Providing Optimal Opportunities: Structuring Practicum Experiences in Early Intervention and Early Childhood Special Education Preservice Programs

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Providing Optimal Opportunities

Structuring Practicum Experiences in Early Intervention and Early Childhood Special Education Preservice Programs

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An approach to designing field-based practicum opportunities for preservice students is described. First, the importance of quality field experiences is presented, together with a conceptual framework. Second, foundational and philosophical perspectives in early childhood and early intervention (EI) and early childhood special education (ECSE) that create a "linked system" are described. Third, a continuum of potential practicum activities is presented, followed by illustrations from an EI and ECSE preservice master's degree program.

Keywords: *practicum; field experience; personnel preparation*

After teaching for 2 years in a Head Start classroom, Adriana enrolled in a university training program for early intervention (EI) and early childhood special education (ECSE). Her reason for going back to college was to learn better ways to address the needs of young children with disabilities and their families. Adriana's coursework was accompanied by a variety of practicum placements in which she had opportunities to apply what she was learning. Adriana received feedback on her skills from multiple sources, which she integrated into her practice. The complexity and intensity of her fieldwork increased over time. By the end of the program, Adriana had completed practica in two infant and toddler and two preschool classrooms, and she felt as though she had met her goal of learning effective teaching strategies.

Conceptual Framework for Quality Field Experiences

Practicum or field experiences are essential for effective personnel preparation (Bricker & Widerstrom, 1996; Rosenkoetter & Stayton, 1997; Sandall, Hemmeter, Smith, & McLean, 2005). Although the nomenclature varies across programs and disciplines, we use the term *practicum experiences and practicum placements* to represent situations in which preservice students work in applied early childhood and EI and ECSE settings. Other terms used to describe practicum experiences include *field-based experiences*, *field experiences*, *internships*, and *clinical practica* (Hung & Chen, 2006; Ryan, Toohey, & Hughes, 1996). Although lacking a rich research base, practicum experiences have been shown to be effective for providing situated learning in which preservice students can "practice" newly acquired skills and apply their new knowledge base in real-life settings (Dewey, 1938; Pajak, 2001; Utley, 2006). For example, a beginning EI or ECSE preservice student with a practicum in an inclusive preschool will have opportunities to interact with typically developing children, as well as children with developmental delays. The student provides individual instruction for one child and group instruction for several children with and without disabilities. The preservice student applies newly acquired skills and knowledge, such as behavior management principles and activity-based intervention strategies, to promote early language development (e.g., using two- or three-word sentences in conversation, remaining at a task for 5 minutes) and increase children's self-help skills (e.g., putting on one's own coat, washing one's hands). Also, teaching in the

preschool environment accelerates the preservice student's learning process, allowing for the integration of theoretical and foundational information from coursework, as well as practicing intervention skills taught in the student's methods classes (Bricker & Widerstrom, 1996; Miller et al., 2003; Ryan et al., 1996; Stayton, Miller, & Dinnebeil, 2003). Practicum experiences allow for the integration and practice of competencies (i.e., effective teaching strategies) targeted by students' preservice personnel preparation programs. A continuum of practicum options is presented in Figure 1. Sites may follow philosophical models emphasizing a high level of teacher control and a high level of environmental control. Alternately, home-based settings with a low level of environmental control and a low degree of teacher control may be emphasized by programs.

Several features are indicative of quality practicum experiences. First, the philosophy and intervention approaches of a preservice program should match or at least be congruent with the philosophy and approaches used in the practicum setting. For example, a Head Start classroom that follows a structured behavioral philosophy using positive behavior supports and a token economy might not be a good fit for a preservice student from a constructivist teacher training program focused on child choice and child-directed learning. Field experiences should offer opportunities for students to see and experience firsthand what is presented in coursework.

