Involvement and Progress in the General Curriculum for Students With Extensive Support Needs: K–12 Inclusive-Education Research and Implications for the Future

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Abstract
Since the passage of the Education of All Handicapped Children Act of 1975, educational services for students with extensive support needs (e.g., intellectual disability, autism, multiple disabilities) have been constantly evolving, with at least three overlapping waves of inquiry and practice. In this article we describe extant research, debate, and commentary related to involvement and progress in the general curriculum for students with extensive support needs, and we discuss implications for future research, policy, and practice related to inclusive education. The article begins with an exploration of some key concepts related to the general curriculum, capturing some of the field’s diverse thinking about what constitutes free appropriate public education. Then we examine selected research findings, debates, and commentaries, organized around four key components of education: instructional context, curriculum content, assessment and accountability, and long-term student outcomes. Finally, we offer some overall observations about the state of extant research and implications for future research, policy, and practice related to involvement and progress in the general curriculum for students with extensive support needs in inclusive general-education contexts.

Key Words: Education of All Handicapped Children Act of 1975; public education; long-term student outcomes

Stimulated by the Free Appropriate Public Education mandate of the Education of All Handicapped Children Act of 1975, educational services for students with extensive support needs (e.g., intellectual disability, autism, multiple disabilities) have been constantly evolving, with the field experiencing at least three overlapping waves of inquiry and practice that reflect different lines of research, debate, and commentary. Some of the earliest research efforts and commentary within the field focused on the learning capabilities of students with extensive support needs and their potential to benefit from educational services (Blatt, 1981; Haring & Brown, 1976, 1977; Sontag, Burke, & York, 1973). In this first of three waves, as research findings led to a clear affirmation that all human beings possess learning potential, and that the federally mandated free appropriate public education could not be denied a student based on the severity of his or her disability, the field developed a vision that interpreted educational benefit as related to each student’s successful functioning in life. Out of these discussions came the concept of the criterion of ultimate functioning (L. Brown, Nietupski, & Hamre-Nietupski, 1976), stipulating that educational services should focus on observable outcomes that enhance each student’s acquisition and use of skills he or she is projected to need to participate fully and as independently as possible in life. Typically, these skills have been interpreted as requirements for living as an adult in our society (Ford et al., 1989; Neel & Billingsley, 1989). The research generated by this thinking resulted in a clear demonstration that students with extensive support needs benefit from educational services,
and offered guidance related to providing them effective educational services (Browder et al., 2007; Nietupski, Hamre-Nietupski, Curtin, & Shrikanth, 1997). Evidence that educational services were of benefit to students with extensive support needs led to a second and much more extensive wave of research addressing the effectiveness of the educational services provided, comprised of three separate lines of inquiry. The first line of inquiry focused on how to teach students with extensive support needs—that is, instructional strategies that were effective in meeting the students’ learning needs (Ault, Wolery, Doyle, & Gast, 1989; Billingsley & Romer, 1983; Wolery & Schuster, 1997). This resulted in the identification of a variety of instructional strategies (e.g., prompting processes, task structuring strategies, consequence strategies; see Cipiani & Spooner, 1994; Wolery, Ault, & Doyle, 1992). The second line of inquiry focused on what to teach students with extensive support needs—that is, instructional content that was meaningful and socially valid (see Ryndak & Alper, 1996; Snell, 1987). This resulted in two initial approaches to determining what to teach: (a) the use of the curriculum content provided for students without disabilities who were performing at the same developmental level (Williams & Gotts, 1977); and (b) the use of an ecological approach to determine the environments in which an individual student spends time, the activities that occur in those environments, the skills a person needs to participate in those activities, and the student’s performance related to the use of those skills during those activities (L. Brown et al., 1979). While both of these approaches are still evident today in educational services for students with extensive support needs, the research clearly supported the ecological approach and the embedding of instruction on developmental skills either within naturally occurring activities or within simulations of those activities. The third line of inquiry, where to teach, focused on the context in which instruction was effective (L. Brown et al., 1977; Ford et al., 1989). This focus on context and the use of ecologically identified functional activities on which to provide instruction resulted in studies being conducted both in self-contained special-education contexts and in contexts that naturally occurred in a student’s life, such as general-education classrooms and the community (Collins & Griffen, 1996; Horner & MacDonald, 1993; McDonnell & Ferguson, 1989). Initial research findings about student outcomes relevant to context began to indicate that students with extensive support needs were acquiring more skills when they received instruction alongside same-age peers who were developing typically (Certo, Brown, Belmore, & Crowner, 1977; Vincent & Broom, 1977), and research on parents’ advocacy efforts echoed this finding (Ryndak, Downing, Morrison, & Williams, 1996).

Although these lines of inquiry continue to be pursued today, they are being viewed with a different set of lenses in a third wave of research influenced by the passage of the No Child Left Behind Act of 2001 (2002) and the latest reauthorization of the Education of All Handicapped Children Act (1975) as the Individuals With Disabilities Education Improvement Act (IDEA) of 2004 (2004). This legislation has had the effect of refocusing the field on what to teach students with extensive support needs (see Wehmeyer, 2006), and research has now shifted to focus on students’ involvement and progress in: (a) the general curriculum, comprising skills and content knowledge appropriate for a student given his or her age and the grade level of his or her peers; and (b) the alternate curriculum, comprising skills and activities for participation in life during and after exiting school and skills that are foundational across life in and out of school (Bouck, 2009; McDonnell & Hunt, in press; Shurr & Bouck, 2013). Although one can see the continued influence of the criterion of ultimate functioning in much of this literature, differing perceptions of which type of curriculum content contributes to a greater capacity for meaningful participation in society have initiated difficult discussions about the relative importance of these differing types of curriculum for students with extensive support needs (Ayers, Lowrey, Douglas, & Sievers, 2011, 2012; Courtade, Spooner, Browder, & Jimenez, 2012). These changes have led the field once again to question where instruction should occur, including discussions related to the complex and dynamic relationship between what to teach and where to teach that content (Collins, Evans, Creech-Galloway, Karl, & Miller, 2007; Jackson, Ryndak, & Wehmeyer, 2008/09; M. Jameson, McDonnell, Johnson, Riesen, & Shamby, 2007). Finally, inquiry into these issues has reopened questions about how to teach students with extensive support needs, especially when these students receive their services during general-education instructional
and noninstructional activities and from collaborative teams working in general-education contexts (McDonnell, Johnson, Polychronis, & Riesen, 2002; Ryndak, Lehr, Ward, & DeBevoise, in press). Although these emerging lines of inquiry address the same topics as are found in the second wave (i.e., what, where, and how to teach), the research in this third wave is demonstrably different, having evolved from the legislation mandating involvement and progress in the general curriculum for all students, including those with extensive support needs.

