

Despite the current interest in school-based practice, there is no agreement within the field that this is an entry-level position. Although some practitioners (Swinth, 2002) view school-based practice as an advanced or specialized practice area, the reality is that many OT practitioners enter school-based practice as their first position after graduation. **Figure 1** summarizes the process of becoming an OT.

Figure 1. Flow Chart of Preparation To Become an OT



CERTIFICATION AND LICENSURE

Graduates from an accredited OT educational program are eligible to take the NBCOT registration examination. OTs who pass this exam may use the OTR credentials. Certification by NBCOT, a private organization, and state regulation of practice both exist to protect the consumer of OT services. Generally, state regulation requires that practitioners be initially certified by NBCOT to qualify for a license, but only two states require therapists to renew NBCOT certification to maintain state licensure. Only state regulation of practice carries the force of law. NBCOT, which owns the R that some OTs use and C for OTAs, can revoke certification (i.e., use of the R or C). In addition, NBCOT can impose other sanctions for unprofessional acts, which may eventually lead to the loss of a state permission to practice. OT practice is regulated in all 50 states, the District of Columbia, Guam, and Puerto Rico. Each state or jurisdiction details the specific requirements that OTs and OTAs must fulfill before they can practice OT. States vary in the type of regulation provided (e.g., licensure, mandatory state certification or registration, voluntary state certification or registration, title control or trademark) and who is covered by the regulation—OTs only; OTs and OTAs; or OTs, OTAs, and OT aides). See **Table 5** for a definition of the types of regulations for OT practitioners.

States also vary in the provision of temporary or provisional credentials in OT. **Table 6** lists jurisdictions' OT regulations. Although most jurisdictions (48) regulate OTAs, three states (Virginia, Hawaii, Colorado) do not. New York certifies OTAs through the New York Department of Education (see **Appendix 2**). The state regulation and its credential (license, trademark, certification, registration) grants the OT practitioner permission to practice in that jurisdiction. After the OT student passes the NBCOT certification examination and meets all requirements for a state credential, he or she can use the appropriate title as granted by the credentialing agency. States authorize OTs to use one of these credentials, including OTR/L, OT, and OT/L. Similarly, states may authorize OTAs to use OTA, OTA/L, or other similar designations.

States' OT practice acts are consistent with AOTA's Standards of Practice (AOTA, 1998) and define the legal scope of practice for OT practitioners within that state. These laws set professional parameters and address topics (e.g., scope of practice, continuing competence, supervision, unprofessional conduct, and licensure requirements). States differ in scope of practice and other details; thus, OT practitioners must be familiar with their state requirements. Responsibility for oversight and enforcement of the OT practice act rests with the appropriate state regulatory agency in each state. These agencies, which are known by different names (e.g., Department of Professional Regulation, Board of Medicine, the Department of Consumer Affairs), may have responsibility for other professions in addition to OT.

Renewal

Most states require OT practitioners to renew state credentials periodically. Each state defines the criteria an OT practitioner must meet for renewal. One common requirement is the need to document continuing education or professional development in the relevant area of practice. **Appendix 3** lists the continuing education and professional development activities that have been available to school-based OTs over the past 15 years.