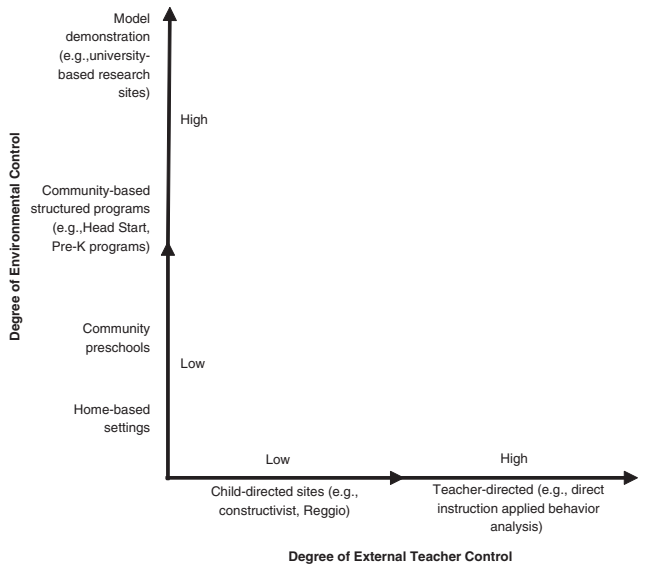
Second, required duties in a practicum setting should match the teaching competencies of a preservice program. For example, if students are expected to demonstrate expertise in conducting group language instruction using incidental teaching, practicum settings should be structured to provide several opportunities for serving children in small groups. Third, diverse opportunities should be provided to students (Rosenkoetter & Stayton, 1997). Recommendations for practicum experiences include consideration of the context and the process of learning in the applied setting. Hung and Chen (2006) called this context-process authenticity. Practicum settings should reflect the diversity, problems, needed skills, and complexity of the proposed teaching environments of preservice students, including diverse levels of children's ability or disability, the diverse cultural and ethnic backgrounds of children and cooperating teachers, and diversity in classrooms. Another aspect of diversity for EI and ECSE is the participation of a range of professionals serving on intervention teams (Kilgo & Bruder, 1997; Winton, McCollum, & Catlett, 1997).

Fourth, practicum experiences should provide students with staged learning opportunities (McCollum & Catlett, 1997). Students should have available experiences that provide a continuum of experiences, ranging from those requiring fewer skills (e.g., snack assistant), to more complex (e.g., one-to-one instruction with articulation practice), to the most demanding (e.g., organizing and maintaining classroom schedule, transitioning groups). Fifth, students should be able to generalize instructional strategies to a variety of contexts and settings. For example, a student who is receiving training in activity-based intervention strategies needs opportunities to embed child goals across settings with a single child, in a small-group setting with 3 children, and during group-circle time with 12 children.

Sixth, a skilled cooperating teacher should be available in a practicum setting to model instructional strategies and provide opportunities for students to engage in reflective practice (Schon, 1987). Students should also be able to observe skilled master teachers and home visitors using instructional strategies in real-life settings. They should then be able to practice these same skills and reflect on their experiences as preservice students.

Seventh, several studies have demonstrated a functional relation between feedback and the effective practices of teachers (e.g., Barton & Wolery, 2007; Codding, Skowron, & Pace, 2005; O'Reilly et al., 1992). Furthermore, there is some evidence suggesting that changing teacher behaviors without feedback is ineffective (Joyce & Showers, 1980; Rose & Church, 1998; Wade, 1985). Thus, practicum experiences should provide frequent (e.g., during meetings with cooperating

Figure 1
A Continuum of Options for Practicum Settings



teachers, after supervisory observations, along with grades on assignments) and varied (e.g., written or verbal, formal or casual) feedback across practicum activities and coursework.

Finally, although practicum placements should provide competency- or standards-based experiences for students, they should also allow for individualization by students to meet individualized career goals. A preservice student interested in young children with autism should have opportunities to be in a classroom with a child or children with autism if possible. Likewise preservice students who want to work with families and children in home settings should be placed in home visiting programs for at least a portion of their practicum experiences.