In this article we describe extant research, debate, and commentary related to involvement and progress in the general curriculum (i.e., inclusive education) for students with extensive support needs, and we discuss implications for future research, policy, and practice. The article begins with exploring definitions of some key concepts related to the general curriculum, which characterize the field’s diverse thinking today about what constitutes a free appropriate public education. Then we examine selected research findings, debates, and commentaries, organized around four key components of inclusive education: instructional context, curriculum content; assessment and accountability; and long-term outcomes for students. Finally, we offer some overall observations about the state of extant research and implications for future research, policy, and practice for students with extensive support needs to be involved and progress in the general curriculum in general-education contexts.

**Key Concepts Related to the General Curriculum**

Although IDEA mandates that students with disabilities have “involvement and progress in the general curriculum” (Assistance to States, 2006), much of the literature to date has interpreted “involvement” as “access to the general curriculum,” with ongoing discussions about what constitutes that access (Spooner, Dymond, Smith, & Kennedy, 2006). And although IDEA regulations define the general curriculum as “the same curriculum as for nondisabled children” (Assistance to States, 2006), Dymond, Renzaglia, Gilson, and Slagor (2007) reported 12 different definitions of “access to the general curriculum” in the literature, each differentially representing seven variables that were not mutually exclusive. These variables were access to: (a) information, materials, and the classroom where instruction is delivered; (b) learning; (c) a curriculum aligned with general-education state learning standards; (d) academics; (e) the general-education core curriculum; (f) all experiences included in general education; and (g) curriculum that extends beyond academics to include life skills. In addition to differing definitions of access to the general curriculum, the literature also presents differing perceptions on what comprises meaningful assessment, meaningful participation in general-education accountability systems, and meaningful long-term student outcomes (McLaughlin, 2010; Sailor, 2008/09; Wehmeyer, 2006).

Shurr and Bouck stated, “The intention of access to the general curriculum [in federal legislation] . . . was to facilitate high expectations for students with disabilities and help elevate the poor post-school outcomes of students, including those with the most severe intellectual disability (IDEA, 2004)” (2013, p. 77). They argued that this intent has led to a “shifting philosophy in the field and legislation” which is causing tension among those holding different views about how, what, and where to teach students with extensive support needs, as well as what process to use and what outcomes are both desired and expected for students with extensive support needs. We agree, and we would contend that this tension is leading to important discussions and debates in the field, which inevitably will: (a) move the field forward in terms of curriculum, instruction, and assessment; (b) lead to increased expectations for the performance of students with extensive support needs; and (c) result in better long-term outcomes. For this progress to happen, however, we contend that the field must articulate what is currently known, identify what is not known and what has not been studied (e.g., the use of general-education instructional strategies with students with extensive support needs), and consider the implications of these for research, practice, and policy. Questions that can guide this inquiry include: How should we use inclusive general-education contexts for instruction, and what should instruction look like in those contexts? What curriculum content should be taught, and what curriculum content should we suspend? What assessment processes should be used to measure meaningful progress, and how are those who are responsible for instruction held accountable for collecting and using these data to
maximize student outcomes? Finally, what outcomes can we anticipate based on the interplay of instructional context, curriculum content, and assessment and accountability?

### Instructional Context

The research related to where to teach students with extensive support needs is couched in discussions about instructional context, which delineates the conditions of student participation and learning in K–12 education. It consists of the coordination of and interactions among: (a) the settings of instruction, including places, times, class compositions, and immersion levels; (b) practices of instruction, including those used with all students and particular students in a class, natural and arranged peer supports, curriculum and lesson adaptations, provision of specialized intervention, and provision of disability-specific access devices; and (c) the goals, interrelationships, and expertise among educational-team members and other adults who collaborate on instruction. In this section we examine the extant research, debate, and commentary related to students with extensive support needs in each of these three areas and identify implications for research, policy, and practice. We recognize that instructional context also subsumes the content of instruction; however, because curriculum content so critically defines learning outcomes within the instructional context, we discuss curriculum in the next section.

### Settings of Instruction

General-education settings are complex environments comprised of numerous variables that potentially impact instruction. These variables include the location of instruction (e.g., grade-level class, playground, field-trip sites); the subject matter; the age and grade level of the students; and the heterogeneity or homogeneity of the students in a class, in terms of ability levels, languages, and cultures. Additionally, because many students with extensive support needs experience alternative instructional arrangements even when there is some involvement in general education (P. Smith, 2007), amounts of time in general-education settings could be an important determinant of the outcomes of instruction (Ryndak, Morrison, & Sommerstein, 1999).

Research exists related to whether general-education settings provide a more effective context than special-education settings for students with extensive support needs to acquire skills and develop peer relationships. Reviews of the limited available research (Copeland & Cosbey, 2008/09; Jackson et al., 2008/09) and commentary (Wehmeyer, 2006) point to an advantage for general-education settings, and there is evidence that self-contained settings might impede or restrict learning and peer relationships (Hunt, Farron-Davis, Beckstead, Curtis, & Goetz, 1994; Jackson et al., 2008/09; Ryndak, Downing, Jacqueline, & Morrison, 1995; Ryndak et al., 1999).