Table 5. Definitions of Types of Regulation for OT

Type of Regulation	Description	Requirements for Practice*	Oversight Agency
Licensure/Practice Act	Provides highest level of public protection by prohibiting unlicensed individuals from practicing OT or referring to themselves as OTs/OTAs. Licensure laws reserve a certain scope of practice for those who are issued a license.	Mandates entry-level competence.	State Health Department delegates authority to an occupational therapy board or advisory board, consisting of occupational therapy practitioners, consumers and/or other health professionals
Mandatory Certification* [Certification as granted by the OT regulatory board or advisory board/council. To be distinguished from certification granted to individuals passing the National Board for Certification in Occupational Therapy (NBCOT) exam.]	Protects the public by prohibiting non-certified individuals from referring to themselves as occupational therapists/occupational therapy assistants. Unlike licensure, individuals under certain circumstances can practice if they do not refer to their services as occupational therapy. Certification laws may provide for definition of occupational therapy.	Mandates entry-level competency.	Government agency maintains registry of individuals who successfully complete eligibility requirements.
	Protects the public by prohibiting non-registered individuals from referring to themselves as occupational therapists/occupational therapy assistants, although they can practice if they do not refer to their services as occupational therapy. Registration laws may provide for definition of occupational therapy.	Competency standards may be required by the government agency maintaining the register.	Government agency maintains registry of individuals who successfully complete eligibility requirements.
Mandatory Registration*	Voluntary certification or registration does not protect either the title or the practice. The state does not have the legal authority to prohibit a non-certified or non-registered person from practicing occupational therapy unless that person has violated certain standards of care.	There are usually no state requirements for practice. However, the practitioner's professional association may advise on entry-level competency. Practitioners are subject to the entry-level competency requirements for reimbursement by third-party insurers, private insurers, and Medicare.	Other than the state's constitutional authority to govern health, safety and welfare, there are usually no express requirements for the governance of the profession.
Voluntary Certification or Registration	Prohibits individuals who have not met specific education and entry-level examination requirements from referring to themselves as occupational therapists/occupational therapy assistants, although they can practice under certain circumstances, if they do not refer to their services as occupational therapy.	Mandates entry-level competency.	Government agency maintains registry of individuals who successfully complete eligibility requirements.

* The terms *registration* and *certification* are often used interchangeably. Therefore, it is important to understand the provisions and protections of each type of regulation, rather than assuming certain provisions are automatically included. (AOTA State Policy Department, 8/99)

Table 6. Jurisdictions Regulating OTs

Year	States	Year	States
1990	Alabama	1984	North Carolina
1987	Alaska\	1983	North Dakota
1989	Arizona	1976	Ohio
1977	Arkansas	1984	Oklahoma
2000	California	1977	Oregon
1978	Connecticut	1982	Pennsylvania
1985	Delaware	1968	Puerto Rico
1978	District of Columbia	1984	Rhode Island
1975	Florida	1977	South Carolina
1976	Georgia	1986	South Dakota
1998	Guam	1983	Tennessee
1987	Idaho	1983	Texas
1983	Illinois	1977	Utah
1980	Iowa	1998	Virginia
1986	Kentucky	1984	Washington
1979	Louisiana	1978	West Virginia
1984	Maine	2000	Wisconsin
1977	Maryland	1991	Wyoming
1983	Massachusetts	States with Registration Law:	
2000	Minnesota	1998	Hawaii
1988	Mississippi	1986	Kansas
1997	Missouri	1988	Michigan
1985	Montana	States with Certification Law:	
1984	Nebraska	1989	Indiana
1991	Nevada	1993	Vermont
1977	New Hampshire	States with Trademark Law:	
1993	New Jersey	1996	Colorado
1983	New Mexico		
1975	New York		

44 states with licensure laws for OTs

47 jurisdictions with licensure laws for OTs

3 states with registration laws for OTs

2 states with certification laws for OTs

1 state with trademark laws for OTs

Total: 54 Jurisdictions regulate OTs

(AOTA State Affairs Group, March 2002)

Additional Credentials for Practice in Education or Early Intervention Settings

Some states have also established additional requirements for OT practitioners to work in schools or early intervention programs. These varying requirements may include education-related classes, an education credential, or early intervention certification requirements. Individual practitioners must obtain the relevant state OT credential before they fulfill any additional requirements to provide services in schools or early intervention programs.

Competencies

Several states, some authors, and one research study have defined competencies for OTs working in educational settings (Brandenburg-Shasby & Trickery, 2001; Golubock & Chandler, 1998; M. Mulenhaupt, personal communication, 2002). Additionally, some organizations, such as The Association for Persons with Severe Handicaps (TASH), have statements on competencies for related services providers, including OTs, in the schools (The Association for Persons with Severe Handicaps [TASH], 1999). There is little variation among these sources, indicating a common view of school-based competencies for OTs. However, no research establishes: (1) the relationship of these competencies to actual practice and (2) that a school therapist with these