Meeting even three or four of these criteria is often difficult for personnel preparation programs. Many community-based programs represent one or two of the quality criteria; however, this might not be adequate to support students in acquiring the necessary intervention competencies. University-based demonstration classrooms are a second option, but these programs often have resources and personnel uncommon in community-based sites and may not reflect real-world problems and conflicts. In addition, university-based classrooms could lack credibility with prospective employers, who want students to have a wide range of real-life experiences. Finding a high-quality program that is a match in philosophical approaches and methodology with quality cooperating teachers may be extremely challenging for preservice programs (Miller et al., 2003).

Philosophical Perspectives That Link Teaching and Learning

EI and ECSE training programs are often guided by five overlapping philosophical perspectives: (a) developmental, (b) family centered, (c) interdisciplinary, (d) situated learning, and (e) transactional. The philosophical perspective of a preservice program should be congruent with those of a practicum site. Two or more philosophical perspectives are often emphasized in personnel preparation programs. In practice, these philosophies often are complementary and undergird different aspects of programs. For example, many programs follow a developmental perspective regarding curriculum development and a transactional approach with regard to intervention principles. In addition, an interdisciplinary approach to teaming may be emphasized. A description of major philosophical perspectives found in community early childhood and EI and ECSE programs follows.

Developmental Perspective

Researchers suggest that "development occurs as a progression of qualitative reorganizations within and among the biological, social, emotional, cognitive, representational, and linguistic systems proceeding through differentiation and subsequent hierarchical integration and organization" (Cicchetti & Cohen, 1995, p. 6). Opportunities for growth can occur within and across systems when previous structures interact with new levels of organization (Cicchetti & Cohen, 1995; Ollendick, Grills, & King, 2001; Rutter & Garmezy, 1983). An array of learning across the life span can be considered using a developmental perspective (Ollendick et al., 2001; Sroufe & Rutter, 1984). This developmental orientation has implications for preservice programs because it takes into account the systematic reorganizations that occur as individuals learn new skills, modify practices, and acquire proficiency.

Family-Centered Perspective

Bornstein and Sawyer (2006) submitted that relationships and interaction patterns within a family system are more complex than once believed, and family members assume familial roles and functions with proximal and distal features. A family-centered perspective takes into account the needs, priorities, resources, desires, and wisdom of a child's family (Bernheimer, & Weisner, 2007) and is a requirement of legislation and professional organizations (Bredekamp & Copple, 1997; Sandall et al., 2005). Professionals who work with young children with disabilities must know how to partner with families, including working together to address child and family goals. Intervention efforts are enhanced when families participate in early childhood programs; preservice students should get an opportunity to work shoulder to shoulder with families while providing intervention services (Bailey et al., 2006; Bernheimer & Keogh, 1995; Kidder, 1989; Winton & DiVenere, 1993).

Interdisciplinary Perspective

Collaboration is a major function of the work EI and ECSE professionals do on a daily basis (Bricker & Widerstrom, 1996; Briggs, 1997; Stayton, Fiechtl, Rule, Raschke, & Kliewer, 2003). Effective service delivery is based on the cooperation of multiple professionals from a variety of disciplinary fields. No single discipline or agency can address all of the needs of a child with a disability and his or her family. Multiagency and multidisciplinary collaboration is needed to provide quality services (Stayton et al., 2003). Professional development

programs create occasions for preservice professionals to work within the context of EI and ECSE teams.

Situated Learning Perspective

Dewey's (1938, 1959) theory of learning maintains that learners are best served by having hands-on, active, and authentic experiences. Authentic activities are, or closely resemble, the real-life situations and conditions under which behaviors and skills are needed (Utley, 2006). Early childhood programs often apply Dewey's principles in their classrooms together with Piagetian constructivist learning models (Piaget, 1970) so that learning occurs in the context of play. Situated learning opportunities (i.e., practicum experiences) are also designed by EI and ECSE training programs to provide preservice professionals with opportunities to acquire and master effective techniques and skills for addressing the needs of young children with disabilities and their families (National Research Council & Institute of Medicine, 2000; Palmer, 1998).