However, the majority of studies on students with extensive support needs in general-education settings do not compare educational contexts; rather, they employ the general-education setting as a backdrop for examining various instructional methods. Hence, the setting is an invariant feature of a study rather than a moderating or mediating variable in its own right. Research of this type has, for example, been conducted across ages and grades in general-education settings focusing on science (Agran, Cavin, Wehmeyer, & Palmer, 2006), math (McDonnell, Mathot-Bucker, Thorson, & Fister, 2001), geography (Agran et al., 2006), physical education (McDonnell et al., 2001), drama (Ferguson, Meyer, Jeanchild, Juniper, & Zingo, 1992), and history (McDonnell et al., 2001). These studies contribute to our knowledge base about the role of setting, because they demonstrate that students with extensive support needs at differing age and grade levels acquire general-curriculum content when provided specific forms of instruction across many types of general-education settings. These studies, however, do not address in definitive ways questions about the setting per se as a factor affecting instruction.

### Practices of Instruction

The identification and development of effective practices in general-education settings (e.g., instructional methods, materials, peer supports, use of specialized adaptations, interventions, and access devices) have been vibrant areas of inquiry and commentary in our field for over a decade. A substantial part of this literature is not intervention research, per se; rather, it comprises how-to papers directed at practitioners. These writings often emphasize four broad themes to assist practitioners: (a) encouraging independence (Downing & Peckham-Hardin, 2001); (b) adapting and augmenting materials and instruction to teach skills and provide curriculum access (Hedeen &...
Ayres, 2002); (c) enhancing peer relationships to support learning (Carter & Kennedy, 2006); and (d) supplementing existing class-wide learning opportunities with additional opportunities configured to the ecology of the classroom (Downing & Eichinger, 2003).

Extant research on instructional practices in general-education settings reflects these four themes. With respect to the theme of encouraging independence, practices that show promise include: (a) interventions that encourage self-management and self-monitoring (Hughes et al., 2002; Koegel, Harrower, & Koegel, 1999); (b) interventions that teach schedule following and utilize pictorial instruction (K. E. Brown & Mirenda, 2006; Massey & Wheeler, 2000); and (c) interventions that rely on communication augmentation and computer-based or video-based instructional technologies (see, e.g., Hunt, Soto, Maier, Müller, & Goetz, 2002; Thiemann & Goldstein, 2001). Jackson, Ryndak, and Billingsley (2000) employed survey methods to learn from practitioners, family members, and university faculty about their perceptions of effective inclusive practices. Their findings identified several practices perceived as useful that related to the foregoing themes, including augmenting existing general-education routines with instruction and materials that blend with the general-education context, and using instructional methods that facilitate supportive peer relationships. Research on the effectiveness of embedded instruction, for example augmenting naturally occurring routines of instruction and using peers in instruction (see, e.g., J. M. Jameson, McDonnell, Polychronis, & Riesen, 2008; Jimenez, Browder, Spooner, & DiBiase, 2012; Johnson, McDonnell, Holzwarth, & Hunter, 2004), also informs knowledge of effective inclusive practices.

Organizing both planning and instruction around the principles for universal design for learning (UDL; Curry, 2003) could be especially influential for increasing the extent to which students with extensive support needs are involved and make progress in the general curriculum in general-education contexts. As observed by Spooner et al. (2006), when practices that reflect UDL principles are coupled with other recent innovations (e.g., self-determination, teaching standards), they provide the foundation for students with extensive support needs to access the general curriculum. We believe that expansions in the use of practices that reflect UDL principles, coupled with differentiated instruction (Tomlinson, 1999), can significantly alter educational services for all students, from attempting to remediate and ameliorate the effects of disability to creating curriculum transparency and access for all students, including those with extensive support needs (McGuire, Scott, & Shaw, 2006; McLaughlin, 2010). Evidence of UDL’s potential is apparent in research studies that combine lesson accommodations and material adaptations with various strategies of systematic instruction with students who have extensive support needs in general-education settings (Copeland, Hughes, Agron, Wehmeyer, & Fowler, 2002; McDonnell et al., 2001)

Educational Teams and Collaboration

Effective services for students with extensive support needs in general-education settings become more likely when collaborative teams of teachers, paraeducators, parents, administrators, and related service providers work toward common goals. Collaborative practices can: (a) reduce the isolation of special educators and related service providers by fostering relationships with general-education teachers; (b) establish a common set of values and practices concerning the worth and feasibility of serving all students in general-education settings; (c) reconfigure teacher roles and service-provision processes such that they are centered on instruction in general-education settings; (d) utilize adult support processes (e.g., classroom paraprofessionals, related services personnel) with discretion, such that students are not overly supported and natural supports can operate unhindered; and (e) create a shared and accountable focus around student learning outcomes in the general curriculum (Giagreco, Doyle, & Suter, 2012; Hunt, Soto, Maier, & Doering, 2003; Jackson et al., 2000; McDonnell & Hunt, in press; Ryndak et al., in press; Snell & Janney, 2000).

The practitioner literature is replete with information on how special educators can become better collaborators with their general-education counterparts (see, e.g., Musti-Rao, Hawkins, & Tan, 2011), and teacher-preparation literature reflects a focus on preparing teachers for effective collaboration (see, e.g., Bradley & Monda-Amaya, 2005; McKenzie, 2009; Pugach & Blanton, 2011). Research findings over the last several decades suggest that one of the most significant advances that a team of practitioners can make is to shift its orientation from an expertise-centered service-
provision model to a problem-focused one (Snell & Janney, 2000). This shift in focus has been reflected in different models for how IEP teams should operate, specifically the evolution from multidisciplinary teams that placed a premium on discipline expertise and isolated services to transdisciplinary teams that emphasize shared knowledge and role release for integrated services (see, e.g., Crosby, 1976; Giangreco, 1986).