Table 7. Competencies for OTs in School-Based Practice

1. Knowledge of current laws, regulations, and procedures related to the education of children with special needs.
2. Knowledge of the educational system and its critical components (mission, organization, codes, funding, eligibility process).
3. Knowledge of disabling conditions and their effects on sensory, motor, psychosocial, and cognitive development and function.
4. Knowledge of major theories, treatment procedures, and research relevant to providing occupational therapy services for children with special needs.
5. Ability to select and administer appropriate assessment instruments and procedures taking into account age, developmental level, disabling condition, and educational placement.
6. Ability to assess functional performance of students with special needs within the school environment.
7. Ability to engage in consensual decision making as part of the IEP process.
8. Ability to interpret assessment results appropriately and use results to develop an intervention plan relevant to the educational environment.
9. Ability to plan, implement, and modify intervention strategies using a continuum of intervention approaches.
10. Ability to communicate effectively (orally and in writing) with education personnel, administrators, parents, students, and community members.
11. Ability to explain the role of occupational therapy within the school settings to education personnel, parents, students, and community members.
12. Ability to document assessment and intervention results in the proper manner for a school setting and relate this information to the educational goals of the student.
13. Ability to schedule, to implement, to evaluate, and to modify service provision to meet the therapeutic as well as educational needs of a full student load in the school environment.
14. Ability to facilitate transitions among agencies, programs, and professionals in service provision changes (early intervention to preschool, preschool to elementary, elementary to middle and high, high school to work and/or adult services or independent living.
15. Ability to supervise occupational therapy assistants and fieldwork students as appropriate.

[Golubock & Chandler, 1998]

Note: These are the over-arching competencies; complete document includes 128 additional competencies that further delineate the fifteen overarching competencies.

competencies is a competent school therapist. Competencies for school-based OTs are presented in **Table 7**.

AOTA and NBCOT also have developed competency programs for OT practitioners, which can be used by the individual practitioner to evaluate his or her own performance. However, there has been no research to establish effectiveness of these tools for competency development and performance.

Specialty Certification

Inherent in OT credentialing is the notion of practitioner competence, both for entry into the profession and for ongoing/advanced practice. Both NBCOT and AOTA expect OT practitioners to maintain and update their competence throughout their careers (AOTA, 1998; NBCOT, 2000). Several options exist for experienced OT practitioners to demonstrate advanced competency. For OTs, these include advanced training and/or specialty certification in neuro-developmental treatment, sensory integration, pediatrics, and many other clinical approaches. Qualified OTAs may be able to participate in the AOTA Advanced Practice program. (In June 2002, a moratorium was placed on the BCP and AOTA Advanced Practice certifications while data are collected regarding its utility to the practitioner, the consumer, and the profession). The purpose of these certifications is to improve clinical expertise. They are not specific to school-based practice (see **Appendix 5** for details about different certifications).

AOTA has established Standards of Practice through its Representative Assembly of representatives from each state. These Standards of Practice delineate ethical and practical procedures and processes for responding to referrals, evaluation, and determination of need for therapy, treatment intervention, and discharge from services. Designed to be applicable for all practice settings, the Practice Standards provide a framework for providing OT services. In addition, the Code of Ethics, which must be taught in all OT educational programs, provides guidance for decision making through the commitment to core values of beneficence, veracity, and justice. The language in most state regulatory laws also provides parameters for legal and ethical practice. Most state regulatory laws vest the decision making about initiation, type, and discontinuation of OT services with the OT professional. The OT's decision may be different from the decision of the Individualized Educational Program (IEP) team in the school setting, placing the OT in an ethical dilemma of being required to provide services to a child who in his or her judgment does not need the services. Providing unneeded services is a violation of most state regulatory laws, and this is not an infrequent occurrence for OT practitioners. It has been reported that conflicts like this cause therapists to leave the school-based setting; however, empirical data to support this could not be found in the literature.

SUMMARY

OT personnel issues, particularly for practitioners working in educational settings, are complex and often convoluted. There are data addressing the role and work force issues of OTs, OTAs, and OT in general. However, data specific to OT in the schools are limited, and there is more opinion than research in the literature. There appears to be a decrease in published research regarding school-based practice over the past 8-10 years. Available research addresses intervention strategies and issues rather than personnel issues. Currently, a 2-year national study is being conducted to help define issues and trends in school-based OT (Swinth, 2002). This study is partially funded by AOTA and utilizes both quantitative and qualitative methodologies. Data collection should be completed by the spring of 2003. These data may help provide empirical support for some of the current beliefs about personnel issues in educational settings.

