SPECIAL ISSUE | NOVEMBER 2026

JOSEP

Journal of Special Education Preparation

50 years of IDEA

THE INDIVIDUALS WITH DISABILITIES EDUCATION ACT

Five decades of progress, opportunity and promise

BALL STATE UNIVERSITY & TEACHER EDUCATION DIVISION
VOLUME 6, ISSUE 2 | FALL 2026 | ISSN: 2768-1432

50 years of IDEA

The IDEA 50 Years Special Issue of the *Journal of Special Education Preparation* was made possible by:

Guest Editor: Dr. Sarah A. Nagro

Sarah A. Nagro, EdD, is a tenured Associate Professor of Special Education at Texas A&M University and a Haynes Teacher Corp Faculty Fellow. Her scholarship examines the systems and policies shaping special education teacher preparation and identifies effective practices for preparing all teachers to support students with disabilities. She leads federally funded, multi-institutional initiatives focused on developing special education scholars and leaders who can advance research, policy, teacher preparation, and practice.

Special Issue Reviewers

Andrew Hashey
Kelley Regan
Tiara Brown
Shantel Farnan
Jennifer Walker
Melissa Jenkins
Danielle Frith
Kyena Cornelius
Samantha Gonzales
Jamie Day
Katie Miller
Melissa Fogarty
Lindsay Griendling
Marla Lohmann
Marcia Montague
Mary Rose Sallese
Shannon Budin
Krista Vince Garland
Cynthia Dietrich
Sara Snyder
Shanon Tayolor
Erin Whiteside

Production and Print Funding by Texas A&M University's Special Education Program

Journal of SPECIAL EDUCATION preparation

Volume 6, Issue 2 | SPECIAL ISSUE
ISSN: 2768-1432

PUBLICATION

JOSEP is published and supported by Ball State University Libraries in Muncie, Indiana in partnership with the Teacher Education Division of the Council for Exceptional Children and James Madison University.

Elizabeth Meyer,
The Agency at Cardinal Media,
Ball State University
Creative Director, Publication Design

Link to publication:
OpenJournals.bsu.edu/JOSEP

SUBMISSIONS

Visit the website to submit a manuscript or to contact the editors. Authors retain copyright to their contributions but agree to license published content under a Creative Commons Attribution-NonCommercial-NoDerivates 4.0 License.

TED Teacher Education Division of The Council for Exceptional Children

JMU JAMES MADISON UNIVERSITY

BALL STATE UNIVERSITY

EDITORIAL BOARD

Andrew M. Markelz, Ph.D.,
James Madison University, *Founder & Editor*

Argnue Chitiyo, Ph.D., BCBA,
Ball State University,
Associate Editor of International Spotlight

Benjamin S. Riden, Ph.D., BCBA, LBA,
James Madison University, *Associate Editor*

Margaret (Peggy) Weiss, Ph.D.
George Mason University, *Associate Editor*

Shannon Budin, Ph.D.
Buffalo State University, *Associate Editor*

Tiara S. Brown, Ph.D.
James Madison University, *Associate Editor*

Danielle Waterfield, Ph.D.
University of Virginia, *Associate Editor of Community Outreach*

EDITORIAL ASSISTANTS

Kelly Alves
University of Mount Olive

Jordan Lukins
North Carolina State University

Jamie Smith Levitan
University of Maryland

Scott Mattingly
University of Illinois Urbana-Champaign

Amy Clausen
Winthrop University

COMMUNITY OUTREACH TEAM

René Salyer: *The Pennsylvania State University*

Sarah Quinn: *Eastern Michigan University*

REVIEW BOARD

View the complete and up-to-date review board here:
https://openjournals.bsu.edu/JOSEP/about/editorialTeam

TABLE *of* CONTENTS

4 **Fifty Years and the Evolving Role of Special Education Teachers,** *Nagro, Markelz, Scheeler and deBettencourt*

20 **IDEA at 50: Legal Landmarks that Shaped Rights and Services,** *Bateman and Yell*

34 **Evolving Assessment Practices: From Compliance to Meaningful Instructional Data,** *Kamman and McCray*

46 **Teaching Students with Disabilities who Access the General Curriculum: A Historical Perspective,** *Weiss and Lloyd*

60 **Building a Knowledge Base to Inform Special Education Practice: Evidence-Based and High-Leverage Practices,** *Cook and Kennedy*

71 **Celebrating 50 Years of Creating Inclusive and Supportive Classrooms,** *Hirsch and Simonsen*

79 **Stronger Together: Co-Teaching and Collaboration as Cornerstones of Special Education,** *Murawski and Thornton*

91 **Fifty Years of Progress in Meeting the Needs of Students with Extensive Support Needs,** *Spooner, Collins and Agran*

105 **Building Quality and Accountability: A Historical Analysis of Innovation in Early Childhood Special Education and Early Intervention,** *Pankiewicz and Barton*

114 **IDEA 50 Years Later: Technology and Teacher Preparation in Special Education,** *Dieker, Howorth, Vasquez, Marino and Basham*

124 **Learning in Practice: Fifty Years of Advancing Clinical Preparation,** *Leko, Brownell, Morin and Bethea*

Fifty Years and the Evolving Role of Special Education Teachers

AUTHORS
Sarah A. Nagro
Andrew M. Markelz
Mary Catherine Scheeler
Laurie U. deBettencourt

Journal of Special Education Preparation
6(2), 4-19
© 2026 Nagro et al.
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/2yc9rqq4

ABSTRACT

The 50th anniversary of the Individuals with Disabilities Education Act (IDEA) provides an opportunity to reflect on the evolution of special education and the changing role of special education teachers. Since the passage of the Education for All Handicapped Children Act of 1975, federal legislation, judicial rulings, and advances in research have expanded expectations from ensuring access to public education to promoting meaningful participation, progress, and post-school outcomes for students with disabilities. This article traces key historical, legal, and scholarly developments that have shaped special education across the past five decades and examines how these changes have transformed the work of special education teachers. Building on contemporary perspectives of the profession, we describe nine interconnected roles of modern special educators: collaborator, instructor, advocate, scientific practitioner, role model, classroom manager, leader, peer mentor, and teacher technologist. We discuss the knowledge, skills, and professional dispositions needed to fulfill these roles and highlight how adaptive expertise enables teachers to integrate them in response to diverse student needs and educational contexts. Implications for teacher preparation, research, and practice are explored, with particular attention to the importance of practice-based learning, reflection, feedback, and field experiences. As IDEA enters its next half-century, preparing special educators who can adapt to emerging technologies, evolving policies, and changing educational demands will be essential. We conclude by celebrating the progress achieved during IDEA's first fifty years while emphasizing the continued responsibility of the profession to expand opportunities and improve outcomes for students with disabilities.

KEYWORDS

Evidence-based practices, high-leverage practices, special education teacher roles

More than fifty years ago, the United States made a promise to children with disabilities and their families. Through landmark federal legislation, now known as the Individuals with Disabilities Education Act (IDEA, 2004), the nation committed to ensuring that every student with a disability would have access to a free appropriate public education (FAPE). This promise was established in federal law with the passage of the Education for All Handicapped Children Act of 1975, which created a nationwide right to public education for children with disabilities. Over the decades that followed, the law continued to evolve, becoming the Individuals with Disabilities Education Act in 1990 and undergoing significant amendments in 1997 and 2004. With each change came expanded expectations for how schools educate and support students with disabilities. Today, more than 15% of public school students, roughly one in every seven students, receive special education and related services under IDEA, representing nearly 8 million students (National Center for Education Statistics, 2024). These numbers make IDEA one of the most significant civil rights protections shaping educational opportunities for millions of students.

The earliest focus of federal special education law was ensuring that students with disabilities had access to public schools. Over the last 50 years, however, expecta-

> Today, more than 15% of public school students, roughly one in every seven students, receive special education and related services under IDEA, representing nearly 8 million students (National Center for Education Statistics, 2024). These numbers make IDEA one of the most significant civil rights protections shaping educational opportunities for millions of students.

tions have expanded well beyond simply gaining access to the schoolhouse door. Today, IDEA reflects a broader commitment to ensuring that students with disabilities not only attend school, but also participate in rigorous learning environments, access the general education curriculum, and make meaningful progress toward academic and functional goals. As these expectations have expanded, the professional role of special education teachers has evolved as well (Bettini & Billingsley, 2019; McLeskey & Brownell, 2015; Rock et al., 2017). Early special educators worked to implement newly established legal protections while providing individualized instruction to students with disabilities, often in separate educational settings. Today, special education teachers work across classrooms and school systems, serving as instructors, collaborators, advocates, data-informed decision makers, and leaders within inclusive educational environments. Their responsibilities extend beyond direct instruction to coordinating services, interpreting policy, mentoring and supporting colleagues, and ensuring that students with disabilities have meaningful opportunities to make progress toward their individual goals.

In this article, we examine how the role of special education teachers has evolved over the past fifty years. We begin by reviewing key historical milestones that established and expanded educational opportunities for students with disabilities. We then examine nine roles that reflect the increasingly complex work of special education teachers today, highlighting the knowledge and skills needed to fulfill each role. Finally, we discuss implications for research and practice and offer recommendations to guide the preparation of special education teachers for the next fifty years.

HISTORICAL PERSPECTIVE AND FOUNDATIONAL MILESTONES

Efforts to expand educational opportunities for students with disabilities have evolved over several decades through a series of legislative actions, court decisions, and policy initiatives that collectively established the foundation of modern special education. Understanding this historical progression is essential for appreciating how the role of special education teachers has changed over time. While contemporary special educators operate in complex instructional and collaborative environments, the profession emerged from a period when many students with disabilities were denied access to public education altogether. Prior to the 1970s, educational opportunities for students with disabilities were limited and inconsistent across the United States (Yell, 2026). Many children with disabilities were excluded from public schools entirely, while others were placed in segregated classrooms or institutions that provided minimal academic instruction. Families often had few legal protections or avenues for challenging educational decisions made by school systems. As a result, access to education for students with disabilities depended largely on local policies and available resources rather than enforceable rights (U.S. Department of Education, 2024).

During the mid-twentieth century, people with disabilities, their families, and advocates increasingly challenged the exclusion and segregation of individuals with disabilities from public schools and other institutions. Parents of children with disabilities played a particularly important role in advocating for educational opportunities and legal protections for their children. Willowbrook State School in New York provides a powerful example of these advocacy efforts. Parents, facility employees, and civil rights attorneys called attention to the overcrowding, neglect, and abuse experienced by children and adults with intellectual disabilities living at Willowbrook. Their continued advocacy eventually gained the attention of both political leaders and the media. U.S. Senator Robert F. Kennedy publicly condemned conditions at the institution following a visit in 1965, and investigative journalist Geraldo Rivera's 1972 reporting later brought the conditions at Willowbrook to a much broader national audience (Rivera, 1972). These advocacy efforts occurred during a period of substantial social change in the United States, when the successes of the broader civil rights movement had created momentum for challenging discriminatory policies and expanding educational opportunities for marginalized groups.

Growing momentum for change was increasingly reflected in federal education policy and the courts. The passage of the Elementary and Secondary Education Act (ESEA) of 1965 marked a substantial federal investment in educa-

tion and reflected growing recognition that the federal government had a role to play in addressing educational inequities. Although ESEA initially focused on supporting students from low-income communities, subsequent amendments expanded funding to support educational services for students with disabilities. At the same time, a series of landmark court decisions began to establish legal protections for students with disabilities. Two particularly influential cases, *Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania* (1972) and *Mills v. Board of Education* (1972), challenged the exclusion of students with disabilities from public schools. In these cases, federal courts ruled that students with disabilities could not be denied access to education and were entitled to due process protections when educational decisions were made. These rulings established the principle that public schools have a responsibility to provide educational services to all students, regardless of disability (Yell, 2026).

These legal developments culminated in the passage of the Education for All Handicapped Children Act of 1975 (Public Law 94-142). This landmark legislation guaranteed that children with disabilities would have access to a free appropriate public education (FAPE) and introduced several foundational provisions that continue to shape special education practices today. Among the most important were the requirement that students receive individualized education programs (IEPs), procedural safeguards designed to protect the rights of families, and the mandate that students be educated in the least restrictive environment (LRE) appropriate to their needs. The passage of Public Law 94-142 dramatically increased access to public education for students with disabilities and established the systems necessary to deliver specialized services. However, early implementation of the law focused primarily on ensuring that students could attend school and receive individualized services. Instructional expectations for students with disabilities varied widely, and many students continued to receive instruction in separate classrooms or specialized programs.

Over time, federal education policy increasingly emphasized educational quality and accountability for students with disabilities. The 1986 reauthorization expanded services for young children with disabilities and their families, laying the foundation for the early intervention services for infants and toddlers with disabilities. The reauthorization of the law in 1990 renamed the legislation the Individuals with Disabilities Education Act (IDEA) and expanded expectations for transition planning to support students' transition from school to postsecondary education, employment, and independent living. Subsequent amendments to IDEA in 1997 strengthened requirements for participation in the general education curriculum and emphasized the importance of including students with disabilities in state and district accountability systems. The 2004 IDEA reauthorization further strengthened expectations for accountability and the use of evidence-based educational practices. Today, IDEA provides protections and services from birth through age 21. Part C addresses early intervention services for infants and toddlers with disabilities and their families, while Part B governs special education and related services for children beginning at age 3. Together, these changes expanded the promise of IDEA well beyond access to public education.

The focus on educational outcomes for students with disabilities continued to grow through broader federal education policy and judicial interpretation of IDEA. Federal education policies such as the No Child Left Behind Act (2001) and later the Every Student Succeeds Act (2015) reinforced accountability by requiring schools to report academic outcomes for students with disabilities and by holding schools accountable for the performance of student subgroups (Darling-Hammond et al., 2019). The U.S. Supreme Court further clarified expectations for educational progress in *Endrew F. v. Douglas County School District* (2017). Before the case reached the Supreme Court, the Tenth Circuit Court of Appeals had applied a standard requiring educational benefit that was "merely more than de minimis," essentially requiring a student to make something more than trivial progress. Writing for a unanimous Supreme Court, Chief Justice John Roberts rejected this low standard, explaining simply, "The IDEA demands more" (*Endrew F.*, 2017, p. 14). The Court held in an 8–0 decision that an IEP must be reasonably calculated to enable a student to make appropriate progress in light of the student's circumstances (*Endrew F.*, 2017).

Together, these legislative, judicial, and policy developments illustrate the gradual expansion of expectations for the education of students with disabilities over the past five decades. What began as a fight to ensure that children with disabilities had access to public schooling has evolved into a broader commitment to educational excellence and meaningful outcomes for students with disabilities. As the promise of IDEA expanded, so too did the responsibilities of the professionals tasked with implementing the law in schools. Special education teachers are central to translating policy into practice, and the evolving expectations of IDEA have substantially reshaped the work they perform each day. Understanding this historical progression provides important context for examining how the role of special education teachers has changed over time and why the profes-

sion now encompasses a wide range of instructional, collaborative, and leadership responsibilities.

Intellectual and Scholarly Foundations of Special Education

Alongside these legal and policy developments, researchers and scholars shaped the intellectual foundations of special education by advancing knowledge across disability areas, instructional approaches, and service delivery models. The individuals highlighted in this section represent only a small sample of the many leaders whose noteworthy contributions have advanced the field across the past fifty years. To illustrate the continued evolution of this work, we trace several of these lines of scholarship from foundational contributions to contemporary developments in research, policy, and practice. As part of this progression, we also recognize the senior scholars contributing to this special issue, whose work both builds upon these foundations and continues to shape the preparation and work of special education teachers.

Early pioneers helped establish special education as a developing field through advances in service delivery and teacher preparation (e.g., Maynard Reynolds), behavioral and instructional approaches (e.g., Norris Haring), and the formalization and dissemination of a professional knowledge base (e.g., Daniel Hallahan and James Kauffman). As educational rights for students with disabilities expanded, scholarship increasingly helped educators, families, and schools understand what those rights required in practice. Important contributions included scholarship on IDEA, case law, and procedural safeguards (e.g., Mitchell Yell); disability rights, family-professional partnerships, and person-centered planning (e.g., Rud Turnbull III and Ann Turnbull); and the translation of complex legal requirements into accessible guidance for families and practitioners (e.g., Peter Wright and Pamela Darr Wright). David Bateman and Yell carry this legal and policy tradition forward in the special issue by examining the legal landmarks that transformed exclusion from public education into enforceable educational rights and continue to shape the responsibilities of special education teachers today.

As access to public education expanded, researchers increasingly turned their attention to what and how students with disabilities should be taught. Major developments included the conceptualization of learning disabilities (e.g., Samuel Kirk), evidence-based reading interventions for students with persistent reading difficulties (e.g., Sharon Vaughn), direct, explicit, and systematic approaches to instruction (e.g., Siegfried Engelmann, Douglas Carnine, Anita Archer, and Charles Hughes), inclusive education and access to the general education curriculum (e.g., Lou Brown and James McLeskey), and Universal Design for Learning (e.g., David Rose and Anne Meyer). These advances provide important foundations for the work of Margaret Weiss and John Wills Lloyd in this special issue as they examine the evolution of curriculum, specially designed instruction, and effective instructional practice for students with disabilities.