Implications for Future Research, Policy, and Practice
The extant research related to the instructional context provides strong evidence that students with extensive support needs: (a) can acquire skills and content knowledge in general-education settings when provided appropriate supports and instruction; (b) are responsive to both UDL-based adaptations and rigorous instruction when in general-education settings; and (c) are best served when collaborative educational teams approach their education in general-education settings with the intent of finding solutions to potential barriers to access and learning. There are a number of areas in which additional research is needed with respect to instructional contexts. For instance, it is critical that we better understand the processes, outcomes, and impact of extended versus short periods of time in general- and special-education settings on students’ skill acquisition and retention. The need for such research is critical in light of the high percentage of intervention studies in which students with extensive support needs are actually exposed to the general curriculum in general-education contexts for only limited times (see, e.g., Dymond & Russell, 2004). The evidence further suggests that when students with extensive support needs are in self-contained settings, they are very likely not working on the general curriculum associated with their grade-level peers (see, e.g., Soukup, Wehmeyer, Bashinski, & Bovaird, 2007). Hence, the long-term consequences of restricted immersion in general-education contexts could include significantly fewer opportunities for practice and retention of grade-level general-curriculum content and inadequate opportunities to acquire foundational skills that could promote learning of more complex general-curriculum content.

There also is a need for research that promotes a better understanding of how evidence-based techniques that have been well researched in special education (e.g., systematic instructional strategies such as task analytic instruction, time delay) can be embedded within ongoing instructional activities in general-education settings. Specific questions that need to be addressed include: What methods of instruction are now being used by general-education teachers that could be examined as potentially evidence-based practices for students with extensive support needs? What is the potential of practices based on the principles of UDL to promote access and learning for students with extensive support needs, and how can these practices be augmented via more intense and direct instruction? Finally, can intense, discrete trial instruction be efficaciously delivered in short bursts and achieve acceptable results over the long run when contrasted with prolonged and extended periods of pullout instruction?

Curriculum Content
Currently, two types of curriculum content (i.e., what to teach) are being addressed in the research for students with extensive support needs: (a) the general curriculum, and (b) alternate curriculum. Research on instruction in these two types of curriculum content for students with extensive support needs in K–12 general-education classes is reviewed in this section, along with debate and commentary on their relative importance. Finally, we present implications for future research, policy, and practice.

K–12 General Curriculum
As noted earlier, IDEA (2004) mandates that all students, including those with extensive support needs, “be involved and make progress in the general curriculum.” Concurrently, the nation has been engaged in a standards-based reform movement (Thurlow, 2000), which has led to the organization of the general curriculum around a single set of Common Core State Standards (CCSSs; Common Core State Standards Initiative, 2012) for English language arts and for mathematics, on which progress will be measured for all students. These CCSSs have adopted by 45 states and the District of Columbia, even though Agran, Alper, and Wehmeyer (2002) found that teachers question the appropriateness of the general curriculum for students with extensive support needs, even with the use of “substantial
supports and accommodations.” The CCSS Initiative expects students with extensive support needs to engage in learning opportunities and demonstrate knowledge that “retain the rigor and high expectations of the Common Core State Standards” (Common Core State Standards Initiative, n.d., p. 2). To do so will require a change in how educational teams determine the curriculum content presented to students with extensive support needs, with an increased emphasis on the general curriculum (Carter & Kennedy, 2006). Discussions have ensued to define the “general curriculum” (Browder et al., 2007; Ryndak & Billingsley, 2004; Wehmeyer, Lattin, Lapp-Rincker, & Agran, 2003), and researchers have become more systematic in studying instruction on academic content that addresses the CCSSs (Browder et al., 2007).

Collectively this research indicates that students with extensive support needs are able to acquire content in English language arts (Browder & Spooner, 2006; Mims, Lee, Browder, Zakas, & Flynn, 2012), literacy (Allor, Mathes, Roberts, Jones, & Champlin, 2010; Bailey, Angell, & Stoner, 2011), math (Browder, Spooner, Ahlgren-Delzell, Harris, & Wakeman, 2008; Browder, Trela, et al., 2012), science (Browder, Trela, et al., 2012; Spooner, Knight, Browder, Jimenez, & DiBiase, 2011), and social studies (Schenning, Knight, & Spooner, 2013). Much of this research, however, was not conducted in general-education contexts.

The research addressing instruction of students with extensive support needs on the general curriculum within general-education contexts is more limited. In a comprehensive review of research related to reading instruction and students with extensive support needs, only 11% of 128 studies were conducted in general-education classrooms (Browder, Wakeman, Spooner, Ahlgren-Delzell, & Algozzine, 2006). In addition, these studies focused mainly on sight-word and picture identification, and lacked attention to instruction on phonics and phonemic awareness, both important components of reading instruction. In a 2008 meta-analysis on teaching mathematics to students with significant cognitive disabilities, Browder et al. (2008) found that of 68 identified studies, most addressed numbers, computation, and measurement almost exclusively focused on money skills. In addition, only 35% of these studies were conducted in general-education classrooms.

Of the limited number of studies related to instruction in the general curriculum in general-education contexts, much of the instruction takes place as systematic instructional trials in segregated contexts before students participate in the targeted content instruction in general-education settings. For example, in a study by B. Smith, Spooner, and Wood (2013) related to acquisition, maintenance, and generalization of terms and applications for middle-school science, three students received pretraining in the use of iPads for explicit instruction in self-contained settings, then engaged in short intervention sessions on the iPads during routine activities in their general-education science class. In other studies, systematic instruction was delivered in special-education classrooms or resource rooms before students received ongoing embedded instruction in general-education elementary math (Browder, Jimenez, et al., 2012) and middle-school science (Jimenez et al., 2012; Knight, Spooner, Browder, Smith, & Wood, 2013).

There is also limited research that demonstrates students’ progress in the general curriculum in general-education contexts. For example, in a study on the effect of a literacy program implemented with the principles of UDL, students with extensive support needs accessed the program during independent work time in a 90-minute reading block in the general-education classroom and made significant gains in passage comprehension (Coyne, Pisha, Dalton, Zeph, & Smith, 2012). Other studies conducted in general-education contexts show increased participation and engagement in general-curriculum activities for students with extensive support needs (Dymond et al., 2006; Soukup et al., 2007); however, the focus of these studies was not acquisition and use of the general-curriculum content.