Supply and Demand

Given the information reviewed and the limitations of the empirical data, this section summarizes the critical unanswered questions and research needs related to the OT personnel issues addressed. National data predict a shortage of OTs within the next 5 years. Data regarding supply and demand in educational settings are confusing: some sources indicate a shortage and other sources do not. The critical unanswered questions and research needs are:

1. Are all students who need OT in the schools receiving it?

2. What are the "real" vacancies for OT practitioners in the schools? A national data collection tool with a standardized means for collecting and analyzing data is needed to understand the true supply and demand issues in OT.

3. Are there data on the reasons therapists go into school-based practice and why they stay or leave? (Any student research/graduate projects housed at university programs that begin to address some of these questions should be accessed and analyzed).

4. What factors support the retention of OTs working in the public schools?
    a. Is attrition a problem?
    b. Do OTs working in the schools leave the field completely?
    c. Is there movement from the schools to other positions?

5. Are there evidence-based, comprehensive recruitment and retention strategies used in other professions that could be applied to OT?
    a. How do these strategies work on local, regional, state, and national levels?
    b. Could an interdisciplinary program be used to recruit and later support OT practitioners?
    c. Would building on-line mentorship opportunities help with recruitment and retention?

6. The number of OT graduates was smaller over the last 2 years because of changes in health care reform and the economy. How will this impact the viability of institutions of higher education (IHE) OT programs and the shortage of OTs in the schools?

7. What are effective recruitment and retention strategies for OTs entering the profession and the schools as a work place?

8. Is recruitment of OT practitioners from culturally and linguistically diverse groups a problem?

9. What can local education agencies (LEAs) do to support the recruitment and retention of OTs in educational settings?

Preparation and Education of OTs

OT practitioners receive an education that prepares them to work in any practice setting, but they may not receive all the information needed to be successful in educational settings as part of their preservice education. Competencies and continuing education strategies for school-based therapists are identified in the literature, but many lack a research basis. The critical unanswered questions and research needs are:

1. What are the general competencies needed for entry-level therapists who desire to work in school-based settings? Can school-based therapy be considered an entry-level or an advanced position?

2. What are the practice-setting preferences of students before course work? After course work?

3. Does a preservice internship (e.g., Fieldwork II) in school-based settings help entry-level therapists better prepare for working there?

4. Do training partnerships with IHEs and departments of education lead to better prepared practitioners and better OT services?

5. How are minority students being recruited into the OT field, especially given the recent change to entry-level masters programs?

6. What type of interdisciplinary training is occurring to help related service and education students and faculty understand their unique roles within the education environment?

7. Do faculty at schools that train teachers understand the unique role of OT in the schools?

8. What kind of inservices or supports (e.g., mentorship, tuition reimbursement) are available to OT personnel from the state departments of education and the LEAs to recruit therapists into school-based settings?

9. Do OT services improve student outcomes in the general education curriculum?

Certification and Licensure

Most therapy practitioners have a certification or license to work in their state. However, these are not specific to educational settings. A few states have specialty certification to work in the schools, but we found no evidence that these certifications made any difference in job performance. The critical unanswered questions and research needs are:

1. Do any special certifications support the services OTs provide in the schools?

2. What types of continuing education courses/content best support the role of OTs in the schools?

3. How do OTs in the schools prefer to receive continuing education?

4. Does specialty certification to work in the schools (e.g., WA state model) result in better services for children and youth under IDEA? Do OTs and other professionals value this type of certification? How does it affect vacancies or competency?

5. How do IHEs with OT programs interface with state departments of education to collaborate on preservice and inservice training?