As the field developed a stronger instructional knowledge base, researchers also confronted a critical question: How do we know what works? Efforts to establish standards for evaluating research quality and identifying evidence-based practices (e.g., Robert Horner and Russell Gersten) strengthened the methodological foundation necessary to distinguish promising approaches from practices supported by rigorous research. The field subsequently faced the equally important challenge of translating a growing research base into practices educators could use effectively in classrooms. Bryan Cook and Michael Kennedy carry this history forward in the special issue through their examination of the development and complementary roles of evidence-based practices and high-leverage practices in contemporary special education.

Assessment likewise evolved from a primary emphasis on determining eligibility and documenting compliance toward an increasingly important role in understanding student needs, monitoring progress, and guiding instruction. Advances in curriculum-based measurement, progress monitoring, and data-based decision making (e.g., Stanley Deno, Doug Fuchs, and Lynn Fuchs) strengthened the connection between assessment and instruction. Margaret Kamman and Erica McCray carry this evolution forward in the special issue by examining the expanding role of assessment and meaningful instructional data in special education, reflecting a broader shift toward using assessment not simply to identify students or satisfy procedural requirements, but to determine whether instruction is working and guide what educators do next.

The field's understanding of behavior and classroom support also changed substantially across IDEA's first fifty years. Research in applied behavior analysis and functional analysis (e.g., Brian Iwata) and positive behavioral interventions and supports (e.g., George Sugai) helped move the field toward increasingly preventive, positive, and data-informed approaches to supporting student behavior. Shanna Hirsch and Brandi Simonsen extend this history in the special issue through their examination of the evolution of classroom and behavior support and the positive and proactive approaches now central to creating supportive learning environments.

Expanded access to general education also changed expectations for

how special educators work with other professionals and families. Scholarship on collaboration and co-teaching (e.g., Marilyn Friend) helped establish shared responsibility for educating students with disabilities as an increasingly important dimension of special education practice. Wendy Murawski and Bryan Thornton carry this work forward in the special issue by examining the evolution of collaboration and co-teaching and their increasingly important place in contemporary special education.

Perhaps nowhere is the distance traveled across IDEA's first fifty years more apparent than in the education of students with extensive support needs. Scholarship emphasizing quality of life and individualized supports (e.g., Robert Schalock) and self-determination and autonomy (e.g., Michael Wehmeyer) helped expand expectations beyond access toward meaningful participation and outcomes. Fred Spooner, Belva Collins, and Martin Agran continue this work by examining fifty years of changes in curriculum, instruction, placement, and educational expectations for students with extensive support needs. This evolution underscores one of the most important developments across IDEA's history: increasing expectations that opportunities for effective instruction and meaningful participation extend to all students with disabilities.

The scope of special education also expanded beyond traditional school-age services. At the beginning of the educational continuum, early childhood special education and early intervention developed into distinct areas of research and practice through the work of numerous leaders (e.g., Merle Karnes and Diane Bricker), followed by advances in recommended practices and the evidence base for serving young children with disabilities and their families (e.g., Mary McLean and Samuel Odom). Christan Pankiewicz and Erin Barton carry this history forward in the special issue by examining the evolution of early childhood special education and early intervention and the field's increasing attention to quality and accountability. At the other end of the educational continuum, scholarship on transition planning and post-school outcomes (e.g., Paula Kohler) strengthened attention to students' movement into postsecondary education, employment, community participation, and adult life. Together, these developments helped extend the responsibilities of the field across a much broader developmental continuum, from the earliest years of life through preparation for adulthood.

Technology has influenced special education through developments in both assistive and instructional technologies. Important advances included early work establishing special education technology as an area of research and personnel preparation (e.g., Michael Behrmann), frameworks for assistive technology decision making and implementation (e.g., Joy Zabala), and efforts to strengthen the research and evidence base surrounding special education technology (e.g., Dave Edyburn). These foundations have expanded with advances in digital technologies, simulation, virtual environments, and other emerging tools. Lisa Dieker, Sarah Howorth, Eleazar Vasquez III, Matthew Marino, and James Basham carry this work forward in the special issue by examining the evolution of educational technology and innovation and its implications for the preparation and future work of special education teachers.

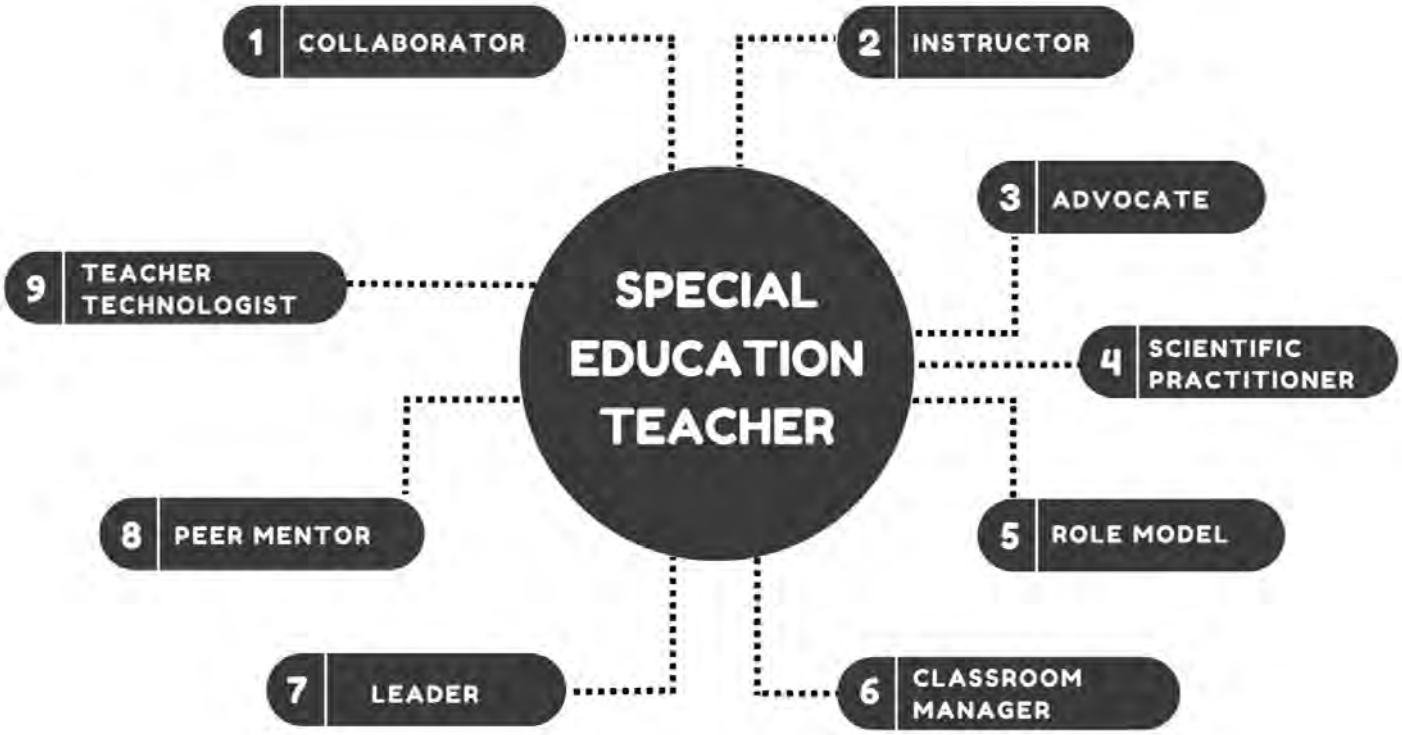
The continued expansion of the special educator's responsibilities has also raised persistent questions about how the field can prepare and sustain a workforce capable of meeting these expectations. Research has documented enduring workforce challenges, including teacher supply and demand (e.g., Erling Boe and Paul Sindelar), certification and alternative preparation pathways (e.g., Michael Rosenberg), the doctoral and faculty pipeline (e.g., Deborah Deutsch Smith), and teacher working conditions and retention (e.g., Bonnie Billingsley). Melinda Leko, Mary Brownell, Lisa Morin, and Maggie Bethea carry this work forward in the final article of the special issue by examining the evolution of clinical preparation and practice-based approaches to teacher development. Their work provides an appropriate culmination to the issue, emphasizing the need to prepare special educators not only for the demands of today's classrooms but also for a profession that will continue to evolve.

Together, the scholars recognized here represent only a portion of the many researchers, advocates, professional leaders, teacher educators, and practitioners who have built the knowledge base of special education. Across these lines of scholarship, the field has developed increasingly sophisticated understandings of effective instruction, evidence, assessment, behavior, collaboration, inclusion, preparation, and meaningful outcomes for students with disabilities. The senior scholars contributing to this special issue build upon that legacy by examining both how these areas have evolved across the first fifty years of IDEA and how they must continue to develop across the next fifty. As the knowledge base and expectations of special education have expanded, so too has the role of the special education teacher, providing a foundation for examining the multiple roles special educators now assume in practice.

MAJOR ADVANCES IN THE EVOLUTION OF SPECIAL EDUCATION TEACHING

The expanding scope of special education teaching can be understood through a framework of profession-

FIGURE 1: Roles of a Special Education Teacher



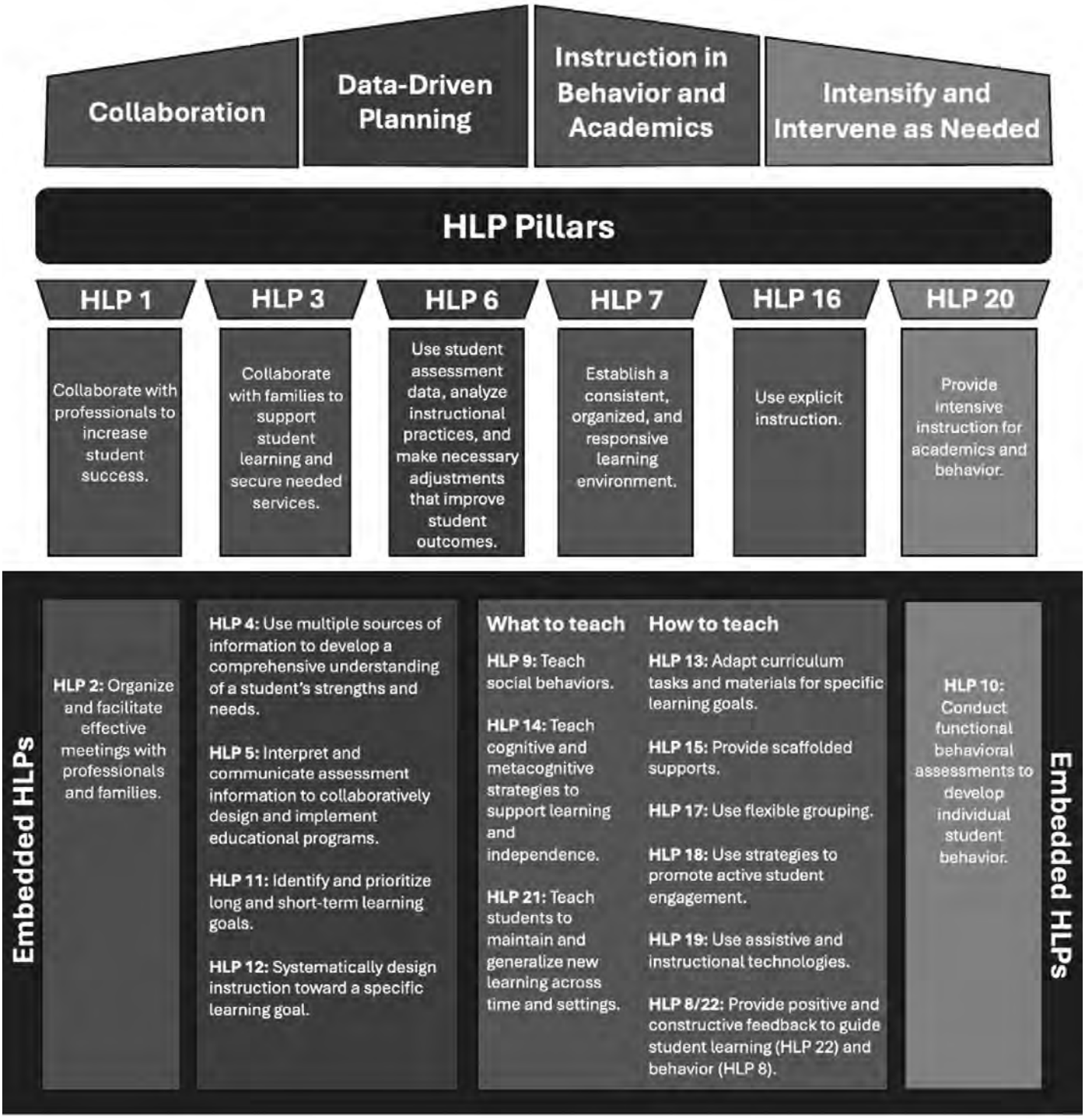
al roles that capture how teachers operationalize the goals of IDEA in practice. Markelz and Elliott (2025) describe nine interconnected roles that characterize the work of modern special education teachers (see Figure 1). These roles reflect the evolution of special education and illustrate how teachers translate legal requirements and instructional goals into their daily work. Although presented individually, the roles often occur simultaneously and interact with one another as special educators support students across instructional contexts. Together, they provide a framework for examining the multifaceted work of special education teachers and how it contributes to effective instruction, collaboration, and advocacy for students with disabilities. For readers interested in further exploration, at the end of the article Table 1 provides a targeted reading for each role.

Collaborator

Collaboration is a foundational practice in special education. It is not simply "teamwork" but a structured interaction that involves shared responsibilities, resources, and accountability among educators, families, and related service providers (Friend & Cook, 2020). Research consistently shows that effective collaboration improves academic, behavioral, and social-emotional outcomes for students (Smith et al., 2020). Legal mandates such as IDEA require meaningful collaboration during processes such as IEP development and implementation (IDEA, 2004; Popp et al., 2022). Without effective collaboration, families may feel marginalized, and students risk being denied appropriate services. Thus, collaboration is both a legal and ethical imperative for special education teachers as they work to create inclusive environments and uphold students' rights (Jenkins & Murawski, 2024).

To be effective collaborators, special education teachers need strong communication skills, contextual competence, and the ability to build trust. Although limited planning time, competing responsibilities, and differing perspectives can create barriers to collaboration, dedicated planning time, shared goals for student success, clearly defined roles and responsibilities, and open communication can help create the conditions necessary for effective collaboration (Friend & Cook, 2020; Karten & Murawski, 2020). Communication requires active listening, clear verbal and nonverbal communication, and adaptability to different audiences (Murawski & Spencer, 2011). Teachers can support students and families from differing backgrounds, including those who may be navigating the U.S. education system for the first time, by establishing and maintaining reciprocal school-family partnerships (Francis et

FIGURE 2: High-Leverage Practices in Special Education (Aceves & Kennedy, 2024)



al., 2017). Building trust is particularly important because collaboration often involves emotional discussions about a child's future and requires transparency, consistency, and empathy (Sears et al., 2021). Educators also need skills in problem-solving and resource-sharing across collaborative contexts such as IEP meetings, co-teaching, and advocacy efforts (Kurth et al., 2020; Karten & Murawski, 2020). Together, these conditions and competencies enable special education teachers to bring together the people, expertise, and resources needed to support students with disabilities across educational contexts.

Instructor

Special education teachers who provide high-quality instruction positively impact the academic, behavioral, and social success of students with disabilities. Good intentions alone are insufficient; teachers must rely on scientifically validated practices to address complex learning needs. Contemporary research has documented the lack of empirical support for approaches such as teaching to presumed "learning styles" (Newton & Salvi, 2020) and whole language instruction (Ehri et al., 2001), yet these practices persist in education. When ineffective approaches displace evidence-based instruction, students miss out on valuable opportunities to learn. In contrast, evidence-based practices (EBPs) and high-leverage practices (HLPs) provide a research-driven framework for improving student outcomes. These practices support instruction that is systematic, data-driven, and responsive to individual needs, which is essential for meeting legal and ethical obligations in special education (Cook et al., 2020; Aceves & Kennedy, 2024).