While research findings indicate that students with extensive support needs who are involved in the general curriculum can and do make progress on that content, tensions still exist in the field related to whether or not instruction in the standards-based general curriculum is appropriate for them (Ayers et al., 2011; Courtade et al., 2012). When reviewing for curriculum content, Shurr and Bouck (2013) found that of 5,812 articles in 10 journals related to special education, only 2% focused on any curricular area (i.e., functional life skills, cognitive-academics, communication, interactions, sensorimotor skills, other, mixed areas). Of this subset of articles, 43% focused on
functional life skills and 19% focused on the cognitive-academic domain, focusing on cognitive development or academic subjects (e.g., math, science, English language arts). The authors noted, however, that there had been a sharp increase in studies focusing on the cognitive-academic domain in the years 2006–2010.

K–12 Alternate-Curriculum Content
As mentioned previously, alternate-curriculum content typically is defined as content needed for participation in life during and after exiting school, and content considered foundational across life in and out of school. Currently, researchers, practitioners, and advocates are questioning whether: (a) the general curriculum is replacing this alternate-curriculum content as the focus for instruction (Ayers et al., 2011; Bouck, 2009; Courtade et al., 2012); (b) the general curriculum includes this alternate-curriculum content (Ayres, 2012; Hunt, McDonnell, & Crockett, 2012); and (c) instruction on this alternate-curriculum content can and should be embedded within instruction on the general curriculum (Browder et al., 2004; Collins, Hager, & Galloway, 2011; Restorff & Abery, 2013). There is limited research related to instruction on “functional skills” embedded in general-education contexts, but the findings indicate that instruction on alternate-curriculum content can be embedded within instruction on general-curriculum content, resulting in students’ acquiring and maintaining the targeted content (Collins et al., 2011; Falkenstein, Collins, Schuster, & Kleinert, 2009). The majority of research on alternate-curriculum content, however, has been on “functional skills” and has been conducted in self-contained settings.

Ecological approach to determining functional activities for curriculum content. The majority of research support for determining alternate-curriculum content comes from the second wave of research, which occurred prior to the focus on student involvement and progress in the general curriculum. This body of research supports the use of the ecological approach to identify activities that naturally occur in the contexts in which a student spends time and to determine curriculum content (i.e., what to teach) that facilitates the student’s participation and engagement in those activities. This approach to teaching “functional” curriculum ensured that content was individualized to meet each student’s needs, and facilitated students’ partial participation and maximized independence across contexts. Several models have been developed to accomplish this. For instance, Clayton, Burdge, Denham, Kleinert, and Kearns (2006) proposed a four-step process to assist teachers in aligning instruction to standards and IEP objectives that could include functional skills needed during class routines. Similarly, Ryndak (2003) outlined a process that blends alternate- and general-curriculum content during instruction in general-education contexts. Once IEP objectives have been developed, parents and other educational-team members can use an IEP matrix (aka a curriculum matrix or activities matrix) to determine when and where the student’s IEP objectives will be addressed across the school day.

Research findings are beginning to indicate that effective instruction on at least some “functional” content can occur during general-education instructional and noninstructional activities (Ryndak et al., 1999). Research does not exist, however, to determine whether all ecologically identified “functional” content can be addressed in this way, and discussions are occurring about the role of instruction on “functional” activities for students with extensive support needs in today’s educational services (Hunt et al., 2012). Several concerns are being raised, including: (a) whether students with extensive support needs can acquire sufficient skills during their educational experiences to participate in the “functional” activities that naturally occur across the contexts they experience in life, if the main content for instruction is the general curriculum; (b) if not, what role the ecological approach and “functional” activities play in the education of students with extensive support needs; and (c) whether the purpose of educational services for students with extensive support needs should be to maximize progress on the general curriculum or to maximize engagement and independence in life, both during and after exiting school (Ayers et al., 2011, 2012; Bouck, 2012; Browder, 2012; Courtade et al., 2012; Hunt et al., 2012).

Foundational knowledge and skills. Findings from the second wave of research also support curriculum content based on a student’s need for and performance on foundational knowledge and skills (Downing & Peckham-Hardin, 2007; Fisher & Meyer, 2002). By definition, this content comprises knowledge and skills required across contexts and activities, such as communication,
mobility, behavior, and social interactions (Ford, Davern, & Schnorr, 2001). Similar to concerns related to the use of an ecological approach to determine curriculum content, concerns are being raised related to functional content, including: (a) the extent to which students with extensive support needs can acquire foundational knowledge and skills if the main content for their instruction is the general curriculum; (b) if students cannot acquire that knowledge in that way, what role foundational knowledge and skills play in the education of students with extensive support needs; and (c) whether the purpose of educational services for students with extensive support needs should be to maximize progress on the general curriculum or to maximize use of foundational knowledge and skills across contexts (Ayers, 2012; Hunt et al., 2012).

Self-determination, which includes self-regulation and self-management, is a practice recognized as an integral part of student transition to postsecondary life (Wehmeyer, Bersani, & Gagne, 2000) and is essential for students with extensive support needs to: (a) receive and benefit from instruction, (b) experience better learning opportunities in general-education contexts, and (c) be prepared for life after high school (Wehmeyer, Yeager, Bolding, Agran, & Hughes, 2003). As such, it should be considered among foundational knowledge and skills. Research findings indicate that instruction in self-determination can positively impact students with extensive support needs relative to following directions and being on task, which also have implications for their involvement and progress in the general curriculum (Agran, Alper, Cavin, Sinclair, & Wehmeyer, 2005). However, in a review of self-determination interventions for students with extensive support needs, Wood, Fowler, Uphold, and Test (2005) found that this research is limited, with only 21 studies in the 18 years prior to 2005.

More recently, Agran, Wehmeyer, Cavin, and Palmer (2010) found that when students received instruction in a self-regulated problem-solving process (i.e., Self-Determined Learning Model of Instruction), they were better equipped to regulate and evaluate their own learning in the general curriculum in general-education contexts. Furthermore, research findings indicate that time spent in general-education contexts strengthens self-determination for students with extensive support needs (Hughes, Agran, Cosgriff, & Washington, 2013). However, research on the relationship between self-determination and other foundational knowledge and skills for students with extensive support needs, and their acquisition and use of the general curriculum in general-education contexts, is limited.