6. Does continuing education lead to better services in the schools?

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Appendix A. Definitions of the Nine Most Commonly Used Pediatric Practice Models

Practice Model	Definition
Developmental	Based upon an understanding of normal development that recognizes the sequential nature of development. Also recognizes that there are basic foundations from which skills develop.
Sensory Integration	Used when a student has sensory processing difficulties. This model is based on the understanding that the organization of sensory information in the brain may help children develop adaptive responses to successfully meet environmental challenges.
Neurodevelopmental	A sensorimotor approach in which techniques are applied to help facilitate normal developmental patterns. Interventions are designed to help enhance the quality of movement and motor performance within the environment.
Biomechanical	The biomechanical approach is used when a person has neuromuscular or musculoskeletal dysfunction and cannot maintain appropriate muscle activity or posture. Adaptive equipment is used to help compensate for the lack of function so that students can perform functional skills as efficiently as possible.
Motor Control	This model emphasizes the therapeutic use of functional tasks as well as provision of feedback to the learner in order to support the development of motor skills needed to participate in daily life activities.
Coping	This model is based on a cognitive behavioral model. Through the development and utilization of coping resources, the student is able to deal with current challenges as well as develop a repertoire of skills needed to address future challenges.
Occupational Adaptation	This model goes back to the roots of occupational therapy and recognizes that the primary role of occupational therapists in all settings is to enable occupations.
Behavioral	This model focuses on the acquisition/learning of specific skills in all areas of development.
Cognitive	This model uses cognitive theory in order to support the development of functional skills within the student's environment.

(From Kramer & Hinojosa, 1999)

Appendix B. Jurisdictions Regulating OTAs

Year	States
1990	Alabama
1987	Alaska
1989	Arizona
1977	Arkansas
1978	Connecticut
1985	Delaware
1978	District of Columbia
1975	Florida
1976	Georgia
1998	Guam
1987	Idaho
1983	Illinois
1980	Iowa
1986	Kentucky
1979	Louisiana
1984	Maine
1977	Maryland
1983	Massachusetts
2000	Minnesota
1988	Mississippi
1997	Missouri
1985	Montana
1984	Nebraska
1991	Nevada
1977	New Hampshire
1993	New Jersey
1983	New Mexico
1984	North Carolina
1983	North Dakota
1976	Ohio
1984	Oklahoma
1977	Oregon
1982	Pennsylvania
1968	Puerto Rico
1997	Rhode Island
1977	South Carolina
1986	South Dakota
1983	Tennessee
1983	Texas
1977	Utah
1984	Washington
1978	West Virginia
2000	Wisconsin
1991	Wyoming
States with Registration Law	
1986	Kansas
1988	Michigan
States with Certification Law	
1989	Indiana
1993	Vermont
States with Trademark Law	
1977	California
States Which Do Not Regulate OTAs	
Colorado	
Hawaii	
Virginia	
New York	

41 states license OTAs

43 jurisdictions license OTAs

2 states register OTAs

2 states certify OTAs

1 state has a trademark law for OTAs

Total: 48 Jurisdictions Regulate OTAs

3 states regulate OTs and do not regulate OTAs:
Colorado, Hawaii and Virginia

1 state licenses OTs and does not license OTAs: New York (OTAs are certified by the New York State Department of Education.)

(AOTA State Policy Department, May 2000)

Appendix C. Projects Supporting the Continuing Competencies of School-Based Practitioners