Effective special education teachers draw upon both EBPs and HLPs to guide instructional decision making. EBPs, such as explicit instruction, constructive feedback, and video modeling, have demonstrated effectiveness across multiple studies (Archer & Hughes, 2010; Bellini & Akullian, 2007). HLPs serve as foundational practices that special educators use routinely, including collaborating with families and professionals, using assessment data, and establishing organized learning environments (McLeskey et al., 2017; Aceves & Kennedy, 2024; see Figure 2). Effective instruction, however, requires more than implementing individual practices in isolation; it requires adaptive expertise. Adaptive expertise refers to a special educator's ability to integrate professional knowledge, evidence-based practices, student data, and contextual information to select, adapt, and evaluate instruction in response to students' changing needs and instructional conditions (Nagro et al., 2025). For example, a special educator may collaborate with colleagues, analyze student data, and use that information to plan explicit instruction within a structured learning environment. When student progress is insufficient, the special educator draws upon those same sources of knowledge to intensify or individualize instruction while evaluating whether the adaptation improves student outcomes. In this way, adaptive expertise allows special educators to translate professional knowledge into responsive, individualized action that supports meaningful progress for students with disabilities.

Advocate

Advocacy is a foundational role for special education teachers because it underpins many of their other responsibilities, including implementing IEPs, collaborating with colleagues, and ensuring students have access to appropriate educational opportunities. Historically, individuals with disabilities faced discrimination and exclusion from public education, making advocacy essential to securing educational rights and opportunities (Markelz & Bateman, 2026; Martin & Rodriguez, 2022). Landmark legislation such as IDEA emerged in large part through advocacy efforts and established enforceable educational rights for students with disabilities. Today, advocacy remains critical as special education teachers navigate challenges such as resource shortages, policies and practices that may not adequately address student needs, and evolving educational demands. By advocating for students, families, and themselves, special education teachers help ensure that students receive the services, supports, and educational opportunities they need to be successful (Markelz et al., 2023).

Effective advocacy requires knowledge, interpersonal skills, and strategic action. Teachers who understand legal frameworks, including statutory, regulatory, and case law, are better prepared to navigate systems and advocate for appropriate services and supports (Markelz & Bateman, 2026). Strong communication and collaboration skills also enable teachers to engage stakeholders and build consensus around potential solutions (Nilsson et al., 2011). A practical framework for advocacy involves three steps: (1) identify and understand the problem, (2) invite stakeholders to listen, and (3) determine potential solutions (Markelz et al., 2023). Using this framework, special education teachers can approach challenges strategically and leverage their professional expertise to effect meaningful change. Ultimately, effective advocacy helps protect the educational rights of students with disabilities while also helping teachers secure the resources and support necessary to carry out their responsibilities effectively (Nagro et al., 2023).

Scientific Practitioner

The role of the scientific practitioner is essential for special education teachers

because it ensures that instructional decisions are grounded in evidence rather than intuition or tradition. Special education teachers have an ethical responsibility to implement evidence-based practices (EBPs) to provide effective services for students with disabilities (Council for Exceptional Children, 2022). Students cannot benefit from EBPs they do not receive, making the translation of research into practice critical for improving academic, behavioral, and social outcomes (Wahman et al., 2023). Yet, despite a growing research base, a persistent research-to-practice gap remains, often influenced by inadequate training, limited resources, and ineffective professional development (Markelz & Riden, 2024). Scientific practitioners help bridge this gap by understanding the evidence underlying effective practices, implementing EBPs with fidelity, and using data to determine whether those practices are producing the intended outcomes for students.

To succeed as scientific practitioners, profession-ready special education teachers develop competencies in five key areas: recognizing ethical responsibility, consuming evidence-aligned information, implementing EBPs, disseminating practices, and engaging in reflection (Markelz & Riden, 2024). Teachers need to know how to locate and evaluate credible information, including peer-reviewed research and research-based professional resources such as the IRIS Center (Scheibel, 2023). Translating that evidence into practice requires intentional implementation, including setting measurable goals, implementing practices with fidelity, and collecting progress data to evaluate student response. Scientific practitioners also disseminate effective practices and support colleagues in translating knowledge into practice, including through coaching and performance-based feedback (Cornelius et al., 2020; Scheeler et al., 2004). Finally, reflection brings these competencies together as teachers evaluate the effectiveness of their practices, identify barriers to implementation, and use evidence and student response to determine whether practices should be maintained, adapted, or intensified.

Role Model

Acting as a role model is a critical, though often implicit, responsibility for special education teachers because their behaviors, attitudes, and expectations influence students, families, and colleagues. Although modeling is a cornerstone of explicit instruction (Archer & Hughes, 2010), role modeling extends beyond academics to how teachers communicate respect, acceptance, and high expectations for individuals with disabilities (Aceves & Kennedy, 2024). Students and peers observe how teachers interact with individuals with disabilities, which can shape their own attitudes and behaviors toward inclusion. Positive role modeling can foster belonging and acceptance, while negative modeling can perpetuate stereotypes and exclusion (Zee et al., 2020). Given the increased inclusion of students with disabilities in general education classrooms, special education teachers have an important opportunity to model how students with disabilities are valued, supported, and included within the school community.

To be effective role models, special education teachers demonstrate positive personal traits, inclusive behaviors, and a commitment to improving educational opportunities for individuals with disabilities. Traits such as empathy, patience, and compassion can be strengthened through reflection and intentional practice (Bleidorn et al., 2019). Teachers model their commitments through the relationships they build, the expectations they communicate, and the instructional decisions they make, including designing accessible instruction through Universal Design for Learning and using strengths-based approaches (CAST, n.d.; Chakraborti-Ghosh, 2019). Presuming competence, maintaining high expectations, and fostering a sense of belonging communicate to students and colleagues that disability does not diminish a student's capacity to learn, participate, and contribute (Pantić & Florian, 2015). Reflecting on their beliefs and actions through personal experience, student perspectives, and research can help teachers consider whether their everyday practices align with these commitments (Brookfield, 2017). Through these daily interactions and decisions, special education teachers model the respect, expectations, and sense of belonging they seek to foster throughout the school community.

Classroom Manager

Effective classroom managers influence students' academic, behavioral, and social-emotional success. Research emphasizes the importance of teacher-student relationships and proactive strategies for creating positive learning environments (Collins & Landrum, 2023). Yet teachers often report feeling unprepared to address challenging behavior, which can contribute to reliance on punitive practices that negatively affect student outcomes and relationships (Moore et al., 2017). Classroom management can be further complicated when teachers do not fully understand the backgrounds, experiences, communication, or individual needs students bring to the classroom, making authentic relationships and a sense of belonging more difficult to establish. For students with disabilities, ineffective classroom management can contribute to exclusion from general education settings and other long-term negative consequences (Riden et al., 2022). Effective classroom management is therefore essential for creating learning environments in which

students are supported academically, behaviorally, and socially.

To succeed as classroom managers, special education teachers use proactive, evidence-based practices that prevent behavioral challenges while teaching and reinforcing appropriate behavior. Key skills include understanding behavioral principles such as reinforcement and punishment, identifying the functions of behavior, and implementing interventions that teach appropriate behaviors rather than relying on punitive measures (Cooper et al., 2020). Teachers should also be prepared to use frameworks such as Schoolwide Positive Behavioral Interventions and Supports (SW-PBIS), which emphasize prevention, data-based decision making, and tiered supports (Center on PBIS, 2024). At the classroom level, establishing clear expectations and routines, reinforcing appropriate behavior, and designing accessible and engaging instruction can create predictable environments that maximize opportunities to learn (Myers et al., 2020). Effective classroom managers pair these evidence-based practices with strong relationships, empathy, and high expectations, creating classrooms in which students know what is expected, receive the support needed to be successful, and have meaningful opportunities to learn.

Leader

Being a leader is an important role for special education teachers because their expertise can influence student success, instructional practice, and the broader school community. Historically, teacher leaders have contributed to major advancements in disability rights and inclusive education, including the development and implementation of IDEA (Bagley & Tang, 2018; Maggin et al., 2020). Today, special education teachers often serve as formal and informal leaders because of their specialized knowledge of special education law, instruction, and the needs of students with disabilities (Pazey & Cole, 2013). They collaborate with administrators, guide instructional practices, mentor colleagues, and help schools develop effective supports for students with disabilities (York-Barr & Duke, 2004). Leadership therefore extends the influence of special education teachers beyond the students they directly serve, allowing their expertise to strengthen practices across classrooms and schools.

Effective special education teacher leaders combine instructional expertise with skills in collaboration, advocacy, ethical decision making, communication, mentoring, and data-informed practice (Bagley & Tang, 2018; Council for Exceptional Children, 2015; McLeskey et al., 2017; Zarate et al., 2023). Teacher leadership also occurs within a broader school system, making productive partnerships with administrators particularly important because principals play a critical role in establishing the conditions necessary for effective special education services (DiPaola & Walther-Thomas, 2003; Boscardin, 2005). By sharing expertise, supporting colleagues, contributing to school-level decisions, and advocating for effective practices, special education teachers can influence the quality of services students receive well beyond their own classrooms.

Peer Mentor

Peer mentorship plays a vital role in supporting novice special education teachers and reducing attrition in the field. The early years of teaching are often marked by feelings of isolation, overwhelming responsibilities, and uncertainty in instructional practice, which can contribute to burnout (Billingsley et al., 2019). Peer mentors provide professional guidance and emotional support, helping novice teachers develop confidence and competence in areas such as classroom management, instructional practices, and compliance with special education law (Youngs et al., 2011). This collaborative relationship can foster self-efficacy and a sense of belonging, which are important for teacher retention and professional growth. Given persistent special education teacher shortages and increasingly varied pathways into the profession, effective mentorship is particularly important for helping novice teachers develop and apply the knowledge and skills needed to serve students effectively.

Successful peer mentors possess both technical expertise and strong interpersonal skills. Effective mentors are knowledgeable and experienced special educators who are approachable, non-evaluative, and genuinely invested in supporting their colleagues (Marshall et al., 2013). Active listening, empathy, patience, flexibility, and problem-solving help mentors build trust and supportive professional relationships (Nagro et al., 2025; Tong & Kram, 2012). Mentorship must also move beyond providing advice to helping novice teachers apply what they are learning in practice. Strategies such as modeling, coaching, guided practice, and performance feedback within a structured mentoring cycle can support the transition from knowledge acquisition to classroom implementation (Archer & Hughes, 2010; Coogle et al., 2024; Kunemund et al., 2022). Through this combination of professional expertise, relational support, and practice-based guidance, peer mentors can strengthen novice teachers' development while contributing to greater instructional effectiveness and persistence in the profession (Coogle et al., 2024; Ingersoll & Strong, 2011).

Teacher Technologist

Technology has expanded the tools available to special education teachers

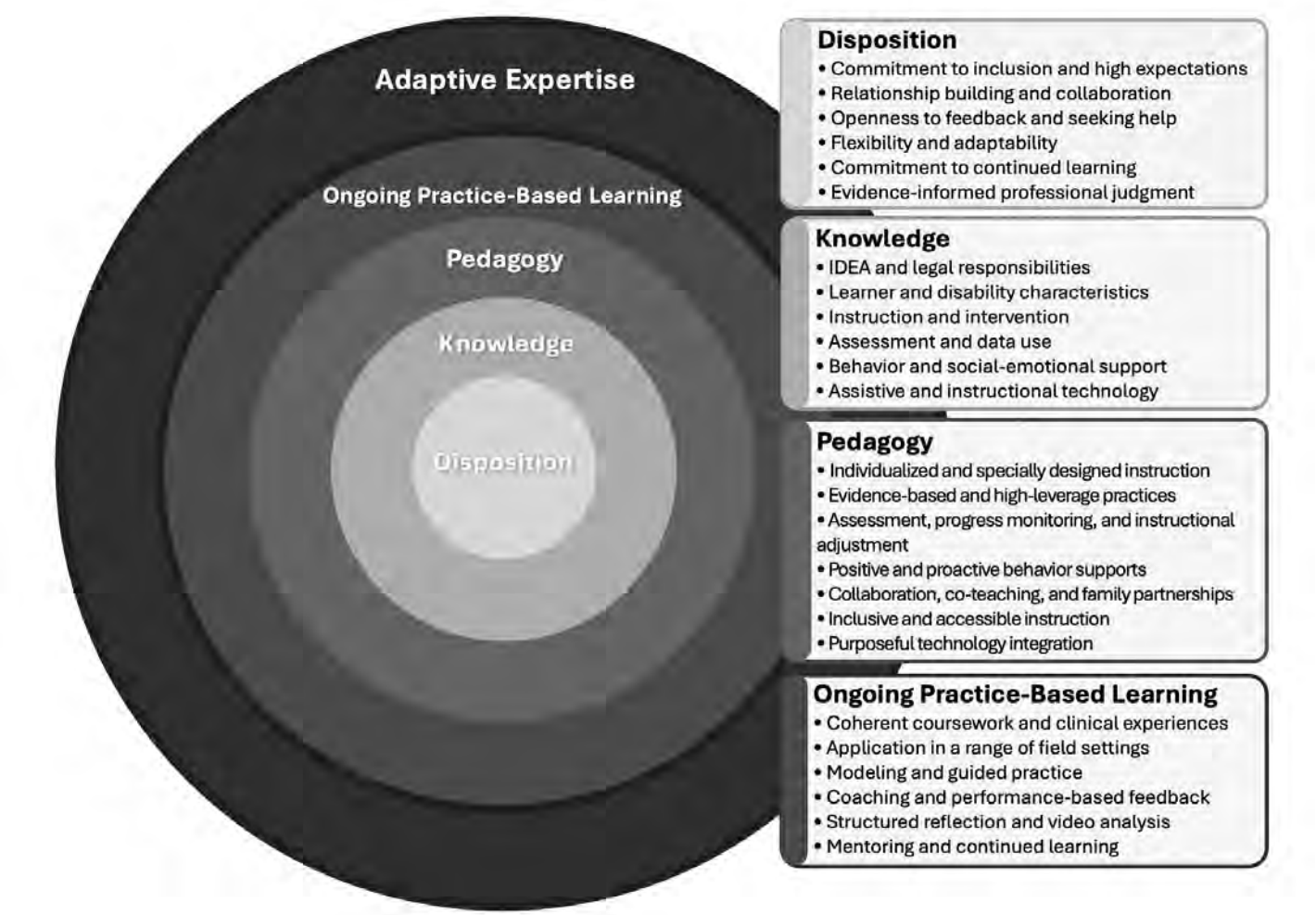
TABLE 1: Targeted Readings to Learn More About the Roles of Special Educators

Collaborator	Zarate, K., Williams, C. S., & Ostrosky, M. M. (2025). Let's collaborate! Strategies to improve inclusion of students with extensive support needs. *TEACHING Exceptional Children*, *58*(1), 34–43. https://doi.org/10.1177/00400599241256585
Instructor	Szocik, K., Wade, C., Walter, H. L., Coogle, C. G., Stegenga, S. M., & Nagro, S. A. (2024). Innovative approaches to teacher preparation improving use of evidence-based practices in EI/ECSE. *Journal of Special Education Preparation*, *4*(1), 24–34. https://doi.org/10.33043/d69746qb
Advocate	Stegenga, S. M., Skubel, A., Corr, C., & Nagro, S. A. (2022). Your voice matters: A practitioner's guide for engaging in policy through advocacy. *Young Exceptional Children*, *25*(1), 42–56. https://doi.org/10.1177/1096250620950311
Scientific Practitioner	Scheibel, G. (2023). Addressing barriers to evidence-based practice. *TEACHING Exceptional Children, 56*(6), 492–501. https://doi.org/10.1177/00400599221143471
Role Model	Hymel, S., & Katz, J. (2019). Designing classrooms for diversity: Fostering social inclusion. *Educational Psychologist*, *54*(4), 331–339. https://doi.org/10.1080/00461520.2019.1652098
Classroom Manager	Nagro, S. A., Fraser, D. W., & Hooks, S. (2019). Lesson planning with engagement in mind: Proactive classroom management strategies for curriculum instruction. *Intervention in School and Clinic, 54*(3), 131–140. https://doi.org/10.1177/1053451218767905
Leader	Zarate, K., Hughes, M., & Maggin, D. M. (2023). Special education teacher leadership: Toward a teacher leadership framework for professional development. *Exceptionality*, *31*(2), 149–163. https://doi.org/10.1080/09362835.2022.2100393
Peer Mentor	Cornelius, K. E., Rosenberg, M. S., & Sandmel, K. N. (2020). Examining the impact of professional development and coaching on mentoring of novice special educators. *Action in Teacher Education*, *42*(3), 253-270. https://doi.org/10.1080/01626620.2019.1638847
Teacher Technologist	Kaczorowski, T., McMahon, D., Gardiner-Walsh, S., & Hollingshead, A. (2023). Designing an inclusive future: Including diversity and equity with innovations in special education technology. *TEACHING Exceptional Children*, *55*(5), 376–383. https://doi.org/10.1177/00400599221090506

to increase access, support instruction, and respond to individual student needs. Effective technology integration can provide students with alternative ways to access content, demonstrate learning, communicate, and participate in instruction, including through frameworks such as Universal Design for Learning (CAST, n.d.). For special education teachers, technology may serve an assistive function by increasing a student's access or independence or an instructional function by enhancing how content is taught, practiced, assessed, or reinforced. The teacher technologist role therefore requires more than simply using technology; it requires selecting and using tools purposefully to improve teaching and learning.