Implications for Future Research, Policy, and Practice
The extant research related to instruction on the general curriculum and alternate curriculum for students with extensive support needs provides strong evidence that students can acquire content in both types of curriculum in both self-contained special-education and general-education contexts. The research also provides strong evidence that the instructional strategies previously demonstrated to be effective when teaching alternate-curriculum content in self-contained special-education contexts also can be effective when teaching the general curriculum in general-education contexts. Furthermore, the research demonstrates that using these instructional strategies to teach both types of content can be effective when embedded in general-education instructional activities in general-education contexts. However, some in the field warn that an overpowering emphasis on the general curriculum could overshadow instruction on functional and foundational skills, potentially not serving students well who have extensive support needs (Ayers et al., 2011; Courtade et al., 2012).

Research is needed on the extent to which: (a) students with extensive support needs can acquire the full spectrum of grade-level general curriculum; (b) individualized instructional strategies, supports, and services to meet the needs of students with extensive support needs can be embedded within general-education contexts so that effective instruction can address both types of curriculum; and (c) students with extensive support needs can use acquired general-curriculum content in natural situations during and after exiting school. Similarly, policies need to continue to emphasize enabling students with extensive support needs to be involved and make progress in the general curriculum, while supporting instruction on alternate-curriculum content required for each student’s participation and maximized independence in current and future environments. The combination of such research and policy changes would further the understanding that students with extensive support needs are part of and can
succeed in general education, as well as the understanding that the supports and services each student needs to succeed in general education also are part of general education. Concurrently, practices in schools for state licensure, in personnel-preparation programs, and during professional development for sustainable school reform need to be evaluated and revised to ensure that personnel have and implement expertise that supports effective instruction for all students, including those with extensive support needs, in grade-level-appropriate general-education contexts.

**Assessment and Accountability**

Assessment processes need to be configured to the specific needs of the learner and need to employ observable measures designed to have a direct relationship to both content (i.e., what was taught) and context (i.e., where it was taught). Browder (1991) emphasized two principles that should guide how assessments are designed and conducted for students with severe disabilities: individualization and applied behavior analytic strategies.

However, over the last decade, the proliferation of standards-based and alternate assessment protocols have altered the assessment landscape, requiring teachers to rely more on testing protocols that are standardized across learners and to focus on learner outcomes that are aligned with those of general-education students. In contrast to the “functional”-skills emphasis of the previous era, the expectation today is that students with extensive support needs will demonstrate progress in age- and grade-appropriate curriculum (Wehmeyer, 2006) and that their IEP goals will be aligned with state content standards (Grisham-Brown & Kearns, 2001). In this section, we apply what we know about both traditional and emerging assessment practices to age- and grade-appropriate outcomes and examine how these practices can be used with students who have extensive support needs in general-education contexts. We use the concepts of formative and summative assessment to organize this discussion, thereby distinguishing these distinctive applications of fundamental assessment processes.

**Formative Assessment Processes**

*Formative assessment* is used to guide the development, evolution, and revision of instruction in relation to student learning. Formal instruments may be used initially to assess the overall needs and skills of a learner, but formative assessment relies largely on contextualized, informal assessment of performance, coupled with teacher judgments of ongoing student performance (Jackson et al., 2000; Meisels, Bickel, Nicholson, Xue, & Atkins-Burnett, 2001). Focusing in particular on the practicing teacher, we discuss in this section three approaches to formative assessment: (a) *Choosing Outcomes and Accommodations for Children* (COACH; Giangreco, Cloninger, & Iverson, 2011), a formal assessment instrument; (b) measurement tools based on ecological and applied behavior analysis; and (c) curriculum-based assessment.

First, because it has established a level of instructional validity (Giangreco, Cloninger, Dennis, & Edelman, 1993) and is designed to promote involvement and progress in the general curriculum in general-education settings, COACH (Giangreco et al., 2011) remains the best published instrument available when doing long-range formative assessments with students who have extensive support needs. The recent revision (Giangreco et al., 2011) provides a “greater emphasis on access to the general curriculum” (p. xii) while retaining its reputation as being open to addressing the needs of the family.

Second, the principles of assessment described by Browder (1991) remain useful for teachers regardless of instructional context. When aligned with class routines and the state curriculum standards of a student’s age- and grade-appropriate general-education class, checklists, ecological assessments, discrete trial probes, and task analytic measures provide a sound basis for assessing progress. Additionally, inventories related to typical peers provide a peer-referenced means to assess student performance in lesson- and routine-related activities within the general-education class (Jackson & Panyan, 2002). The key to making these processes work is the extent to which they are comprehensive, context-grounded in the general-education setting, and embedded within the curriculum (Meisels et al., 2001).

Finally, curriculum-based assessment (Deno, 1985) provides a useful approach for assessing student progress in relation to the general curriculum (Jackson et al., 2000). Although the term has come to mean different things to different professionals (cf. Browder, 1991; Yeo, 2010), the essential idea is that measures are
developed based on the curriculum taught and standardized in their application across students.

**Summative Assessment Processes**

*Summative assessment* is used to evaluate student growth as a consequence of instruction, particularly after relatively long periods of time have passed. Summative assessment is not limited to standardized assessments, because its primary purpose is to show whether growth has occurred by whatever means possible; nevertheless, summative assessment is more likely to rely on achievement tests for ascertaining degrees of progress. Again, focusing on the practicing teacher, we discuss in this section two approaches to summative assessment: (a) portfolio assessment and (b) standards-based alternate assessment.

A portfolio is a purposefully selected collection of a student’s work assembled over time, documenting progress and achievements via multiple sources of evidence collected in authentic settings (MacIsaac & Jackson, 1994). Sequential samples of work and videos of engagement in instruction and activities can offer demonstrations of progress across the general curriculum for students with extensive support needs who might have difficulty responding on tests and worksheets that are typically used. When used as measures of student growth, portfolios also can promote greater self-responsibility (i.e., internal locus of control; Ezell & Klein, 2003).