Project	Description
Occupational Therapy Educational Management in Schools (TOTEMS) 1980	The direct result of a federal grant. TOTEMS trained 200 OTs in five states in its pilot development and thousands more in its implementation phase. The focus of TOTEMS was the transfer of clinical practice knowledge into an educational environment. TOTEMS was also used as a resource by some preservice curricula.
Related Services in the Schools, 1991 (AOTA self-study course)	Nine lessons that provide a basic history and overview of school-based practice. Covers topics such as documentation, meeting student needs, writing functional goals, consultation, and case management
Classroom Applications for School Based Practice, 1992 (AOTA self-study course)	Lessons provide practical suggestions for implementing OT services into school-based settings.
Occupational Therapy: Making a Difference in School System Practice, 1998 (AOTA self-study course	Eleven units that provide new strategies to help children succeed in the least restrictive environment. Increased emphasis on collaboration, functional outcomes, systems change, and program evaluation as well as practical therapy techniques. Although these study courses are directed to the practicing individual, they have been used in seminars on school-based practice in some preservice and graduate curriculums.
Guidelines for Occupational Therapy Services in School Systems 1987, Second Ed. 1989	A document that focused on the educational system and systems of service provision. *Guidelines* included chapters on job descriptions, caseload determination, performance evaluation forms, basic competencies, prioritization of services etc. The second edition in 1989 updated the information and added a sampling of important issues (state regulation of practice, liability, payment for services in the schools, fieldwork, drivers' education, mentoring) being raised at the time by educational agencies and school-based practitioners.
Occupational Therapy Services for Children and Youth Under the Individuals with Disabilities Education Act, 1998	Updated and expanded information from the *Guidelines* books. A second edition in 1999 informed therapists of the changes in the 1997 reauthorization of IDEA.
School Systems Special Interest Section (SSSIS)	The largest special interest section in the American Occupational Therapy Association, the School System SIS publishes a quarterly newsletter and maintains a listserv with an average of over 50 messages a day. These messages cover a wide range of topics, but primarily provide clinical information.
Promoting Partnerships Project (1993-97)	This initiative grew out of the awareness of the need to build linkages with permanent entities within the educational community, particularly at the state and local levels. Teams (OT practitioner, state administrator, university personnel) from nearly every state in the union were trained in the implementation of IDEA. These teams then conducted educational activities in their own states.
ASPIIRE project	This federally sponsored project brings clinical and systemic information together to enhance the practice capabilities of those OTs working in the schools. The concept of state contacts and state teams is utilized in the activities of this project as well.

Appendix D. Specialty Certifications/Training Available to OTs Working in Educational Settings

Type of Certification/Training	Description
Neurodevelopmental Treatment (NDT)	A specialized therapeutic intervention approach developed by Dr. Karl and Bertha Bobath in the 1940s from their work with children with cerebral palsy optimizes the function of individuals with neurological impairments. Training is provided by the Neuro-Developmental Treatment Association (NDTA) and consists of the basic 8-week course on children with CP (training is also available for therapists working with adults). Beyond the basic course, therapists may take additional pediatric-related advanced courses in various topics such as gait, hand function/fine motor control, and handling and problem solving. (NDTA website 10/19/01, www.ndta.org)
Sensory Integration (SI)	The process of "assimilation, organization, and use of sensory information to allow an individual to interact effectively with the environment in daily activities at home, school and in other settings" (AOTA, 1997). It is an OT practice model developed by OT A. Jean Ayres in the 1950s and 1960s (Dunn, 2000). Dr. Ayres' work also led to the development and publication of the Southern California Sensory Integration Tests (SCSIT) in the early 1970s. The SCSIT later evolved into (and replaced) the Sensory Integration and Praxis Test (SIPT) in the 1980s. It is with respect to these standardized assessments that the term "SI certification" applies. SI certification currently refers to individuals who have been trained in and are competent in the administration and interpretation of the SIPT; the proper term is "SIPT certification." (AOTA, 1997). (Sensory Integration International website at www.sensoryint.com; Western Psychological Services website at www.sipt@wpspublish.com/wpsf13b.htm)
AOTA Specialty Certification Program in Pediatrics	The AOTA Specialty Certification program allows experienced OTs to have expertise and specialized knowledge in three specific practice areas, including pediatrics, validated through an application and examination process. Successful candidates for this voluntary program are awarded appropriate credential that is recognized as part of their overall professional credential that indicates they have met predetermined standards and criteria in the designated area. The designation for persons successfully completing the pediatric specialty certification program is BCP, which stands for Board Certified in Pediatrics. (AOTA website at www.aota.org/nonmembers/area3) Note: As of June 2002, a moratorium has been placed on this certification while data are collected regarding its utility to the practitioner, the consumer and the profession.
The AOTA OTA Advanced Practice program	Recognizes those OTAs who have achieved advanced levels of practice in a particular area or field, which includes pediatrics or school system practice. The successful candidate is awarded the designation AP to indicate they have completed the program and meet the specific standards and criteria. (AOTA website at www.aota.org/nonmembers/area3) Note: As of June 2002, a moratorium has been placed on this certification while data are collected regarding its utility to the practitioner, the consumer and the profession.
Post-Graduate Certificates Programs/Advanced Degrees Specializing in School-Based Practice	Several programs around the nation have advanced degrees or post-graduate certificates that support therapists who want to work in schools. Often these programs are grant funded and thus do not have extended tenures at any one university.