In today's classrooms, special education teachers need proficiency in evaluating, selecting, and integrating technologies that range from low-tech tools such as graphic organizers to high-tech applications such as virtual simulations and artificial intelligence (AI)-based platforms (Marino et al., 2023). Because the availability of a technology does not necessarily mean that it is effective or appropriate, teacher technologists must consider the evidence supporting a tool, its alignment with student and instructional needs, accessibility, privacy, and whether it provides meaningful benefit over existing approaches. As technologies continue to evolve, ongoing professional learning and collaboration with colleagues can help teachers remain informed about emerging tools and their applications (Foulger et al., 2017). Ultimately, effective teacher technologists use professional judgment to determine when technology adds value, which tools best support the intended

FIGURE 3: Developing Adaptive Expertise to Effectively Educate Students with Disabilities



outcome, and when technology may not be the best solution.

IMPLICATIONS FOR RESEARCH AND PRACTICE

The expanding roles of special education teachers have important implications for how educators are prepared for the profession. As illustrated throughout this article, special educators assume multiple, interconnected roles that require specialized knowledge, skills, and professional judgment. Professional standards, including those developed by the Council for Exceptional Children (CEC), provide an important foundation for defining what profession-ready special educators should know and be able to do and for guiding the design of preparation programs. However, preparing teachers for increasingly complex roles requires more than introducing these competencies individually. Teacher candidates need structured opportunities to integrate and apply their knowledge, make instructional decisions, receive feedback, and reflect on the effectiveness of their practice.

Strong preparation programs provide a progression of coursework and applied experiences through which candidates can develop these competencies and learn to use them together in practice (Leko et al., 2024). Across the articles in this special issue, the knowledge, practices, dispositions, and learning opportunities that support effective special education teaching emerge as interdependent rather than discrete. Figure 3 extends the adaptive expertise framework described by Nagro et al. (2025) by integrating themes developed across this special issue. As represented in the figure, special educators draw upon professional knowledge and dispositions, enact responsive pedagogical practices, and continue developing through practice-based learning, reflection, collaboration, and feedback. Adaptive expertise develops through the ongoing integration of these domains rather than through mastery of any single competency in isolation.

Reflection is an important part of this developmental process because it helps

Preparing special educators for the future therefore requires more than preparing them for the classrooms of today; it requires developing the knowledge, professional judgment, adaptability, and commitment to continued learning needed to respond to what comes next.

teacher candidates move beyond simply experiencing instruction to systematically examining and learning from it. Reflective practitioners consider their instructional decisions, examine how those decisions influence student learning, and identify ways to strengthen future practice (Brookfield, 2020). Preparation programs can develop these skills through structured reflection embedded within coursework and clinical experiences. For example, video-based reflection allows candidates to revisit their own instruction and examine aspects of their practice that may be difficult to recognize while teaching (e.g., Nagro, 2020). With guidance and feedback, candidates can move beyond recalling what occurred during a lesson to analyzing how their instructional choices influenced student learning (Coogle et al., 2024) and considering how their perceptions of disability and special education evolve through experience (Szocik et al., 2021). Reflection coupled with meaningful feedback provides candidates with a mechanism for using experience to improve subsequent practice rather than simply accumulating experience over time.

Field experiences provide the authentic context in which these developing competencies can be brought together. Working directly with students with disabilities allows teacher candidates to connect coursework with practice, apply instructional approaches, make decisions in real time, and increasingly assume the responsibilities of a special educator (Leko et al., 2024; Nagro & deBettencourt, 2017). Importantly, field experiences also provide opportunities for candidates to receive coaching and feedback from mentors and supervisors as they refine their practice (O'Brien et al., 2024). For research and practice, the challenge is therefore not simply to identify what future special educators should know and do, but to understand how coursework, reflection, feedback, and clinical experiences can be intentionally designed and connected so that candidates learn to integrate professional knowledge into effective practice. Continued research examining which preparation experiences produce meaningful changes in teacher practice, and ultimately outcomes for students with disabilities, can help strengthen the preparation of future special educators.

LOOKING FORWARD: THE FUTURE OF SPECIAL EDUCATION TEACHING

The promise of IDEA began as a commitment to access, ensuring that students with disabilities would not be excluded from public education. Over the past fifty years, that promise has expanded to include not only access, but meaningful participation, opportunity, and progress. As expectations for students with disabilities have evolved, so too has the work of the special education teacher. What was once a role more narrowly defined by compliance and service delivery has developed into a dynamic and multifaceted profession requiring expertise across instruction, collaboration, advocacy, leadership, and other interconnected areas of practice. The roles described throughout this article provide a lens for understanding this evolution. Effective special educators do not simply perform these roles independently; they learn to integrate and adapt their knowledge and skills in response to students, families, colleagues, and changing classroom contexts (Leko et al., 2024). For those entering the profession, this complexity represents an extraordinary opportunity to grow into a dynamic and consequential career. Special education teachers develop expertise across multiple areas of practice and, over time, learn to integrate that knowledge with professional judgment to respond to the students, families, colleagues, and communities they serve. Expertise is not developed all at once; it grows through preparation, experience, reflection, collaboration, and continued learning across a career. In this way, becoming a special educator is not about mastering a fixed set of responsibilities, but about continually developing the knowledge, skills, and judgment needed to make a meaningful difference in the lives of students with disabilities.

Looking ahead, the profession will continue to evolve. New technologies, advances in research, changing student needs, and evolving policies and educational systems will create possibilities that cannot yet be fully anticipated. Preparing special educators for the future therefore requires more than preparing them for the classrooms of today; it requires developing the knowledge, professional judgment, adaptability, and commitment to continued learning needed to respond to what comes next. Yet even as the profession changes, its fundamental purpose remains—ensuring that students with disabilities receive high-quality educational experiences that allow them to learn, participate, grow, and pursue meaningful futures. The next generation of special educators will have opportunities not only to

implement what the field already knows, but also to question existing practices, embrace new evidence and innovations, contribute their own expertise, and help shape what effective special education can become.

Fifty years after the passage of the Education for All Handicapped Children Act of 1975, there is much to celebrate in how far special education has come and much still to imagine about where it can go. The progress described throughout this article was made possible by students and families, advocates, educators, researchers, policymakers, and professional leaders who challenged what existed and envisioned something better for individuals with disabilities. The next fifty years will be shaped by those entering and leading the profession today. By learning from those who came before them, drawing upon an ever-growing evidence base, and bringing their own knowledge, creativity, commitment, and professional judgment to the work, special educators have an extraordinary opportunity to carry forward the promise of IDEA while continuing to expand what is possible for students with disabilities.

REFERENCES

Aceves, T. C., & Kennedy, M. J. (Eds.). (2024). *High-leverage practices for students with disabilities* (2nd ed.). Council for Exceptional Children & CEEDAR Center.

Archer, A. L., & Hughes, C. A. (2010). *Explicit instruction: Effective and efficient teaching*. Guilford Press.

Bagley, S., & Tang, K. (2018). Teacher leadership in special education: Exploring skills, roles, and perceptions. *Journal of Interdisciplinary Teacher Leadership, 2*(1), 43–63. https://doi.org/10.46767/kfp.2016-0023

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional Children, 73*(3), 264–287. https://doi.org/10.1177/001440290707300301

Bettini, E., & Billingsley, B. (2019). Special education teacher attrition and retention: A review of the literature. *Review of Educational Research, 89*(5), 697–744. https://doi.org/10.3102/0034654319862495

Billingsley, B., Bettini, E., & Jones, N. D. (2019). Supporting special education teacher induction through high-leverage practices. *Remedial and Special Education, 40*(6), 365–379. https://doi.org/10.1177/0741932518816820

Bleidorn, W., Hill, P. L., Back, M. D., Denissen, J. J. A., Hennecke, M., Hopwood, C. J., Jokela, M., Kandler, C., Lucas, R. E., Luhmann, M., Orth, U., Wagner, J., Wrzus, C., Zimmermann, J., & Roberts, B. (2019). The policy relevance of personality traits. *American Psychologist, 74*(9), 1056–1067. https://doi.org/10.1037/amp0000503

Boscardin, M. L. (2005). The administrative role in transforming secondary schools to support inclusive evidence-based practices. *American Secondary Education, 33*(3), 21–32. https://www.jstor.org/stable/41064552

Brookfield, S. D. (2017). *Becoming a critically reflective teacher* (2nd ed.). Jossey-Bass.

CAST. (n.d.). *About Universal Design for Learning*. https://www.cast.org/impact/universal-design-for-learning-udl

Center on PBIS. (2024). *Positive Behavioral Interventions & Supports*. https://www.pbis.org

Chakraborti-Ghosh, S. (2019). Strength-based instruction (SBI): A systematic instructional training model with a primary focus on a child's strength. In S. Halder & V. Argyropoulos (Eds.), *Inclusion, equity, & access for individuals with disabilities* (pp. 647–663). Palgrave.

Collins, L. W., & Landrum, T. J. (2023). Using behavioral interventions to build relationships with students with challenging behavior. *TEACHING Exceptional Children, 55*(3), 188–197. https://doi.org/10.1177/00400599221085727

Coogle, C. G., Storie, S. O., Wade, C. B., Nagro, S. A., & Mitchem, K. (2024). The development of technology-enhanced performance-based peer feedback to support teacher candidate practice and child outcomes. *Journal of Special Education Technology*, *39*(1), 15-26. https://doi.org/10.1177/01626434231172914

Cook, B. G., Collins, L. W., Cook, S. C., & Cook, L. (2020). Evidence-based reviews: How evidence-based practices are systematically identified. *Learning Disabilities Research & Practice, 35*(1), 6–13. https://doi.org/10.1111/ldrp.12213

Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). *Applied behavior analysis*. Pearson.

Cornelius, K. E., Rosenberg, M. S., & Sandmel, K. N. (2020). Examining the impact of professional development and coaching on mentoring of novice special educators. *Action in Teacher Education, 42*(3), 253–270. https://doi.org/10.1080/01626620.2019.1638847

Council for Exceptional Children. (2015). *What every special educator must know: Professional ethics and standards*. Author.

Council for Exceptional Children. (2022). *Initial practice-based professional preparation standards for special educators*. Author.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2019). Implications for educational practice of the science of learning and development. *Applied Developmental Science, 24*(2), 97–140. https://doi.org/10.1080/10888691.2018.1537791

DiPaola, M. F., & Walther-Thomas, C. (2003). Principals and special education: The critical role of school leaders (COPPSE Document No. IB-7). Gainesville, FL: University of Florida, Center on Personnel Studies in Special Education.

Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142, 89 Stat. 773 (1975).

Ehri, L. C., Nunes, S. R., Stahl, S. A., & Willows, D. M. (2001). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Review of Educational Research, 71*(3), 393–447. https://doi.org/10.3102/00346543071003393

Elementary and Secondary Education Act of 1965, Pub. L. No. 89-10, 79 Stat. 27 (1965).

Endrew F. v. Douglas County School District RE-1, 580 U.S. 386 (2017).

Every Student Succeeds Act, Pub. L. No. 114-95, 129 Stat. 1802 (2015).

Foulger, T. S., Graziano, K. J., Schmidt-Crawford, D. A., & Slykhuis, D. A. (2017). Teacher educator technology competencies. *Journal of Technology and Teacher Education, 25*(4), 413–448. https://www.learntechlib.org/p/181966/

Francis, G. L., Haines, J. S., & Nagro, S. A. (2017). Developing relationships with immigrant families: Learning by asking the right questions. *Teaching Exceptional Children, 50*(2), 95-105. https://doi.org/10.1177/0040059917720778

Friend, M., & Cook, L. (2020). *Interactions: Collaboration skills for school professionals* (9th ed.). Pearson.

Hymel, S., & Katz, J. (2019). Designing classrooms for diversity: Fostering social inclusion. *Educational Psychologist*, *54*(4), 331–339. https://doi.org/10.1080/00461520.2019.1652098

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 118 Stat. 2647 (2004).

Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review. *Review of Educational Research, 81*(2), 201–233. https://doi.org/10.3102/0034654311403323

Jenkins, M., & Murawski, W. W. (2024). *Connecting high-leverage practices to student success: Collaboration in inclusive classrooms*. Corwin.

Kaczorowski, T., McMahon, D., Gardiner-Walsh, S., & Hollingshead, A. (2023). Designing an inclusive future: Including

ABOUT THE AUTHORS

Sarah A. Nagro, EdD

Sarah A. Nagro, EdD, is a tenured Associate Professor of Special Education at Texas A&M University and a Haynes Teacher Corp Faculty Fellow. Her scholarship examines the systems and policies shaping special education teacher preparation and identifies effective practices for preparing all teachers to support students with disabilities. She leads federally funded, multi-institutional initiatives focused on developing special education scholars and leaders who can advance research, policy, teacher preparation, and practice.

Andrew M. Markelz, Ph.D.

Andrew M. Markelz Ph.D., is an Associate Professor in the Department of Educational Foundations & Exceptionalities at James Madison University. He is founding editor of the Journal of Special Education Preparation and has co-authored several books pertaining to special education law, advocacy, and research. Through research and practice, he is committed to expediting the novice-to-expert teaching curve by preparing special educators to implement proactive classroom management strategies and develop meaningful and legally defensible individualized education programs.

Mary Catherine Scheeler, Ph.D.

Mary Catherine Scheeler, Ph.D., is Associate Professor Emerita of Education in Special Education at The Pennsylvania State University. Her scholarship focuses on effective approaches to special education teacher preparation, including immediate feedback through bug-in-ear technology and the generalization of evidence-based teaching practices. Across her distinguished career, she has made nationally recognized contributions to special education teacher preparation and helped shape how the field bridges research and classroom practice.

Laurie U. deBettencourt, Ph.D.

Laurie U. deBettencourt, Ph.D., is Professor Emeritus at the Johns Hopkins University School of Education, where she led the special education master's programs and certificates for 15 years. Her scholarship focuses on preparing special educators to implement evidence-based practices, develop as reflective practitioners, and effectively teach students with disabilities. Across her career of more than 35 years, she authored numerous publications and textbooks, prepared future special education faculty, and served for 10 years as editor of Teacher Education and Special Education.

diversity and equity with innovations in special education technology. *TEACHING Exceptional Children*, *55*(5), 376–383. https://doi.org/10.1177/00400599221090506

Karten, T., & Murawski, W. W. (2020). *Co-teaching do's, don'ts, and do betters*. ASCD.

Kunemund, R., Coleman, O. F., Kennedy, M. J., Nagro, S. A., Carlisle, L., & McDonald, S. (2022). Streamlining observations, feedback, reflection, and professional development: Are you ready to be COACHED? *Journal of Special Education Preparation, 2*(1), 70-79. https://doi.org/10.33043/JOSEP.2.1.70-79

Kurth, J. A., Love, H., & Pirtle, J. (2020). Parent perspectives of their involvement in IEP development. *Focus on Autism and Other Developmental Disabilities, 35*(1), 36–46. https://doi.org/10.1177/1088357619842858

Leko, M. M., Brownell, M. T., O'Brien, K., & Nagro, S. A. (2024). Capitalizing on the potential of practice-based preparation in special education teacher preparation. In E. D. McCray, E. Bettini, M. T. Brownell, J. McLeskey, & P. T. Sindelar (Eds.), *Handbook of research on special education teacher preparation* (2nd ed., pp. 106–125). Routledge.

Maggin, D. M., Tejero Hughes, M., Passmore, A., Kumm, S., & Scaletta, M. (2020). School administrators' perspectives on special education teacher leadership. *Journal of Special Education Leadership, 33*(2), 78–89. https://eric.ed.gov/?id=EJ1283150

Marino, M. T., Vasquez, E., Dieker, L., Basham, J., & Blackorby, J. (2023). The future of artificial intelligence in special education technology. *Journal of Special Education Technology, 38*(3), 404–416. https://doi.org/10.1177/01626434231165977

Markelz, A. M., & Bateman, D. F. (2026). *The essentials of special education law* (2nd ed.). Bloomsbury.

Markelz, A. M., & Elliott, K. (Eds.). (2025). *Heart and science: Teaching special education*. Bloomsbury.

Markelz, A. M., & Riden, B. S. (2024). *The essentials of special education research*. Bloomsbury.

Markelz, A. M., Nagro, S. A., Monnin, K., & Bateman, D. F. (2023). *The essentials of special education advocacy*. Rowman & Littlefield.

Marshall, K. J., Karvonen, M., Yell, M. L., Lowrey, A., Drasgow, E., & Seaman, M. A. (2013). Project ReSpecT. *Journal of Disability Policy Studies, 24*, 127–136. https://doi.org/10.1177/1044207313480837

Martin, E., & Rodriguez, J. A. (2022). Historical foundations of special education law. In W. Murawski & J. Rodriguez (Eds.), *Special education law and policy*. Plural.