Standards-based assessment emerged in the United States during the 1990s, as states and school districts attempted to define what all students need “to know and be able to do” (Kleinert & Thurlow, 2001, p. 2). The onset of standards-based assessment with general-education students raised concerns regarding the exclusion of students with disabilities (Kearns, Kleinert, & Kennedy, 1999). In response to these concerns, IDEA (1997, 2004) mandated that students with disabilities were to have both involvement in the general curriculum and participation in state and district assessments. When students are perceived by educators as unable to participate in the “accountability landscape” afforded by large-scale testing (Kleinert & Thurlow, 2001, p. 8), alternate assessment procedures are employed by the states, and most students with extensive support needs participate in these assessments (Kearns, Towles-Reeves, Kleinert, Kleinert, & Thomas, 2011). Theoretically, alternate-assessment content should be congruent and aligned with a state’s content standards. Whether particular alternate assessment procedures are useful indicators of long-term growth and progress in the general curriculum remains uncertain at this time. Nevertheless, although the findings are somewhat equivocal, there is evidence that when IEP objectives are aligned with an alternate assessment’s academic expectations, subsequent alternate-assessment proficiency ratings are higher (Karvonen & Huynh, 2007). More importantly for our purposes, there also is evidence that both exposure to the general curriculum and time in general-education contexts are factors that positively impact student performance on alternate assessments (Roach & Elliott, 2006).

**Implications for Future Research, Policy, and Practice**

The extant research and recommended practices related to assessment for students with extensive support needs on general-curriculum content in inclusive general-education contexts indicate two paths that presently diverge. First, there are numerous tried-and-true techniques that, where once recommended for alternate-curriculum content and used in self-contained settings, are now equally applicable in general-education settings. We find it troubling that practical and authentic assessment processes, which are useful to teachers when routinely conducting formative and summative assessments of students, are not on the radar of many researchers or commentators presently publishing in today’s literature and are not evident in the federal initiatives on standards-based assessments. Rather, it is the second path, alternate assessment in relation to Common Core State Standards, that currently is present in the literature. Alternate assessment activities are quite “distant” from the real-time requirements of day-to-day instruction, in which measurement may occur in a context that includes various ongoing adaptations and supports.

Curriculum-based assessment, defined as measures directly reflecting critical skills that are being taught within the general curriculum and which are standardized across students, provides one potential solution to the gap between applied behavior analytic measures and alternate assessment processes. We note, however, that there are risks in using some of the generally accepted measures of curriculum-based assessment. For example, in a meta-analysis of that literature,
Yeo (2010) reported notable correlations between selected curriculum-based measures in reading and related state achievement-test results, but he also reported that studies including students with disabilities or English language learners were at variance with this finding.

These discussions of assessment and the general curriculum directly relate to accountability issues faced by teachers and administrators as states increasingly look to legislation to govern educational practices. It seems to us that a presently underused framework for enhancing accountability and simultaneously reducing the isolation of students with extensive support needs is a federal initiative that begins to expect school districts to include students with extensive support needs in response-to-intervention processes. However, to make this work, Tier III of response to intervention must be conceptualized as a general-education process that supplements access to the general curriculum rather than as a special-education placement option (cf. Fuchs, Stecker, & Fuchs, 2008; Hoover, 2013).

**Long-Term Outcomes for Students**

The extant research indicates that providing special education and related services in general-education contexts for students with extensive support needs can result in positive short-term outcomes (see McDonnell & Hunt, in press; Spooner, McKissick, Hudson, & Browder, in press). Limited research exists, however, related to the long-term impact of services in general-education contexts either across school years or into adult life (Carter & Hughes, 2007; Ryndak, Alper, Hughes, & McDonnell, 2012). Regardless, findings from this limited research provide support for benefits of ongoing access to general-education contexts and content.

**Long-Term Outcomes Related to Contexts Accessed**

Early research on long-term outcomes of students with extensive support needs who received services in general-education contexts for several years primarily addressed school-based outcomes. For instance, in their study of perceptions of parents whose children with extensive support needs had moved from self-contained to general-education contexts, Ryndak et al. (1995) found that parents consistently perceived their children as accessing, participating in, and being more independent in more inclusive contexts both at school and in the community. These perceptions were consistent with findings of a 7-year qualitative study that followed a young adult with extensive support needs as she transitioned from 15 years in self-contained classes to general-education classes, where she remained through age 21 (Ryndak et al., 1999). These researchers found that access to multiple secondary and college general-education classes and other contexts each school day led to the student accessing, participating in, and being more independent in additional contexts in the secondary school, college, and community.

When considering adult outcomes for all students with disabilities, the National Longitudinal Transition Study and the National Longitudinal Transition Study-2 provide the most extensive data available. Findings from these studies suggest that participation in general-education contexts and content has a positive impact on students’ adult outcomes (Wagner, Blackorby, Cameto, & Newman, 1993; Wagner, Newman, Cameto, Levine, & Garza, 2006). However, the limitations of the data used in these studies (i.e., data reported to the U.S. Department of Education by disability category) make it difficult to disaggregate findings related specifically to students and adults considered to have extensive support needs. In addition, because of the nature of data collection, limited data are available on the quality of the services provided across contexts, making it impossible to draw valid conclusions about the impact of educational contexts on the reported outcomes for adults with extensive support needs, as well as other aspects of context discussed in the previous section.

To address the lack of meaningful national data and other difficulties associated with conducting large-N studies with individuals who have extensive support needs (see Ryndak et al., 2012), other research methodologies have been used and some research exists indicating long-term benefits related to contexts accessed by adults with extensive support needs who received services in general-education contexts. For instance, using quantitative methodologies in a correlational study with 104 adults with severe disabilities, White and Weiner (2004) examined the relationship between their educational placement and involvement in community-based instruction on their adult employment outcomes. They found that one of the strongest predictors of paid
employment in the community for adults with severe disabilities was the degree to which they received services in general-education contexts during their school years. Similarly, using qualitative methodologies, Ryndak, Ward, Alper, Montgomery, and Storch (2010) examined the impact of receiving services in general-education contexts versus self-contained contexts on two students with extensive support needs who attended the same self-contained class when they were 15 years of age. At that time, these students were described as the “highest and lowest functioning students” in their self-contained class. The student described as “lowest functioning” proceeded to be included for the entire school day from age 15 through 21, while the student described as “highest functioning” remained in self-contained classes. This study describes how, 3 years after exiting school, the “lowest functioning” student educated in general-education contexts had exceeded all documented expectations for meaningful adult outcomes by being employed in a competitive position in the community, living independently with weekly support, and participating with an extensive social support network. In contrast, the “highest functioning” student did not meet documented expectations for meaningful adult outcomes and was working at a sheltered workshop, living with family members, and relying only on family members for social support.