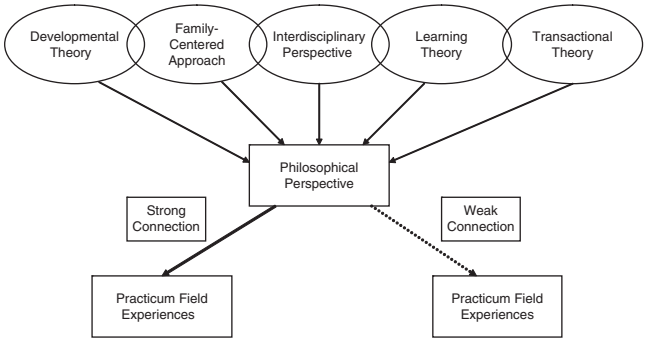
Transactional Perspective

Adaptation occurs through reciprocal interactions and change in the social environment that provides opportunities for individuals to reorganize their behavior patterns (Sameroff & Chandler, 1975; Sameroff & MacKenzie, 2003). Sameroff and Chandler (1975) argued that development results from multifaceted interactions individuals have with their social environments. Many early childhood and EI and ECSE programs follow a transactional model (Bricker, 1989), emphasizing the importance of carefully constructing the environment and thus the transactions that occur between a child and his or her environment. Preservice professionals in turn are acculturated into the profession by exchanges (e.g., experiences, consequences) in their practicum placements that shape their practice (Miller et al., 2003; Miller & Stayton, 2005).

Empirically Based Practice

University preservice coursework typically supports current, empirically based practices (Bryant & Graham, 1993; Clifford, Macy, Albi, Bricker, & Rahn, 2005; Klein & Gilkerson, 2000), including using behavioral technologies to shape children's learning experiences (Alberto & Troutman, 2006). Often, community and public school classrooms do not have the knowledge or resources to apply newly developed best practices at a rate consistent with university professional development programs. Consequently, preservice professionals might grapple with what they are learning in their coursework and what they see and experience in their practicum placements (McCollum, Rowan, & Thorp, 1994; Turney et al., 1982). Additionally, they may observe practices they believe to be incongruent with philosophical perspectives. For example, an EI or ECSE assessment class may focus on how to create family-centered assessment practices to gather information about family resources, priorities, and concerns (Bailey, 2004; Bernheimer & Keogh, 1995). However, in the practicum context, this philosophical approach may not be presented or may occur and/or look differently than described in class. Figure 2 shows a relationship between overlapping philosophical approaches and practicum experiences in which the connection between the two may provide a strong or weak linkage.

Figure 2
Congruence Between Philosophical Perspectives and Practicum Experiences



Students are likely to encounter ambiguity, uncertainty, and disequilibrium when they begin to generalize principles from coursework to practice. Events in the practicum setting occur at a rapid pace. For students, it may be difficult to keep up with this pace and to apply the concepts needed to fully understand the connection between practices and philosophical perspectives. One strategy used to provide a teaching and learning framework is called a *linked systems approach*.

The application of a linked systems approach directly connects program philosophy and goals with the assessment, intervention, and evaluation processes. Five main components are (a) philosophy, (b) assessment, (c) goal development, (d) intervention, and (e) evaluation. Each component is linked to the next in content, and all are reciprocally related (Losardo & Notari-Syverson, 2001). Curriculum-based measurements, such as the Assessment, Evaluation, and Programming System (AEPS) (Bricker,