McLeskey, J., Barringer, M.-D., Billingsley, B., Brownell, M., Jackson, D., Kennedy, M., Lewis, T., Maheady, L., Rodriguez, J., Scheeler, M. C., Winn, J., & Ziegler, D. (2017). *High-leverage practices in special education*. CEC & CEEDAR.

Mills v. Board of Education of the District of Columbia, 348 F. Supp. 866 (1972).

Moore, T. C., Wehby, J. H., Oliver, R. M., Chow, J. C., Gordon, J. R., & Mahany, L. A. (2017). Teachers' knowledge of classroom management strategies. *Remedial and Special Education, 38*(4), 222–232. https://doi.org/10.1177/0741932516683631

Murawski, W. W., & Spencer, S. A. (2011). *Collaborate, communicate, and differentiate!* Corwin.

Myers, D., Simonsen, B., & Sugai, G. (2020). Creating engaging classrooms. *Oxford Research Encyclopedia of Education*. https://doi.org/10.1093/acrefore/9780190264093.013.1181

Nagro, S. A. (2020). Reflecting on others before reflecting on self: Using video evidence to guide teacher candidates' reflective practices. *Journal of Teacher Education, 71*(4), 420–433. https://doi.org/10.1177/0022487119872700

Nagro, S. A., & deBettencourt, L. U. (2017). Reviewing special education teacher preparation field experience placements, activities, and research: Do we know the difference maker? *Teacher Education Quarterly, 44*(3), 7–33.

Nagro, S. A., Fraser, D. W., & Hooks, S. (2019). Lesson planning with engagement in mind: Proactive classroom management strategies for curriculum instruction. *Intervention in School and Clinic, 54*(3), 131–140. https://doi.org/10.1177/1053451218767905

Nagro, S. A., Macedonia, A., Raines, A. R., Day, J., Parker, A., Parsons, S., Coogle, C., & Zenkov, K. (2025). Perceptions of mentors, supervisors, coaches, and administrators around supporting pre- and in-service teachers in educating students with disabilities. *The New Educator.* https://doi.org/10.1080/1547688X.2025.2553821

Nagro, S. A., Macedonia, A., Raines, A. R., Day, J., Parker, A., Parsons, S., Coogle, C. G., & Zenkov, K. (2023). A systematic review of teacher factors for successfully educating students with disabilities. *The New Educator, 19*(2), 77–102. https://doi.org/10.1080/1547688X.2023.2193226

National Center for Education Statistics. (2024). *Students with disabilities*. U.S. Department of Education. https://nces.ed.gov

Newton, P. M., & Salvi, A. (2020). Learning styles neuromyth. *Frontiers in Education, 5*. https://doi.org/10.3389/feduc.2020.602451

Nilsson, J. E., Marszalek, J. M., Linnemeyer, R. M., Bahner, A. D., & Misialek, L. H. (2011). Social issues advocacy scale. *Educational and Psychological Measurement, 71*(1), 258–275. https://doi.org/10.1177/0013164410391581

No Child Left Behind Act of 2001, Pub. L. No. 107-110, 115 Stat. 1425 (2001).

O'Brien, K. M., Nagro, S. A., Binkert, G., Szocik, K., & Gerry, M. (2024). Field experiences in special education teacher preparation: A review of the literature. *Teacher Education and Special Education*, *47*(1), 5-25. https://doi.org/10.1177/08884064231177662

Pantić, N., & Florian, L. (2015). Teachers as agents of inclusion. *Education Inquiry, 6*(3). https://doi.org/10.3402/edui.v6.27311

Pazey, B. L., & Cole, H. A. (2013). Socially just leaders. In M. Grogan (Ed.), *The Jossey-Bass reader on educational leadership*. Wiley.

Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania, 334 F. Supp. 1257 (1972).

Popp, P. A., Gross, S. J., & Hackett, L. (2022). Who's at the table? In J. Rodriguez & W. Murawski (Eds.), *Special education law and policy* (pp. 263–296). Plural.

Riden, B. S., Markelz, A. M., Ruiz, S., Kent, S., Pavelka, S. K., & Chitiyo, A. (2022). The nature and extent of component analyses for improving or mitigating behavior: A systematic review. *Behavior Modification*, *46*(1), 230–253. https://doi.org/10.1177/0145445520971256

Rivera, G. (1972). *Willowbrook: The last great disgrace* [Television documentary]. WABC-TV.

Rock, M. L., Spooner, F., Nagro, S. A., Vasquez, E., Dunn, C., Leko, M., Luckner, J. L., Bausch, M., Donehower, C., & Jones, J. L. (2017). 21st century change drivers: Considerations for constructing transformative models of special education teacher development. [Special Issue] *Teacher Education and Special Education, 39*(2), 98–120. https://doi.org/10.1177/0888406416640634

Scheeler, M. C., Ruhl, K. L., & McAfee, J. K. (2004). Providing performance feedback to teachers: A review. *Teacher Education and Special Education, 27*(4), 396–407. https://doi.org/10.1177/088840640402700407

Scheibel, G. (2023). Addressing barriers to evidence-based practice. *TEACHING Exceptional Children, 56*(6), 492–501. https://doi.org/10.1177/00400599221143471

Sears, J. A., Peters, B. L., Beidler, A. M. S., & Murawski, W. W. (2021). Using relationships to advocate. *TEACHING Exceptional Children, 53*(3), 194–204. https://doi.org/10.1177/00400599920982373

Smith, T. E., Sheridan, S. M., Kim, E. M., Park, S., & Beretvas, S. N. (2020). Family-school partnerships. *Educational Psychology Review, 32*, 511–544. https://doi.org/10.1007/s10648-019-09509-w

Stegenga, S. M., Skubel, A., Corr, C., & Nagro, S. A. (2022). Your voice matters: A practitioner's guide for engaging in policy through advocacy. *Young Exceptional Children*, *25*(1), 42–56. https://doi.org/10.1177/1096250620950311

Szocik, K., Gerry, M., & Nagro, S. A. (2021). The relationship between special education coursework and teacher candidates' attitudes towards disability and professional identity. *Reflective Practice, 22*(1),1–14. https://doi.org/10.1080/14623943.2021.1967735

Szocik, K., Wade, C., Walter, H. L., Coogle, C. G., Stegenga, S. M., & Nagro, S. A. (2024). Innovative approaches to teacher preparation improving use of evidence-based practices in EI/ECSE. *Journal of Special Education Preparation*, *4*(1), 24–34. https://doi.org/10.33043/d69746qb

Tong, C., & Kram, K. E. (2012). Mentoring efficacy. In J. Passmore et al. (Eds.), *Handbook of coaching and mentoring*. Wiley.

U.S. Department of Education. (2024). *A history of the Individuals with Disabilities Education Act*. https://sites.ed.gov/idea/IDEA-History

Wahman, C. L., Fettig, A., & Zimmerman, K. (2023). Social-emotional intervention research. *Remedial and Special Education, 44*(5), 423–428. https://doi.org/10.1177/07419325221143761

Yell, M. L. (2026). *The Law and Special Education* (6th ed.). Pearson.

York-Barr, J., & Duke, K. (2004). Teacher leadership. *Review of Educational Research, 74*(3), 255–316. https://doi.org/10.3102/00346543074003255

Youngs, P., Jones, N., & Low, M. (2011). Role expectations. *Teachers College Record, 113*(7), 1506–1540. https://doi.org/10.1177/016146811111300704

Zarate, K., Hughes, M., & Maggin, D. M. (2023). Special education teacher leadership. *Exceptionality, 31*(2), 149–163. https://doi.org/10.1080/09362835.2022.2100393

Zarate, K., Williams, C. S., & Ostrosky, M. M. (2025). Let's collaborate! Strategies to improve inclusion of students with extensive support needs. *TEACHING Exceptional Children*, *58*(1), 34–43. https://doi.org/10.1177/00400599241256585

Zee, M., de Bree, E., Hakvoort, B., & Koomen, H. M. Y. (2020). Teacher-student relationships. *Journal of Applied Developmental Psychology, 66*, 101101. https://doi.org/10.1016/j.appdev.2019.101101

IDEA at 50: Legal Landmarks that Shaped Rights and Services

AUTHORS
David F. Bateman
Mitchell L. Yell

Journal of Special Education Preparation
6(2), 20-33
© 2026 Bateman and Yell
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/2b55y979

ABSTRACT

The Individuals with Disabilities Education Act (IDEA) has shaped the education of students with disabilities for fifty years and remains one of the most influential civil rights laws affecting educational practice. Although educators routinely implement IDEA requirements through evaluations, individualized education programs (IEPs), progress monitoring, and procedural safeguards, many receive limited preparation regarding the historical, legal, and policy developments that created these responsibilities. This article examines the major legal landmarks that have influenced the evolution of special education from exclusion and denial of services to the contemporary emphasis on accountability, meaningful educational progress, and equitable access. It further traces four broad eras in the development of special education law: (a) the struggle for educational access through landmark litigation; (b) the enactment and implementation of the Education for All Handicapped Children Act and its transformation into IDEA; (c) the refinement of rights and responsibilities through legislative amendments and federal litigation; and (d) emerging issues involving Section 504, the Americans with Disabilities Act (ADA), digital accessibility, artificial intelligence, Multi-Tiered Systems of Support (MTSS), and accountability for outcomes. This article connects legal developments to teacher preparation and professional practice, arguing that legal literacy is essential for educators responsible for implementing IDEA and safeguarding the rights of students with disabilities. As IDEA enters its second half-century, understanding its legal foundations remains critical to ensuring both compliance and meaningful educational opportunity.

KEYWORDS

History, IDEA, legislation, case law, special education

Imagine you are a new teacher attending your first IEP meeting. During the discussion, team members debate evaluation results, accommodations, placement options, and instructional supports. Someone references IDEA requirements. Another mentions Section 504. A parent asks whether the proposed services are legally sufficient. At that moment, you realize that many of the decisions being made are not simply educational decisions—they are legal decisions that can affect a student's educational opportunities for years to come. Yet most educators receive only limited preparation regarding the historical, legal, and civil rights foundations that shape these discussions.

Fifty years after the passage of the Education for All Handicapped Children Act (EAHCA) of 1975—now known as the Individuals with Disabilities Education Act (IDEA)—the education of students with disabilities remains one of the most legally structured, highly regulated, and closely scrutinized areas of public education. Yet for many educators, the law is often experienced primarily through forms, timelines, meetings, evaluations, procedural safeguards, and documentation requirements. As a result, special education law is frequently viewed as a collection of rules to follow rather than as a civil rights framework that shapes educational practice.

The IDEA is not simply a special education statute. It is a civil rights law enacted

As IDEA reaches its fiftieth anniversary, the question is no longer whether students with disabilities have a right to public education. That question was answered decades ago. The more pressing question is whether educators are prepared to understand, implement, and defend the level of educational opportunity that the law now requires.

in response to decades of exclusion, discrimination, and unequal educational opportunities experienced by children with disabilities. Its development reflects an ongoing effort by Congress, federal agencies, courts, educators, and families to define what meaningful educational opportunity should look like for students with disabilities. The law exists because schools historically denied access, delayed services, excluded students from public education, or failed to provide programs that met their educational needs. Understanding why IDEA exists helps educators better understand their professional responsibilities under the law.

This article is organized around four broad eras that reflect this evolution. The first examines the origins of federal protection when families were forced to seek judicial intervention to secure basic educational access for their children. The second explores the expansion of statutory rights through the creation and early implementation of federal special education law. The third focuses on refinement and accountability as Congress and the courts increased expectations for instructional quality, participation in the general curriculum, and measurable student progress. The final era considers current and emerging issues, including the interaction of IDEA with Section 504 and the Americans with Disabilities Act (ADA), ongoing implementation challenges, and the future of special education law and practice.

At its core, this article advances a simple but important proposition: IDEA is not peripheral to teaching—it is integral to it. For special educators, the law provides the framework through which instructional decisions, services, and supports are delivered. For general educators and administrators, IDEA reinforces that responsibility for educating students with disabilities is shared across educational systems. Educator preparation that fails to address the legal foundations of special education risks producing professionals who understand procedures but not purpose, compliance but not context, and requirements but not the reasons those requirements exist.

As IDEA reaches its fiftieth anniversary, the question is no longer whether students with disabilities have a right to public education. That question was answered decades ago. The more pressing question is whether educators are prepared to understand, implement, and defend the level of educational opportunity that the law now requires. Answering that question begins with understanding the legal landmarks that shaped the first fifty years of IDEA and continue to influence educational practice today.

The Origins of Federal Protection: From Exclusion to Entitlement

The "bad old days" is a term used by educators, historians, and advocates to refer to the era in which there were no laws requiring the education of children with disabilities. In the period before federal special education protections, children with disabilities could be banned from attending public schools, neglected, or placed in separate, often substandard, institutions that did not address their individual needs. In such instances, parents usually bore the costs and responsibilities of educating their children. This began to change when parents began bringing lawsuits in federal courts.

Ironically, the case that gave impetus to this movement toward securing the educational rights of children with disabilities did not involve children with disabilities. *Brown v. Board of Education* (1954) addressed the educational rights of Black children. In this landmark case, the Supreme Court unanimously held that separate facilities for educating Black children were not equal because such settings were discriminatory and unconstitutional. In perhaps the most well- known statement on the importance of education from *Brown*, Chief Justice Warren wrote:

> Today, education is perhaps the most important function of state and local governments… In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right that must be available to all on equal terms. (p. 493)

Brown was a major victory for the civil rights movement and became a foundation for further civil rights actions and changes in education.

Dr. Gunnar Dybwad, the executive director of the National Association of Parents and Friends of Mentally Retarded Children (now known as the Arc)

TABLE 1: Major Litigation Shaping Special Education Under IDEA

YEAR	SUBJECT	CASE	APPLIES TO	MAJOR FINDINGS
1954	Equal educational opportunity	*Brown v. Board of Education*	All states, District of Columbia, and US territories	The Supreme Court held that separate educational systems are inherently unequal. Although not a disability case, Brown provided the constitutional foundation for later challenges to the exclusion and segregation of students with disabilities.
1972	Right to education	*Pennsylvania Association for Retarded Children (PARC) v. Commonwealth of Pennsylvania*	Pennsylvania	The court held that students with intellectual disabilities could not be denied access to a public education. The case established principles later reflected in IDEA, including the right to education, due process protections, and individualized programming.
1972	Right to education	*Mills v. Board of Education of the District of Columbia*	District of Columbia	The court ruled that students with disabilities could not be excluded from public schools because of disability or lack of resources. The decision emphasized procedural safeguards and the obligation to provide services regardless of cost.
1974	Nondiscriminatory evaluation	*Larry P. v. Riles*	California (later influential nationally)	The court challenged culturally biased assessment practices that disproportionately placed African American students into special education and reinforced the need for nondiscriminatory evaluation procedures.

Note. Collectively, these decisions transformed special education from a system of exclusion into one based on enforceable educational rights. *Brown, PARC, Mills, and Larry P.* established the legal foundation for the Education for All Handicapped Children Act of 1975 (later IDEA), while subsequent litigation has continued to shape the interpretation and implementation of IDEA's core requirements, including FAPE, LRE, related services, tuition reimbursement, and available remedies.

believed the *Brown* ruling had great implications for the families of children with disabilities because these children often had no access to public education. Attorneys such as Thomas Gilhool collaborated with parent advocacy groups to begin filing lawsuits against school districts that excluded children with disabilities using the *Brown* ruling as a basis for their complaints (Gilhool, 2011). The arguments made by Gilhool and Stanley Herr in the following landmark cases were similar to *Brown* except for the populations addressed (Gilhool, 2011).

Pennsylvania Association for Retarded Children (PARC) v. Commonwealth of Pennsylvania (1972) was a pivotal lawsuit in which PARC secured the right to a free public education for students with intellectual disabilities in Pennsylvania. Thus, PARC was the first case to establish education equality for students with disabilities. Witnesses for the plaintiffs established four critical points: (a) all children with mental retardation (now known as intellectual disabilities) are capable of benefiting from a program of education and training; (b) education cannot be defined as only the provision of academic experiences for children, legitimizing experiences such as learning to clothe and feed oneself as outcomes for public school programming; (c) having undertaken to provide all children in the Commonwealth of Pennsylvania with a free public education, the state could not deny students with intellectual disabilities access to free public education; and (d) the earlier students with intellectual disabilities were provided education, the greater the amount of learning that could be predicted, which related to denying preschoolers access to preschool programs available to children without disabilities (Levine & Wexler, 1981; Zettel & Ballard, 1982). The lawsuit established that schools in Pennsylvania could not deny admission or exclude students because of an intellectual disability, required notice and due process, and mandated an appropriate and individualized education to each child's individual needs.

In 1972, another landmark case securing the educational rights of students with disabilities took place. In *Mills v. the Board of Education of DC* (1972) several families challenged the school system because their children with disabilities were being excluded from public school or not given appropriate educational services. The school district argued it did not have enough money or resources to educate these students. Because the case involved students who had been denied an education due to a disability, such as a learning, emotional, or physical disability, the lawsuit was filed on behalf of all out-of-school students with disabilities. The court ruled students with disabilities must be provided with a public education and lack of funding is not an acceptable reason to deny a child an education. *Mills v. DC* established the idea that students with disabilities have a legal right to public education, and schools must follow fair procedures when making decisions about services.