Long-Term Outcomes Related to General Education and Alternate-Curriculum Content

There is little research on the long-term application of content learned in the general education and alternate curriculum by students and adults with extensive support needs who received special education and related services in general-education contexts across several school years. The few studies that do address this issue do so in a tangential manner. For instance, in their qualitative study on one student with extensive support needs, Ryndak et al. (1999) found that after receiving services in secondary and college general-education contexts, and addressing both general-education and alternate-curriculum content, the student began to use newly acquired content in novel activities across contexts. Similarly, in the work by Ryndak et al. (2010), the student who consistently received services in general-education contexts from age 15 to 21 proceeded to use acquired literacy and math skills in novel activities at work, in the community, and at home. No other studies were found addressing the long-term use of general-education and alternate-curriculum content by people with extensive support needs, or addressing the interaction of the content with the context where it was learned.

Implications for Future Research, Policy, and Practice

Most of the extant research on long-term outcomes was not designed to examine in detail the relationship among: (a) students with extensive support needs receiving services in general-education contexts; (b) their involvement and progress in the general curriculum; (c) their instruction on general-education and alternate-curriculum content; (d) their adult outcomes after exiting school; and (e) their use of general-education and alternate-curriculum content in those postschool contexts. Although there is some research focused on these areas indicating that services in general-education contexts have a positive impact on postschool outcomes for students with extensive support needs (Ryndak et al., 1999; Ryndak et al., 2010; White & Weiner, 2004), the limited amount of research restricts the confidence with which statements can be made related to whether young adults lead more successful lives relative to employment, community living and access, and friendships and social networks, as a function of: (a) being involved in the general curriculum or (b) receiving services in general-education contexts. In addition, there are many limitations to these studies, including the following:

1. Primary dependent variables tend to focus on employment outcomes.
2. Measures of the characteristics of educational services in general-education contexts are broad and do not address the range, intensity, or quality of instruction received in these contexts and how these variables impact long-term outcomes.
3. Measures of student and family characteristics are broad and often do not address variables that might influence student acquisition and use of general- and alternate-curriculum content across contexts during and after exiting school, access to resources during and after exiting school, or access to contexts during and after exiting school.
4. Characteristics of the students’ communities frequently are not controlled for or examined.
5. The type, intensity, and quality of community services and supports available during and after

acquired literacy and math skills in novel activities at work, in the community, and at home. No other studies were found addressing the long-term use of general-education and alternate-curriculum content by people with extensive support needs, or addressing the interaction of the content with the context where it was learned.
exiting school rarely are controlled for or examined.

6. Measures of school and postschool experiences often are based on student and parent reports or records rather than direct observation.

Clearly more research is needed on the impact of services in general-education contexts on both general-education and alternate-curriculum content and on the long-term outcomes of students with extensive support needs. We suggest a need for national longitudinal studies that systematically track the breadth, intensity, and quality of services for students with extensive support needs in general-education contexts, on general-education and alternate-curriculum content, throughout their school years, and into adulthood.

To support such research, federal policies related to funding of research on education and long-term outcomes will need to support research targeted specifically at students and adults. In addition, until research findings indicate otherwise, we contend that federal, state, and district policies should be modified to require the placement of students with extensive support needs in general-education contexts in which they receive services that reflect evidence-based practices (Hunt et al., 2003; Ryndak et al., in press) delivered by highly qualified team members, including members with specialized expertise in meeting the needs of students with extensive support needs. Such policy changes would necessitate change in both educational practice and personnel-preparation programs.

**Conclusion**

We have examined research, debate, and commentary on the involvement and progress of students with extensive support needs in the general curriculum, with the goal of characterizing our current knowledge, areas of debate and uncertainty, and lingering questions for future research on inclusive education. In what we are calling the third wave of inquiry, legislative mandates, the learning capabilities of the students, the potentials of the instructional context, and research on student outcomes lend support for providing instruction on the general curriculum for students with extensive support needs in inclusive general-education settings.

There also is evidence that schools can implement services consistent with these findings when there are supports at multiple levels (e.g., district, school, education teams) for the necessary changes in service models and practices (Ryndak, Reardon, Benner, & Ward, 2007); nevertheless, there is little doubt that sustainability of change requires more than just leadership commitment or professional development (Sindelar, Shearer, Yendol-Hoppey, & Liebert, 2006). The dilemma of realizing more services for all students taught together in general-education settings is the same as the dilemma faced in all educational reform efforts; that is, research and inquiry can generate answers to questions about quality teaching practices, but the transfer and solidification of evidence-based practices into school practices can be perceived as insurmountable.

We believe that a resource for the future lies in what is being called implementation science, which seeks to inquire into “how innovations are adopted and maintained” so that affecting change moves from hoping it will happen to causing it to happen (Cook & Odom, 2013, p. 140). Implementation science applies the same rigorous tools that are used to advance the science of instruction to the task of understanding and implementing systems-change efforts. We suggest that there is an urgent need to change our educational systems, and that this urgency has been influenced by the federal mandates for involvement and progress in the general curriculum for all students. In closing, we note that the counterparts of services in general-education settings (i.e., resource rooms, self-contained classes, separate schools) remain the stalwarts of the special-education system for students with extensive support needs, regardless of the lack of research indicating that students taught in these settings become fully participating citizens who contribute to and are valued by our society. The time for systemic school reform that unifies the systems so that all students receive instruction and services in a single educational context is now.

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