Table 1
Criteria for Quality Practicum Experiences

1. Similar or convergent philosophy and theoretical approach to preservice program
2. Duties (home visiting or classroom) match preservice teaching competencies
3. Diverse opportunities provided for students
   a. Ethnically and culturally diverse families and children
   b. Range of children with and without developmental delays
   c. Variety of professionals serving on intervention team
4. A continuum of learning opportunities illustrating empirically based practices is provided
5. Generalization of teaching strategies allowed across sites
6. Skilled cooperating teacher or consultant is available for modeling instructional strategies and providing reflection
7. Frequent and varied feedback
8. Individualization allowed for preservice students to address specific needs and career goals

2002) and the Carolina Curriculum (Johnson-Martin, Hacker, & Attermeier, 2004), are most often used in a linked systems approach, because assessment, goal development, intervention, and evaluation are synchronous when using curriculum-based measurement (Bagnato, 2007; Bagnato, Neisworth, & Munson, 1997).

Quality Features of Practicum Experiences

Faculty and staff members from the Early Intervention Program (EIP) at the University of Oregon offer a graduate degree and licensure program for master's students. In addition to coursework, all students are immersed in training opportunities in the field (e.g., classrooms, home visiting programs) from the time they arrive to the time they graduate from the program. Practicum experiences are organized around eight quality features, outlined in Table 1. The organizing principles for designing quality practicum experiences are described next.

Matched Philosophical and Intervention Approaches

The EIP carefully selects practicum sites on the basis of their program philosophies, numbers of high-quality teachers, and approaches to intervention. For example, all practicum sites follow developmental, family-centered, and interdisciplinary approaches. In addition, each site uses developmentally appropriate curricula, practices, and assessment procedures that promote family involvement (e.g., parents volunteer to help in the classrooms), as well as involvement from individuals from several disciplines (e.g., autism specialists, mental health specialists, speech pathologists). Behavioral technologies are also used at most practicum sites.

The specific way these perspectives are manifested across sites varies (e.g., one site may encourage parents to volunteer regularly in its program, whereas another site may incorporate regular home visits into its program), but all maintain a clear congruence with the EIP philosophy. In addition, cooperating teachers who use curriculum-based measures such as the AEPS are sought so that students can experience firsthand a linked system model (i.e., philosophy, assessment, intervention, and evaluation are all linked in process and content).

Required Practicum Responsibilities Match Competencies

Eight core competency areas guide the content for EIP coursework and field experience; specific objectives across the eight core competency areas were developed to guide activities within the practicum experiences. These practicum experiences provide opportunities to practice and demonstrate these competencies, in both specific targeted activities and coursework assignments. Preservice students receive feedback from their course instructors, cooperating professionals (who are likely using the same targeted strategies and activities in their classrooms), and supervisors regarding effective practices. The EIP, seen in Table 2, follows the Division for Early Childhood guidelines for professional development (Sandall et al., 2005). The practicum model tends to show a pattern whereby preservice teachers require extensive assistance at the beginning of the year, when they start field experience, and then by the end of the year move toward a level of independence across competency areas, as shown in Table 3.

Diverse Opportunities

EIP preservice students have opportunities to experience a continuum of practicum sites, as shown in Figure 3, and some latitude to individualize their learning to