The *PARC* and *Mills* decisions set

precedent for similar cases to be filed across the country. In the two and a half years following the *PARC* and *Mills* decisions, 46 right-to-education cases were filed on behalf of children with disabilities in 28 states (Zettel & Ballard, 1982). The outcomes of these cases were consistent with those established in *Mills* and *PARC*. Despite the judicial success, many students with disabilities continued to be denied an appropriate public education (Zettel & Ballard, 1982). School districts continued to argue sufficient funds did not exist, facilities were inadequate, and instructional materials and adequately trained teachers were unavailable. By the early 1970s, the majority of states had passed laws requiring that students with disabilities receive a public education. These laws, however, varied substantially and resulted in uneven attempts to provide education for these students. Therefore, the federal government stepped in. These and other significant cases prior to the passage of the EAHCA are depicted in Table 1.

THE ENACTMENT OF FEDERAL SPECIAL EDUCATION LAW

Following several attempts, Congress passed a law in 1975 to establish the educational rights of eligible students with disabilities and its promise to provide federal funding to assist states. The Education for All Handicapped Children Act (EAHCA), also called P.L. 94-142, combined an educational bill of rights with the promise of federal financial incentives if states developed policies assuring all eligible students with disabilities would receive a special education. The EAHCA required participating states to provide a free appropriate public education for all qualified students with disabilities between the ages of 3 and 18 by September 1, 1978, and for all students up to age 21 by September 1, 1980. Furthermore, the EAHCA mandated eligible students with disabilities had the right to (a) nondiscriminatory testing, evaluation, and placement procedures; (b) education in the least restrictive environment; (c) procedural due process, including parent involvement; (d) a free education; and (e) an appropriate education, as developed by a group of persons, including a student's parent(s) or guardian(s) and written into an individualized education program (IEP). The least restrictive environment provisions of the EAHCA required schools to educate students with their nondisabled peers to the maximum extent appropriate. The law also required that schools develop procedural safeguards to students and their parents or guardians to protect their rights to special education by ensuring fair, transparent, and participatory decision-making.

To be eligible for federal funding, states were required to submit implementation plans that met all federal statutory requirements. In turn, local education agencies were required to operate programs that complied with applicable state regulations. Federal funds were intended to supplement, rather than supplant, state and local financial contributions. Furthermore, 75% of federal funds were required to be distributed by the state to local school districts. By 1985, all states had achieved compliance with the requirements of the Act.

In addition to funding, the EAHCA also included requirements that programs for eligible students with disabilities were required to meet. The sections below outline some of these components.

Child Find

Under IDEA, states and school districts are responsible for identifying all children with disabilities from birth through age 21 who may be eligible for services. The IDEA mandates states and local education agencies implement *Child Find* procedures to actively identify, locate, and evaluate children who may have disabilities and require special education or early intervention services. This obligation extends to children enrolled in public schools, those who are homeschooled, highly mobile populations (including migrant and homeless children), and children who are wards of the state. School districts may not deny evaluation or services based on the severity of a child's disability, as IDEA requires equitable access to identification and support for all eligible children.

Additionally, schools are required to evaluate any child suspected of having a disability, regardless of academic performance or grade-level advancement. This obligation applies even when a child is performing adequately academically but exhibits other indicators of a potential disability, such as behavioral challenges, communication difficulties, or social-emotional concerns.

Questions Teachers Should Ask

- What concerns suggest a possible disability?
- Have these concerns persisted despite interventions?
- Who have I shared these concerns with?
- What data supports my observations?
- Could a reasonable educator suspect a disability based on the information available?

Free Appropriate Public Education

After a child is found eligible for special education services, the school must provide a free appropriate public education (FAPE), which is defined by IDEA as:

Special education and related services that (A) have been provided at public expense, under public supervision and direction, and without charge; (B) meet

standards of the State educational agency; (C) include an appropriate preschool, elementary, or secondary school education in the State involved and; (D) are provided in conformity with the individualized education program (IDEA, 20 U.S.C. § 1401 (a)(18)).

The FAPE requirement includes the following:

- **Free:** Under the IDEA, families may not be charged for any special education or related services identified in a child's IEP. All services delineated in the IEP must be provided at public expense and fully funded by the local education agency.
- **Appropriate:** Special education services must be individualized to address the unique educational needs of the child, rather than based on uniform or generalized standards. The interpretation of what constitutes an "appropriate" education has been further defined and refined through key judicial decisions applying IDEA.
- **Public:** Services must be provided through a public preschool, elementary, or secondary school program. Placement in a private school, by the public school, is permissible when a public school district determines that such placement is necessary to ensure the provision of FAPE in accordance with the IEP.
- **Based on a student's IEP:** All special education and related services must be delivered in strict accordance with the provisions outlined in the child's IEP, which functions as a legally binding document governing service delivery and educational supports. All special education services are designed, implemented, and monitored through the IEP, which serves as the central mechanism for ensuring compliance with IDEA.
- **State requirements:** States may establish regulations that exceed the minimum requirements of IDEA, provided such regulations afford students greater protections or benefits. For example, some states require transition planning to be included in the IEP beginning at age 14, even though IDEA mandates transition services by age 16. States may not, however, enact policies that diminish or delay the protections guaranteed under federal law.

Questions Teachers Should Ask

- Is this student's program individualized to their unique needs?
- Can I explain why each service or support is being provided?
- How will we know whether the student is benefiting from instruction?
- What evidence demonstrates progress?
- If a parent asked why a service is included, could I explain the rationale?

Least Restrictive Environment

The least restrictive environment (LRE) mandate of the IDEA requires students with disabilities to be educated with their nondisabled peers to the maximum extent appropriate. Consistent with this mandate, schools are obligated to educate students with disabilities in general education settings whenever appropriate and to ensure that removal from the general education classroom occurs only when the nature or severity of a student's disability prevents satisfactory education in that setting, even with the provision of supplementary aids and services. School districts must maintain a full continuum of alternative placement options, ranging from general education classrooms with appropriate supports to more specialized instructional settings, in order to meet diverse student needs.

Placement decisions must be individualized and grounded in the unique needs of each student, rather than based on disability category, service availability, administrative convenience, or cost considerations. In addition, schools are required to consider and implement supplementary aids and services to support students in less restrictive environments before determining the need for more restrictive placements. All placement decisions must align with the student's IEP and be reviewed on a regular basis. Overall, the LRE mandate requires schools to begin with placement in the general education classroom and progress to more restrictive settings only as necessary to ensure the provision of an appropriate education.

At the time of its enactment in 1975, the EAHCA was primarily driven by concerns related to access to education. A substantial number of students with disabilities were excluded from public education, educated in segregated settings apart from their nondisabled peers, or placed in programs that failed to address their unique educational needs. The EAHCA was effective in addressing these inequities, and today access to public education for students with disabilities is firmly established. Consequently, the original access-oriented objectives of the law have largely been realized.

Questions Teachers Should Ask

- What supplementary aids and services have been considered?
- What supports would help this student succeed in general education?
- What evidence supports the proposed placement?
- Is the placement decision based on student needs rather than convenience or resources?

TABLE 2: Amendments to the IDEA

Year	Public Law	Major Changes to the EAHCA/IDEA
1986	P.L. 99-372	• Authorized courts to award reasonable attorney's fees to parents or guardians who prevailed in actions brought under the EAHCA/IDEA • Known as the Handicapped Children's Protection Act
1986	P.L. 99-457	• Provided grants to states that offered early intervention services to children from birth to age 3 with developmental delays and children with diagnosed physical or mental conditions that increased their risk for developmental delays • Created the individualized family service plan (IFSP) • Sometimes called the Infants and Toddlers with Disabilities Act
1990	P.L. 101-476	• Changed the name of the law to the Individuals with Disabilities Education Act (IDEA) • Added two disability categories (autism and traumatic brain injury) • Required that individualized transition planning be included in the IEPs of students with disabilities who are 16 years of age or older (or younger if required by a state)
1997	P.L. 105-17	• Reauthorized IDEA with a stronger emphasis on accountability, academic achievement, and functional outcomes for students with disabilities • Required participation in the general education curriculum and statewide/districtwide assessments, with appropriate accommodations when needed • Strengthened IEP requirements, parent involvement, disciplinary procedures, and early intervening services
2004	P.L. 108-446	• Aligned IDEA with the No Child Left Behind Act (NCLB) by emphasizing accountability and the use of peer-reviewed, evidence-based practices • Allowed schools to use Response to Intervention (RTI) to identify learning disabilities, reducing reliance on the IQ-achievement discrepancy model • Streamlined IEP and due process requirements, including greater alignment with state standards and resolution sessions before hearings • Increased flexibility in discipline and expanded use of IDEA funds for early intervening services

- How will we evaluate whether the placement is successful?

REFINEMENT AND ACCOUNTABILITY

Since the enactment of the EAHCA in 1975, the statute has undergone numerous revisions. Some amendments were relatively minor in scope; for example, Public Law 100-630 (1988) involved technical revisions to statutory language. Other amendments, however, introduced substantial changes that significantly expanded both the procedural and substantive rights afforded to students with disabilities under the IDEA. The rights and responsibilities of schools when implementing the IDEA have been further clarified by federal litigation.

Legislative Amendments

Among the most consequential legislative amendments were the Handicapped Children's Protection Act (P.L. 99-372), the section adding Infants and Toddlers with Disabilities (P.L. 99-457), the Individuals with Disabilities Education Act of 1990 (P.L. 101-476), the Individuals with Disabilities Education Act Amendments of 1997 (P.L. 105-17), and the Individuals with Disabilities Education Improvement Act of 2004 (P.L. 108-446). As amendments, these changes were incorporated into the original statute rather than enacted as separate laws. Notably, the 1997 and 2004 reauthorizations represented the most significant revisions to the law since its original passage. These amendments broadened the legal framework of the IDEA. Table 2 provides a brief overview of these amendments.

These amendments have moved the IDEA from access to accountability. For example, the first amendment in 1986, the Handicapped Children's Protection Act (P.L. 99-372) made the IDEA enforceable in practice, not just theory. By authorizing attorney's fees for prevailing parents, Congress created real consequences for procedural and substantive violations. Instructionally, this shifted districts toward better documentation, clearer decision-making, and defensible instructional choices, because weak practice could now result in financial liability. The second 1986 amendment, P.L. 99-457, reframed disability as a developmental issue that begins early—not a school-age problem. As a result, it pushed systems toward prevention, family-centered planning, and early skill-building rather than remediation after failure. It also established the expectation that educational planning must be individualized, even before formal schooling begins.

The 1990 amendment, P.L. 101-476, renamed the law and added autism and traumatic brain injury (TBI) as disability categories. This reflected a shift toward recognizing complex, neurologically based disabilities with distinct instructional needs. The addition of transition planning signaled that IDEA is not just about K–12 access—it is about preparing students for adult life. Instruction must therefore be purposeful, future-oriented, and connected to post-school outcomes. The amendments in 1997 represented a pivot point where the IDEA moved from an emphasis on access to an emphasis on outcomes, and the era where placement and services alone were not enough. Schools were now expected to deliver instruction that resulted in measurable academic and functional progress, aligned with the general education curriculum, and was responsive when students did not improve. Compliance without instructional effectiveness stopped being defensible. The amendments of 2004 (i.e., the Individuals with Disabilities Education Improvement Act, P.L. 108-446) tightened the link between instruction, evidence, and accountability. Instructional decisions now had to be grounded in peer-reviewed research, monitored for effectiveness, and adjusted based on data. Response to Intervention (RTI) and Multi-Tiered Systems of Support (MTSS) models reinforced that struggling students should not wait to fail before receiving support. Legally and instructionally, inaction in the face of poor progress became harder to justify.

Questions Teachers Should Ask

- What evidence shows the student is making progress?
- What instructional changes occur when progress stalls?
- Are decisions being driven by data or assumptions?
- Can I connect the student's goals to the instruction being provided?
- Would an outside reviewer understand our decision-making process?

Federal Litigation

Although a complete review of meaningful litigation is beyond the scope of this manuscript, we present what we believe are the most important court cases with regard to the IDEA since the original passage of the law in 1975. We have concentrated on rulings of the US Supreme Court, because decisions at that level represent the highest level and apply to all US state, Washington DC, and US territories. Litigation following the enactment of the EAHCA is depicted in Table 3.

Questions Teachers Should Ask

- What lessons from these cases apply to my classroom?
- Could I explain the educational rationale for my decisions?
- Is my documentation sufficient to support my actions?
- Am I focusing on compliance, outcomes, or both?
- What would a hearing officer want to see?

----------Insert Table 3 about here----------

Linking the Law to Teacher Preparation

We are concerned that special education teachers and administrators have insufficient preparation in the background and initial efforts in enacting IDEA. A thorough understanding of the creation of this important law is critical to linking the law to teacher preparation. Thus, we believe a knowledge of the pre-IDEA era and the federal efforts to address these problems should be an integral part of teacher and administrator preparation programs.

The early history of special education law is the foundation of modern professional responsibility. Special education did not arise from enlightened instructional practice, but from systemic exclusion so entrenched families were forced to seek relief in federal courts. Teachers entering the field must understand that IDEA exists because schools routinely denied access, segregated students, or offered programs so minimal they were educationally meaningless—often while asserting that such practices were reasonable or unavoidable.

The trajectory from exclusion to entitlement establishes a core principle for teacher preparation: access to education is a civil right, not a professional favor. *Brown v. Board of Education* framed education as fundamental to democratic participation. *PARC* and *Mills* extended that reasoning to students with disabilities, explicitly rejecting defenses based on cost, staffing shortages, or administrative inconvenience. Together, these cases created the legal

TABLE 3: Litigation After Enactment

Year	Subject	Case	Authority	Major Findings
1982	FAPE	*Board of Education v. Rowley*	US Supreme Court	The Court established that IDEA's FAPE requirement does not require maximizing a student's potential—only providing a "basic floor of opportunity." It created a twopart test: (1) whether the school followed required procedures, and (2) whether the IEP was reasonably calculated to provide educational benefit. The Court also ruled that courts should defer to educators' decisions when procedures are followed.
1983	LRE	*Roncker v. Walter*	US Court of Appeals for the 6th, 4th, and 8th Circuit	The Sixth Circuit held that students must be placed in the least restrictive environment (LRE) appropriate to their needs, with segregated placements allowed only when satisfactory education cannot be achieved in a less restrictive setting. The court created the Roncker portability test, requiring schools to determine whether services from a more restrictive setting can be delivered in a general education environment; if so, a restrictive placement is not justified. This test was later adopted by the 4th and 8th Circuits.
1984	Related services	*Irving ISD v. Tatro*	US Supreme Court	The Court ruled that clean intermittent catheterization (CIC) is a required related service under IDEA because it is necessary for the student to attend school and benefit from special education.
1985	Tuition reimbursement	*Town of Burlington v. State Board of Education*	US Supreme Court	This case established tuition reimbursement as an equitable remedy under IDEA., allowing courts to require districts to reimburse parents for private school tuition when the public school failed to provide a FAPE and the private placement is appropriate.
1989	LRE	*Daniel R.R. v. State Board of Education*	US Court of Appeals for the 5th, 3rd, and 11th Circuit	The 5th Circuit rejected the Roncker test and created a twopart LRE test: (1) whether satisfactory education is possible in the regular classroom with supports, and (2) if not, whether the student is mainstreamed to the maximum appropriate extent. The ruling stressed individualized decisions based on educational benefit, not disability severity or convenience, and was later adopted by the 3rd and 11th Circuits, with the 9th using a similar framework.
1999	Related services	*Cedar Rapids v. Garret F.*	US Supreme Court	The Court ruled that schools must provide continuous oneonone nursing services when they are necessary for a student to attend school and benefit from special education, as long as the services do not require a physician. The Court reaffirmed the Tatro distinction between excluded medical services and required related services and clarified that cost and administrative burden cannot be used to deny a related service.
2000	Implementation	*Houston ISD v. Bobby R.*	US Court of Appeals for the 5th Circuit	The case established a twopart test for FAPE implementation violations: (1) whether the school failed to carry out a substantial or significant portion of the IEP, and (2) whether the student still received more than minimal educational benefit. If the student made meaningful progress, no FAPE violation occurred.
2007	Implementation	*Van Duyn v. Baker School District*	US Court of Appeals for the 9th, 4th, and 11th Circuit	The 9th Circuit agreed that only material or significant failures to implement an IEP violate FAPE, but it rejected the idea that educational benefit matters in these cases. The court held that a material failure to implement an IEP is itself a FAPE violation. This approach was later adopted by the 4th and 11th Circuits.
2009	Tuition reimbursement	*Forest Grove v. T.A.*	US Supreme Court	The Court ruled that prior special education enrollment is not a requirement for reimbursement. Tuition reimbursement is allowed even if the student never received public school special education services.
2017	FAPE	*Endrew F. v. Douglas County School Board*	US Supreme Court	The Court clarified that an IEP must be reasonably calculated to enable a child to make progress in light of their circumstances. The ruling upheld Rowley's framework but strengthened the substantive standard from merely providing "educational benefit" to requiring meaningful progress.
2023	Monetary damages	*Perez v. St-urgis Public Schools*	US Supreme Court	The Court held that parents seeking monetary damages under the ADA do not need to exhaust IDEA remedies first. Because IDEA does not provide monetary relief, exhaustion is not required, making it easier for families of IDEAeligible students to pursue ADA claims directly in federal court.
2025	Monetary damages	*A.J.T. v. Osseo ISD*	US Supreme Court	The Court ruled that students bringing ADA or Section 504 educationrelated claims do not need to prove "bad faith or gross misjudgment." Instead, they are held to the same discrimination standards used in other contexts, making it easier for students to pursue ADA/504 claims when schools deny equal access.

expectation that every child is capable of benefiting from education and that instruction must be individualized to meet that child's needs.

For teacher education, this history carries a clear warning. When preparation programs treat IDEA as a set of procedures rather than a response to documented institutional failure, they risk reproducing the very conditions the law was designed to eliminate. Understanding the "bad old days" is not about nostalgia or blame. It is about recognizing why discretion has limits, why documentation matters, and why inaction in the face of need is legally and professionally indefensible. Teacher preparation must begin with that clarity.

Questions Teachers Should Ask

- Why were these legal protections created?
- How might students with disabilities have been treated before IDEA?
- Which current practices exist because of past educational failures?
- How does understanding this history influence my responsibilities today?

BEYOND IDEA: INTERSECTION WITH SECTION 504, ADA, AND CIVIL RIGHTS EXPANSION

As previously established, the modern framework of special education emerged from a civil rights lineage rooted in *Brown*, *PARC*, and *Mills*, with Congress ultimately codifying access and entitlement through the IDEA. However, the Supreme Court's clarification of FAPE in *Endrew F. vs. Douglas County School Board* reaffirmed IDEA as a standards-based statute focused on individualized educational progress—not a comprehensive civil rights code governing all forms of access and participation. That broader role is carried by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), which increasingly shape educators' legal responsibilities across contexts and over the lifespan.

For teacher education, this history carries a clear warning. When preparation programs treat IDEA as a set of procedures rather than a response to documented institutional failure, they risk reproducing the very conditions the law was designed to eliminate.

The ADA and ADA Amendments Act: Extending Rights Beyond K–12

Whereas the IDEA defines eligibility, services, and outcomes within K–12 education, the ADA operates as a general nondiscrimination statute. Enacted in 1990, the ADA prohibits disability-based discrimination in public services (Title II), public accommodations (Title III), and employment (Title I), extending legal protections well beyond the schoolhouse door.

The ADA Amendments Act of 2008 (ADAAA) directly responded to restrictive judicial interpretations that had narrowed the definition of disability. Congress made explicit that disability must be construed broadly and that the central inquiry should be whether discrimination occurred, not whether an individual meets an artificially high eligibility threshold. Section V of the ADA contains anti-retaliation and anti-interference protections. It makes clear individuals are protected not only from direct discrimination, but also from punishment, intimidation, or obstruction when they assert their rights, request accommodations, participate in investigations, or challenge unlawful practices. The focus is on conduct, not labels or technical eligibility hurdles. This legislative recalibration parallels the shift following *Endrew F.*: both reject minimalist interpretations that undermine the statute's civil rights purpose.

For educators, this distinction matters. Students who do not qualify for IDEA services or who age out of IDEA protections still retain enforceable rights under the ADA. Thus, while IDEA structures educational entitlement, the ADA ensures continuity of civil rights protection across postsecondary education, employment, and civic participation.

Section 504's Expanding Role in Access and Participation

IDEA's accountability era emphasized alignment with general education and measurable outcomes. Section 504 complements, but does not replicate, this structure. Rather than mandating individualized programs, Section 504 focuses on access, equal opportunity, and nondiscrimination. Its relevance has expanded as schools increasingly offer instruction and enrichment through technology platforms, extracurricular programming, athletics, and career pathways.

This expansion exposes a recurring tension: educators often conflate IDEA's eligibility-based entitlements with the access-based rights of Section 504 and ADA. In postsecondary education, where IDEA no longer applies, Section 504 and the ADA become the sole legal frameworks governing disability rights. Colleges are not required to provide FAPE or develop IEPs, but they must remove barriers that deny equal access. Failure to prepare stu-

dents for this legal transition represents a systemic weakness in K–12 practice, particularly in transition planning. Within K–12 systems, Section 504 also governs access to nonacademic programs—areas historically treated as peripheral to special education compliance. Legal exposure often arises not from instructional decisions but from overlooked participation rights.

Questions Teachers Should Ask

- Is this an IDEA issue, a Section 504 issue, or both?
- Does this student need services, accommodations, or both?
- Could a barrier exist even if the student is performing adequately?
- Are school activities and materials accessible?
- Have we confused eligibility with access?

Cross-Training Educators on IDEA–504–ADA Interplay

Throughout this article we have emphasized the growing professionalization of special education and the increasing legal literacy demanded of educators. Yet teacher preparation and professional development often treat IDEA, Section 504, and the ADA as discrete topics rather than an integrated framework. This siloed approach produces predictable errors: teams deny accommodations because a student has an IEP, administrators assume IDEA compliance satisfies civil rights obligations, and general educators remain unaware that their instructional materials or classroom technologies can trigger ADA liability. As IDEA jurisprudence has shifted toward defensibility grounded in educational reasoning (see *Endrew F v. Douglas County School District*, 2017), the need for cross-statute fluency has become more—not less—urgent.

Effective preparation must therefore emphasize how these statutes differ in purpose, scope, and enforcement while operating simultaneously within school systems. IDEA governs *what* must be provided; Section 504 and the ADA govern *who* must have access and *under what conditions*.

Digital Accessibility and Title II Enforcement: A New Frontier

The enforcement trends discussed earlier are increasingly visible in the digital realm. Under ADA Title II, public schools are responsible for ensuring that websites, online documents, learning management systems, and instructional technologies are accessible to individuals with disabilities. Federal enforcement agencies have made clear that inaccessible digital content can constitute discrimination, even in the absence of intent. This represents a significant evolution from the access-focused concerns of the earlier implementation of the law. Exclusion no longer occurs only through denial of enrollment or placement; it now occurs through inaccessible design. As instructional delivery continues to shift online, accessibility is no longer an individualized accommodation issue—it is a system-level civil rights obligation.

Taken together, these developments reinforce the central argument advanced across this article: IDEA cannot be understood—or implemented—apart from the broader civil rights framework in which it operates. Preparing educators for the next fifty years requires moving beyond procedural fluency toward integrated legal understanding. Educators must be equipped not only to implement IEPs effectively but also to recognize when access, participation, and equity obligations arise independently of IDEA eligibility. Without this integrated approach, districts risk repeating the historical pattern described earlier—formal compliance paired with substantive exclusion—under new legal and technological conditions.

ENDURING LEGAL AND POLICY TENSIONS

Fifty years after the passage of the EAHCA, the legal architecture of special education is both remarkably durable and persistently strained. Many of the tensions that animated early litigation have not disappeared; they have simply evolved. As IDEA has matured from an access statute into a standards-based framework emphasizing progress, outcomes, and equity, educators have been placed at the center of conflicts the law itself does not fully resolve. These tensions are not merely academic; they shape daily decision-making in classrooms, IEP meetings, and administrative offices.

Equity vs. Compliance: When Procedural Fidelity Is Not Enough

One of the most persistent tensions in special education is the false dichotomy between equity and compliance. For decades, districts were incentivized—through monitoring systems, audits, and litigation risk—to prioritize procedural correctness (e.g., timelines met, forms completed, meetings convened). This focus was historically defensible. In the wake of *PARC* and *Mills*, procedure was the mechanism through which access and due process were enforced.

However, as the Supreme Court made clear in the *Endrew F.* ruling, procedural compliance alone does not satisfy IDEA's substantive mandate. A legally compliant IEP that fails to produce meaningful progress is not defensible. Yet many systems remain structurally oriented toward compliance behaviors rather than educational outcomes. This creates a professional paradox for

educators: they are evaluated, trained, and supervised on procedural fidelity, while liability increasingly turns on instructional adequacy and progress monitoring.

The result is a quiet but consequential form of inequity. Students in districts with strong instructional capacity benefit from IDEA's substantive promise, while students in compliance-driven systems receive technically lawful but educationally hollow services. This tension underscores a central theme of this article: equity under IDEA is no longer achieved through uniform procedure alone but through differential instructional response grounded in data, expertise, and professional judgment.

Inclusion vs. Continuum: LRE in an Era of Complex Needs

Least restrictive environment remains one of IDEA's most powerful—and most contested—principles. Early litigation framed LRE as a correction to unnecessary segregation. Over time, however, the legal expectation has become more nuanced. Courts have consistently rejected both extremes: automatic placement in general education regardless of need, and reflexive segregation justified by administrative convenience.

Despite this, many systems continue to treat inclusion and the continuum of placements as opposing ideologies rather than legally complementary concepts. Inclusion advocates rightly emphasize access, belonging, and high expectations. Practitioners responsible for implementation, however, must reconcile these values with students whose needs are intensive, intersecting, or poorly served by existing general education supports.

The legal standard has not changed: placement decisions must be individualized, data-driven, and supported by supplementary aids and services along the full continuum of placements before more restrictive options are considered. What has changed is the complexity of student profiles and the variability of district capacity to deliver supports with fidelity. This gap between legal aspiration and operational reality often places educators in untenable positions, asked to defend placements that reflect resource constraints rather than educational necessity. Importantly, courts have shown increasing skepticism toward placements justified solely by philosophy. Whether framed as "full inclusion" or "continuum-based," placement decisions that are not tethered to evidence of benefit, implementation capacity, and progress remain vulnerable.

Discipline and Behavior: Manifestation Determinations, FBAs, and Legal Drift

Few areas of IDEA implementation generate more confusion—and litigation—than discipline. Manifestation determinations, functional behavioral assessments (FBAs), and behavioral intervention plans (BIPs) were intended to protect students from exclusionary discipline rooted in disability-related behavior. Over time, however, their application has drifted from their original purpose.

Manifestation determinations are frequently treated as procedural hurdles rather than substantive analyses. FBAs are conducted reactively, after removals have already occurred, and BIPs are often generic documents with limited instructional relevance. This proceduralizing mirrors earlier compliance patterns but carries higher stakes: exclusion from instruction, escalation of behavior, and civil rights exposure under IDEA, Section 504, and the ADA.

Judicial and enforcement trends increasingly emphasize whether districts acted proactively and instructionally, not merely whether required steps were completed. Failure to adjust instruction or supports in response to known behavioral needs is now a recurring basis for findings of denial of FAPE. This evolution places a premium on educator preparation in behavior analysis, data interpretation, and collaborative problem-solving—areas historically underemphasized in teacher training.

An additional area of concern involves referrals to law enforcement and the use of school disturbance, disorderly conduct, assault, or similar criminal charges in response to disability-related behavior. Although IDEA contains extensive procedural protections governing suspensions, expulsions, manifestation determinations, and changes of placement, those protections can effectively be circumvented when student behavior is referred directly to law enforcement. In some jurisdictions, behaviors that would otherwise trigger a manifestation determination or behavioral review are instead addressed through juvenile justice involvement, resulting in exclusion from educational settings without the same level of IDEA scrutiny. Federal guidance has consistently recognized that schools may report crimes committed by students with disabilities, but the authority to make such referrals does not relieve districts of their obligations under IDEA.

When schools rely on law enforcement responses rather than behavioral assessment, instructional intervention, or positive behavioral supports, they risk transforming educational challenges into criminal justice issues. This phenomenon, often discussed within the broader context of the "school-to-prison pipeline," has drawn increasing attention from courts, advocates, and federal agencies because students with disabilities are disproportionately

represented among school-based arrests and referrals. As a result, districts must carefully examine whether disciplinary decisions reflect legitimate safety concerns or whether disability-related behaviors that should be addressed through educational supports are instead being redirected into the juvenile justice system.

Questions Teachers Should Ask

- What function is the behavior serving?
- Have we conducted an FBA when appropriate?
- Are we responding instructionally or merely punitively?
- Is this behavior related to the student's disability?
- What supports have been attempted before exclusionary discipline?

Funding and Personnel Shortages: The Law's Unresolved Contradiction

Perhaps the most enduring tension in special education is the disconnect between statutory ideals and resource realities. Congress never fulfilled its commitment to fund IDEA at promised levels. Yet courts have been unequivocal: lack of funding does not excuse noncompliance. This contradiction has shaped special education practice since *Mills*, and it remains unresolved.

Today, the problem is compounded by nationwide shortages of qualified special educators, related service providers, and administrators. These shortages do not lower legal expectations, but they do affect implementation fidelity, supervision, and sustainability. Educators are often asked to compensate for systemic underinvestment through personal effort, creativity, and professional sacrifice—a model that is neither equitable nor durable. From a policy perspective, this tension raises uncomfortable questions about how IDEA's promises can be sustained without parallel investment in personnel preparation, retention, and working conditions. From a preparation standpoint, it reinforces the need to equip educators not only to implement the law, but to advocate within it.

THE NEXT FIFTY: PREPARING EDUCATORS FOR A NEW LEGAL ERA

If the first fifty years of IDEA were defined by access, entitlement, and procedural scaffolding, the next fifty will be defined by interpretation, integration, and accountability for outcomes. Educators entering the profession will inherit a legal framework that is simultaneously more demanding and more dependent on professional judgment than ever before.

Anticipated Trends: AI, Assistive Technology, and the Expanding Definition of FAPE

As artificial intelligence (AI) and advanced assistive technologies become embedded in instruction, the definition of what is "appropriate" under FAPE will evolve. The legal question will not be whether technology exists, but whether failure to consider or implement available tools constitutes denial of access or progress. Educators will be expected to engage with these tools critically—not as novelties, but as components of individualized instruction.

At the same time, the use of AI presents significant confidentiality and professional responsibility concerns. Teachers, related service providers, administrators, and other school personnel should not enter personally identifiable student information into public AI systems or large language models when generating IEP content, progress reports, present levels of performance, evaluations, behavioral plans, or other educational records. Information protected under IDEA, the Family Educational Rights and Privacy Act (FERPA), Section 504, and related state privacy laws may be inadvertently disclosed when entered into third-party AI platforms. Even when AI tools are used to assist with drafting, analysis, or instructional planning, professional judgment remains essential. AI-generated content should be reviewed carefully for accuracy, individualization, legal compliance, and confidentiality before being incorporated into any educational document or decision-making process.

MTSS and Universal Design as Legal Infrastructure

Multi-Tiered Systems of Support (MTSS) and Universal Design for Learning (UDL) are increasingly viewed not merely as instructional frameworks, but as mechanisms of legal compliance. Proactive identification, early intervention, and flexible instructional design reduce reliance on reactive special education processes and help mitigate Child Find and FAPE violations. The line between general and special education compliance will continue to blur as schools are expected to demonstrate that students receive timely, evidence-based supports before educational difficulties become entrenched.

Importantly, MTSS provides a framework for integrating multiple school improvement initiatives that have historically been implemented in isolation. Academic interventions, positive behavioral supports, social-emotional learning (SEL), trauma-informed practices, attendance supports, and mental health services can all be organized within a unified tiered system of prevention and intervention. Rather than treating these efforts as separate programs competing for time and resources, MTSS allows schools to coordinate

ABOUT THE AUTHORS

David Bateman, Ph.D.

David Bateman, Ph.D., is a nationally recognized authority on special education law, IDEA compliance, dispute resolution, IEP development, and specially designed instruction, with extensive experience as a hearing officer, mediator, state complaint investigator, teacher, administrator, and professor. He is president-elect of the Council for Exceptional Children's Division for Learning Disabilities, a senior consultant to CADRE, and the author or coauthor of leading books and national resources on IEPs, dispute resolution, specially designed instruction, Section 504, and progress monitoring. He works with schools and state agencies nationwide to improve services for students with disabilities and has appeared on PBS NewsHour discussing national special education issues.

Mitchell L. Yell, Ph.D.

Mitchell L. Yell, Ph.D., is the Fred and Francis Lester Palmetto Chair in Teacher Education and Professor of Special Education at the University of South Carolina. He is a nationally recognized scholar whose work focuses on special education law, individualized education program development, progress monitoring, and evidence-based practices for students with disabilities. He is the author of The Law and Special Education and has published extensively on the legal requirements and practical implementation of the Individuals with Disabilities Education Act.

supports around student need while creating more coherent systems for data collection, progress monitoring, and instructional decision-making.