Table 2
Eight Practicum Competency Areas

EIP Competency Area	Example of a Specific Objective	Practicum Activity	DEC Professional ECSE Standards
Foundations in early intervention	Demonstrates professional behaviors by adhering to the legal and ethical standards as specified in the laws governing EI and ECSE	Child progress evaluation, environmental arrangement	(1) Foundations (9) Professional and ethical practice
Typical and atypical development	Adapts strategies and environments to meet the specific needs of all children, including those with disabilities, developmental delays, and special abilities	Whole-class progress, scheduling daily routines, designing learning activities	(2) Development and characteristics of learners (3) Individual learning differences (6) Language
Infant, toddler, and preschool assessment	Administers criterion-referenced assessment instruments for program planning and monitoring child progress	Child progress evaluation, environmental arrangement	(2) Development and characteristics of learners (8) Assessment
Family involvement	Demonstrates professional written and verbal communication skills that enhance interaction with family members	Child progress evaluation, environmental arrangement	(5) Learning environments (9) Professional and ethical practice
Design of intervention	Participates in coordination and/or implementation of IFSP and IEP meetings for children in the program	Environmental arrangement, whole-class progress, designing learning activities, embedding classroom learning opportunities	(4) Instructional strategies (5) Learning environments (6) Language (7) Instructional planning
Implementation of intervention	Works within the context of the family system to implement IFSP or IEP goals and objectives that facilitate development	Environmental arrangement, embedding classroom learning opportunities	(4) Instructional strategies (7) Instructional planning
Evaluation of intervention	Demonstrates the knowledge and ability to monitor progress of children	Classroom program evaluation, designing learning activities	(3) Individual learning differences (4) Instructional strategies (7) Instructional planning
Interdisciplinary and interagency collaboration	Demonstrates appropriate and effective interpersonal skills	Classroom organization, environmental arrangement	(10) Collaboration

Note: DEC = Division for Early Childhood; ECSE = early childhood special education; EI = early intervention; EIP = University of Oregon Early Intervention Program; IEP = Individualized Education Program; IFSP = Individualized Family Service Plan.

Table 3
Mean Self-Ratings Across Competencies for Preservice Teachers From Two Cohorts

		2006–2008 (n = 28)	
Competency Topic	Competency	Beginning of Practicum	End of Year
Foundations	1	2.6	3.8
Development	2	2.1	3.4
Assessment	3	1.6	3.6
Family	4	2.0	3.8
Design	5	1.4	3.2
Implementation	6	1.8	3.5
Evaluation	7	1.6	3.3
Collaboration	8	2.9	3.9

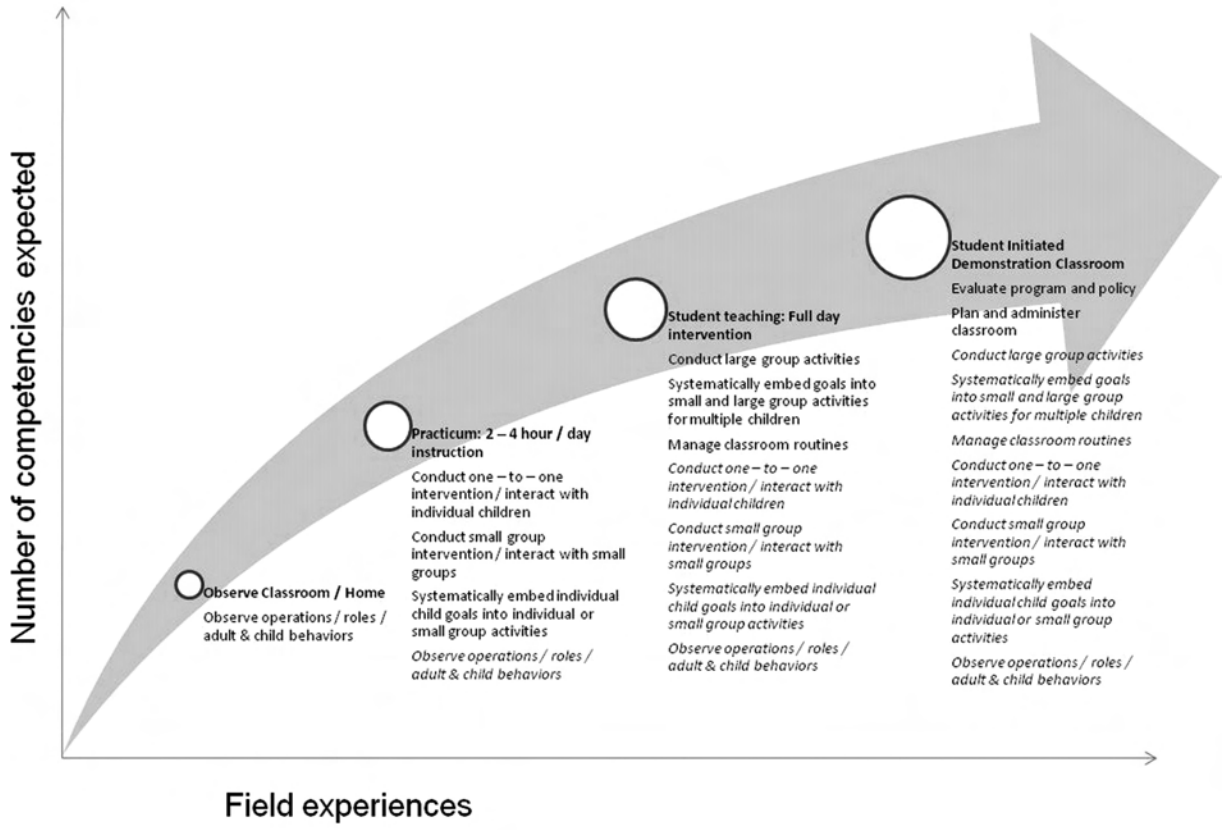
Note: The rating scale was as follows: 4 = *independent*, 3 = *minimal assistance required*, 2 = *moderate assistance required*, 1 = *extensive assistance required*.

match career goals. Sites include infant-parent and toddler-parent programs; home visiting programs; teen parenting programs; Head Start classrooms; and community, state-funded and public preschool programs. Families with diverse cultural and ethnic backgrounds are served in these settings, as well as a variety of EI and ECSE disciplines, including mental health and behavior, nutrition, allied health, and speech and language. Consequently, most students have multiple and varied opportunities to observe, practice, and demonstrate competencies.

Staged Learning Opportunities

Preservice students are provided with increasingly demanding practicum experiences and activities. Upon entry into the program, students begin observing classrooms, children, and families. The initial practicum

Figure 3
Time and Number of Competencies Increase the Intensity of Field Experiences for Preservice Teachers in the University of Oregon's Early Intervention Program



Note: Adapted from McCollum and Catlett (1997) and Harris (1980).

placement, lasting about 10 weeks, allows students to observe teacher interactions, the use of effective strategies for working with children and families, and classroom organizational skills. During this initial placement, students are expected to demonstrate increased proficiency in interactions with individual children (e.g., the use of descriptive praise, expanding on a child's language or play, following a child's lead, and redirecting or preventing problem behaviors) and charting the initial repertoire and progress of one child (e.g., completing one AEPS test, developing functional goals, and embedding learning opportunities into classroom activities).

In their second practicum placements, students begin planning and implementing developmentally appropriate learning activities for individuals and groups of children, completing several different types of assessments, and creating and implementing family goals (Bredekamp & Copple, 1997; Sandall et al., 2005). Although students usually remain at the same practicum sites as during their first terms, they are charged with more complex tasks, such as charting student progress; fostering relationships with parents, families, and program staff members; and designing, implementing, and embedding goals into large-group (e.g., circle time) and small-group activities.

During the third practicum placement, student teaching, students have intervention opportunities through activity-based intervention (Pretti-Frontczak & Bricker, 2004) to demonstrate several advanced competencies, including embedding learning opportunities with individual children and with large groups of children. They are required to design, implement, and evaluate learning opportunities for individual children and groups of children, collaborate with EI teams and agencies, monitor and evaluate children's progress, and work closely with families to develop goals and objectives.

The final practicum placement, in the fourth term, allows preservice students to have the opportunity not only to implement a quality, empirically based model of instruction but also to plan an entire classroom experience for a group of preschool children with and without disabilities. During this summer on-campus program, called the Building on Opportunities for Student Teaching (BOOST) classroom, preservice students work closely with the local EI and ECSE agency and families to enroll children who are not receiving summer services, select curricula, plan predictable daily schedules, design large- and small-group activities, select a healthy menu for meals, and organize adult roles (Macy & Squires, 2008). This unique experience prepares students to master skills necessary to set up, manage, and evaluate their own classrooms, including skills in program evaluation; collaboration with agencies, peers, and families; and classroom organization. These scheduling and management skills are not often part of student teaching experiences.

Generalized Skills

The EIP promotes the acquisition and demonstration of competencies across several different experiences required to be an effective classroom teacher or early interventionist. Practicum experiences are designed for preservice students to observe, practice, receive feedback, and generalize competencies. Students review and evaluate their acquisition of competencies at least twice during each term, and these ratings are discussed during midterm and final meetings with preservice students, cooperating professionals, and supervisors. Students are required to consistently reflect and build on their competencies in each practicum placement (Schon, 1987).

Effective Models

The professional developmental research within EI and ECSE is surprisingly scarce (Bricker & Widerstrom, 1996; Pajak, 2001; Stayton et al., 2003). However, several studies have examined strategies for increasing effective teacher practices in the classroom. These reports consistently demonstrate a relation between effective teacher behaviors and varying combinations of modeling, role-playing, video, feedback, related assignments, and didactic instruction (Codding et al., 2005; Filla, Wolery, & Anthony, 1999; Lavie & Sturmey, 2002; Schepis, Ownbey, Parsons, & Reid, 2000; Schepis, Reid, Ownbey, & Parsons, 2001). Learning occurs through coursework (e.g., didactic, role-playing, videos, assignments) and by observing effective practices at their practicum sites (e.g., modeling by master teachers in naturalistic contexts, homes, classrooms). Cooperating professionals should have several years of experience in EI and ECSE as licensed providers and community collaborators before acting as cooperating teachers and mentors to preservice students. Potential cooperating teachers are observed several times regarding their efficacy, teaching styles, and congruence with program philosophy and instructional approaches before determining their classrooms as practicum sites.

Feedback

Varied and frequent feedback is crucial to a student in training. Written and verbal feedback, given by a range of persons, is provided to students on the basis of their intervention skills displayed at their practicum settings and/or written assignments. Supervisors conduct several observations during each term and provide written feedback immediately after each observation, as do cooperating professionals at the practicum sites. This written feedback is generally narrative in style and includes examples of competencies and effective strategies.

Individualization to Meet Career Goals

Preservice students have an opportunity to observe possible practicum sites in their communities prior to their initial practicum placements and to rank-order sites accompanied by short paragraphs detailing how each site might meet their specific career goals. Placements are then determined on the basis of the selections and career goals of the preservice students. The BOOST summer preschool classroom during the fourth and final term of study allows students a final opportunity to master effective EI and ECSE teaching practices and individualize their learning experiences before securing jobs (Macy & Squires, 2008). Because this summer classroom is planned and administered by the preservice students in collaboration with community and program faculty, students are able to fulfill unique roles (e.g., student administrators, family liaisons, behavior specialists) often not available during their regular practicum placements.

Conclusion

Personnel preparation programs can enhance student learning by providing practicum opportunities in which students interface with the ongoing and daily challenges that occur in real-life classrooms, community programs, and home-based settings. A conceptual framework for creating practicum experiences steeped in a tradition of

widely adopted professional values and philosophical perspectives was provided. Criteria for selecting effective practicum placements were described, as well as information about specific practicum activities. Finally, one example of a continuum of preservice practicum experiences was detailed.

To acquire effective intervention strategies, quality practicum experiences are critical for preservice teachers. Through participation in a variety of field-based experiences that are aligned with coursework, students such as Adriana will be better prepared to enter fulfilling careers serving young children and families in EI and ECSE programs. Robert Fulghum (1986) professed, "All I really need to know about how to live and what to do and how to be I learned in Kindergarten. Wisdom was not at the top of the graduate-school mountain, but there in the sandpile" (p. 4). Knowledge can be nurtured within the sandbox of the EI and ECSE practicum setting.

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