From both a legal and practical perspective, these integrated systems help schools identify concerns earlier, document responses more effectively, and demonstrate that appropriate supports were provided. As expectations for educational responsiveness continue to increase, MTSS and UDL are likely to become increasingly important components of legally defensible educational practice.

Questions Teachers Should Ask

- What interventions have been attempted?
- What data supports their effectiveness?
- How are SEL, behavior, attendance, and academic supports aligned?
- When should concerns trigger a referral for evaluation?
- How do we know supports are being implemented with fidelity?

From Procedural Accountability to Equity Outcomes

Oversight systems are gradually shifting away from checklist compliance toward indicators of equitable outcomes. Disproportionality, exclusionary discipline, and postsecondary access are emerging as focal points. Educators will be judged not only on whether processes were followed, but on whether systems produced fair and defensible results.

Implications for Teacher Preparation

These trends demand a recalibration of educator preparation. Legal literacy cannot be confined to a single survey course. IDEA, Section 504, and the ADA must be embedded across coursework in assessment, instruction, behavior, collaboration, and leadership. Future educators must also be prepared for the documentary realities of practice. IEPs, progress reports, emails, and data records are not bureaucratic artifacts—they are legal narratives. Preparation programs must teach candidates how to document instructional reasoning, collaborate across roles, and communicate decisions in ways that are both educationally sound and legally defensible.

Critically, educators must be prepared to interpret law, not merely follow guidance. Statutes and regulations establish frameworks, but real-world cases are resolved through professional judgment applied to imperfect information. Preparing educators for this responsibility is both a legal and ethical imperative.

Five Questions Every Educator Should Be Able to Answer

- How do I know the student is making meaningful progress?
- What evidence supports the instructional decisions being made?
- What happens when the student is not progressing?
- How does this decision improve access, participation, or outcomes?
- Could I explain and defend this decision to a parent, administrator, or hearing officer?

VISION FOR THE FUTURE

IDEA endures because it is fundamentally a civil rights statute—one that entrusts educators with extraordinary responsibility. Teachers, administrators, and related service providers are not passive implementers of policy; they are the frontline guardians of students' rights. The next fifty years will test whether the profession is prepared to meet that role. Sustaining IDEA's promise will require educators who are legally literate, instructionally skilled,

and willing to engage with complexity rather than retreat into compliance rituals. The law can set expectations, but it is professional practice that ultimately determines whether those expectations are met. In that sense, the future of IDEA is inseparable from the future of educator preparation itself.

REFERENCES

A.J.T. v. Osseo Area Schools, Independent School District No. 279. 605 U.S. 335. (2025). https://www.supremecourt.gov/opinions/24pdf/24-249_a86c.pdf

ADA Amendments Act of 2008, Pub. L. No. 110-325, 122 Stat. 3553. (2008).

Americans with Disabilities Act of 1990, 42 U.S.C. § 12101 *et seq*. (1990).

Assistance to States for the Education of Children with Disabilities and Preschool Grants for Children with Disabilities, 34 C.F.R. Part 300. (2004).

Board of Education v. Rowley. 458 U.S. 176. (1982).

Brown v. Board of Education. 347 U.S. 483. (1954).

Burlington School Committee of the Town of Burlington v. Department of Education of Massachusetts. 471 U.S. 359. (1985).

Cedar Rapids Community School District v. Garret F. 526 U.S. 66. (1999).

Daniel R. R. v. State Board of Education. 874 F.2d 1036. (1989).

Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142, 89 Stat. 773. (1975).

Endrew F. v. Douglas County School District. 580 U.S. 386. (2017).

Family Educational Rights and Privacy Act, 20 U.S.C. § 1232g. (1974).

Forest Grove School District v. T. A. 557 U.S. 230. (2009).

Gilhool, T. K. (2011). *Visionary voices, leaders, lessons, and legacy: An interview with Thomas K. Gilhool*. Institute on Disability at Temple University. http://www.temple.edu/instituteondisabilities/voices/detailVideo.html?media=006-01

Honig v. Doe. 484 U.S. 305. (1988).

Houston Independent School District v. Bobby R. 200 F.3d 342. (2000).

Individuals with Disabilities Education Act of 1990, 20 U.S.C. § 1401 *et seq*. (1990).

Individuals with Disabilities Education Act Amendments of 1997, Pub. L. No. 105-17, 111 Stat. 37. (1997).

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 118 Stat. 2647. (2004)

Irving Independent School District v. Tatro. 468 U.S. 883. (1984).

Levine, E. L., & Wexler, E. M. (1981). *P.L. 94-142: An act of Congress.* Macmillan.

Mills v. Board of Education of the District of Columbia. 348 F. Supp. 866. (1972).

Nondiscrimination on the Basis of Disability; Accessibility of Web Information and Services of State and Local Government Entities, 89 Fed. Reg. 31320. (2024).

Pennsylvania Association for Retarded Children (PARC) v. Commonwealth of Pennsylvania. 343 F. Supp. 279. (1972).

Perez v. Sturgis. 598 U.S. 142. (2023). https://www.supremecourt.gov/opinions/22pdf/21-887_k53m.pdf

Roncker v. Walter. 700 F.2d 1058. (1983).

Sacramento City Unified School District v. Rachel H. 14 F.3d 1398. (1994).

Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. § 794 *et seq*. (1973).

Van Duyn v. Baker School District 5J. 502 F.3d 811. (2007).

Zettel, J. J., & Ballard, J. (1982). The Education for All Handicapped Children Act of 1975 (P.L. 94-142): Its history, origins, and concepts. In J. Ballard, B. Ramirez, & F. Weintraub (Eds.), *Special education in America: Its legal and governmental foundations* (pp. 11–22). Council for Exceptional Children.

Zobrest v. Catalina Foothills School District. 509 U.S. 1. (1993).

Evolving Assessment Practices: From Compliance to Meaningful Instructional Data

AUTHORS
Margaret L. Kamman
Erica D. McCray

Journal of Special Education Preparation
6(2), 34-45
© 2026 Kamman and McCray
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/3qqy6y32

ABSTRACT

As the field celebrates the 50th anniversary of the Individuals with Disabilities Education Act (IDEA), it is important to reflect on how assessment practices have evolved alongside advances in special education. Over the past five decades, assessment has shifted from a primary focus on identification, eligibility, and compliance to a broader emphasis on instructional decision-making, student progress, and equitable outcomes. This article traces key historical, legislative, and professional developments that shaped contemporary assessment, including IDEA, curriculum-based measurement, data-based individualization, response to intervention, and multi-tiered systems of support. We highlight the increasing use of multiple data sources, family collaboration, culturally responsive practices, and technology-enhanced assessment systems to support student learning. Practical examples illustrate how assessment can guide instruction and intervention. We conclude by examining future directions, including artificial intelligence and assessment literacy, and offer recommendations for preparing educators to use assessment as a meaningful tool for improving outcomes for students with disabilities.

KEYWORDS

Assessment, IDEA, curriculum-based measurement, data-based decisions, progress monitoring, special education

For decades, special education services have been delivered to students in United States classrooms. Special education as a field and service have not been without controversy. Prior to the Civil Rights Movement and subsequent Disability Rights Movement, individuals were excluded from schooling based on identified differences and needs. Despite positive development and student outcomes, a persistent critique of special education relates to evaluation and placement practices. In its infancy, special education relied heavily on psychometric tests—standardized instruments designed to measure characteristics such as intelligence, aptitude, or academic achievement—that were deemed biased and leading to misidentification. Court cases (e.g., *Larry P. v. Riles* [1972]) and research studies (e.g., Mercer, 1973) documented that commonly used intelligence and achievement tests were not appropriate for all learners and in some instances caused considerable harm through inappropriate identification or instruction. Conversely, other scholars found little evidence to support these claims (e.g., Jensen, 1980). Regardless of viewpoint and level of analysis, students with disabilities—particularly students of color—have not historically been well represented in the literature on test bias (Skiba et al., 2008). Standardized assessments (e.g., intelligence tests, achievement tests), however, have a substantial impact on their access to a free and appropriate public education.

In this article, we outline some of the key historical and legislative moments that influence assessment practices in inclusive and special education. This will also include more contemporary structures guiding the use of formal and informal assessments to ensure that students receive an appropriate education leading to optimal outcomes. We offer evidence-based and practical recommendations for educators to implement effective assessment practices and conclude with projections for the next 50 years.

TABLE 1: Key IDEA Terms and Evaluation Safeguards

Term	Definition
Identification	The process of recognizing that a student may have a disability and may require a comprehensive evaluation to determine educational needs and eligibility for services.
Evaluation	A comprehensive process that uses multiple assessment tools, strategies, and sources of information to understand a student's academic, developmental, behavioral, and functional strengths and needs.
Eligibility Determination	A team-based decision about whether a student meets the criteria for one or more disability categories under IDEA and requires special education and related services.
Free Appropriate Public Education (FAPE)	Special education and related services provided at public expense and designed to address a student's individual educational needs as outlined by the student's IEP.
Individualized Education Program (IEP)	A written educational plan describing a student's present levels of performance, measurable annual goals, services, supports, accommodations, and methods for monitoring progress.
Least Restrictive Environment (LRE)	The requirement that students with disabilities be educated with peers without disabilities to the maximum extent appropriate and removed from general education settings only when their needs cannot be met satisfactorily with appropriate supports.
Parental participation	The right of parents and caregivers to participate meaningfully in decisions concerning their child's identification, evaluation, eligibility, placement, and educational program.
Due Process	Procedural protections that provide families and schools with formal methods for addressing disagreements related to identification, evaluation, eligibility, placement, or educational services.
Nondiscriminatory Evaluation	The requirement that assessments be selected and administered in ways that minimize racial, cultural, linguistic, or disability-related bias and are appropriate for the purpose for which they are used.
Progress Monitoring	The repeated collection and analysis of student-performance data to determine whether the student is making adequate progress toward identified academic, behavioral, or functional goals.

The mid to late-20th century marked a pivotal period for Disability Rights and special education. The Supreme Court's decision in *Brown v. Board of Education* (1954) struck down the legality of "separate, but equal" on the basis of race and paved the way for ending separation based on disability. Subsequently, Section 504 of the *Rehabilitation Act of 1973* created greater access and rights within social systems, which led to the 1975 *Education for All Handicapped Children Act* (Martin et al., 1996). Across subsequent reauthorizations, the law documented the need for appropriate assessments to support effective instruction and intervention. Although early assessment practices often emphasized identification and placement, the role of assessment has increasingly expanded to support ongoing teaching and learning (Frey, 2019).

These historical concerns remain relevant to teacher preparation because teacher candidates must understand that assessment decisions are never neutral or solely technical. The measures selected by educators, the conditions in which the assessments are administered, and the interpretations made can expand or restrict students' access to instruction and services. Educator preparation programs must help candidates recognize assessment bias and use multiple sources of information when making eligibility and instructional decisions.

HISTORICAL PERSPECTIVE AND FOUNDATIONAL MILESTONES

The evolution of assessment in special education reflects broader shifts in educational priorities, policy, and practice over the past fifty years. Historically, assessment was primarily used to determine eligibility for services rather than informing instruction. However, foundational legislation and reform efforts have significantly expanded the role of assessment, positioning it as a continuous and integral component of teaching and learning. Understanding these historical developments can assist future educators in recognizing why and how assessment must be connected to instruction, interpreted through multiple sources of information, and used to support meaningful learning outcomes for all students. Legislation and policy provide broad guidance to ensure student access and protection.

The Passage of IDEA and the Establishment of Evaluation Safeguards

The Education for All Handicapped Children Act was later renamed the Individuals with Disabilities Education Act (IDEA). IDEA established several interconnected requirements that govern how students are identified, evaluated, determined eligible for services, and provided an appropriate educational program. As summarized in Table 1,

these requirements include: identification, evaluation and eligibility determination, parental input and due process, a Free Appropriate Public Education (FAPE), guided by an Individualized Education Program (IEP), and delivered in the Least Restrictive Environment (LRE; Martin et al., 1996). Under IDEA, assessment is central to identification and eligibility determination, as well as ongoing development, implementation, and evaluation of an appropriate educational program. This process requires the collaboration of a team with expertise on the student to continuously collect, analyze, interpret, and share data to make decisions on student progress toward documented academic and behavioral goals. Team members include school-based professionals (e.g., special educator, general educator, school psychologist), the family members, the student, and potentially other community members or employers (Kamman & McCray, 2022). Family participation is essential because families have valuable knowledge about students' strengths, needs, interests, and performance in contexts outside of the school environment that can be critical to a picture of the whole child. Teacher candidates need to know how to present assessment results, and how to elicit family perspectives, explain results in accessible language, and incorporate family knowledge and assets into educational planning.

Expanding the purpose of assessment from initial evaluation and eligibility determination required greater knowledge and skill among teachers and increased communication with other members of the student's IEP team. Standardized assessments provide formal measures of progress at predetermined intervals, usually conducted on an annual basis. In the interim, educators can conduct formative assessments to collect data more frequently. Formative assessment refers to information gathered during teaching and used to determine what students understand, where they are having difficulty, and the appropriate instructional response. This type of assessment allows teachers to more quickly determine student progress and make instructional adjustments as needed. Progress monitoring using curriculum-based measurement (CBM) has become a hallmark of special education service delivery and data-based individualization (National Center on Intensive Intervention, 2013). For future teachers, the essential distinction is not simply whether an assessment is formal or informal, but how the information will be used. An assessment has limited instructional value when educators collect data, but do not connect the findings to a specific decision about teaching or support for students.

The Emergence of Continuous Assessment: CBM and Data-Based Individualization

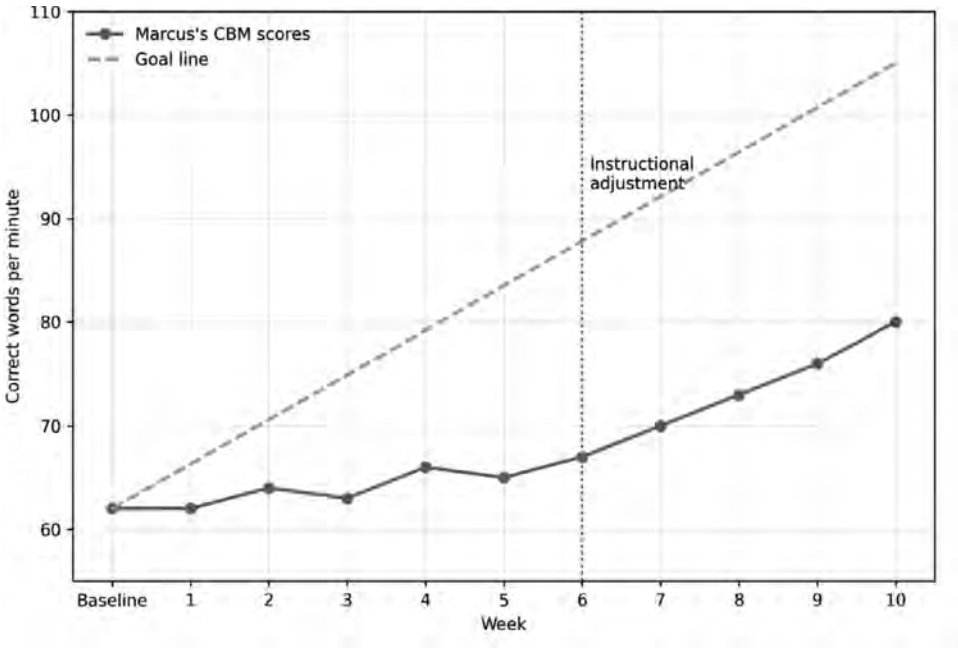
Curriculum-based measurement (CBM) is an assessment approach using brief, repeatable measures to evaluate students' academic performance and growth over time. CBM was designed to assist teachers in formatively assessing instruction and student learning (Deno, 2003). The procedures involve using reliable and valid measures to assess specific tasks, with specific administration and scoring procedures. Importantly for teachers, they are time efficient and easy to implement. This allows CBM to be used frequently with many students to document changes over time. As a result, educators can make timely, data-informed decisions about whether students are responding adequately to instruction or whether adjustments are needed. CBM is key to making data-informed decisions to support student learning (Cornelius et al., 2024). In this way, the use of CBM shifted assessment from a periodic event to an ongoing process that is closely integrated with instruction. The value of CBM does not come from producing a score or graph alone; its instructional value depends on how educators use it to document, review, and interpret patterns of student performance to determine whether to maintain, modify, intensify, or replace the current instructional approach.

Building on the use of CBM for frequent progress monitoring, educators began to formalize processes for using these data to make systematic instructional decisions. Data-based individualization (DBI) is a validated process for making student-centered decisions for instruction and intervention. The process begins by selecting an appropriate progress-monitoring tool. This first decision should be based on the goals documented in the IEP and developmentally appropriate for the student being served (Park et al., 2024). Once the assessment is selected, the teacher should implement and score it with fidelity following relevant guidance or procedures. Accurate scoring then leads to accurate data collection over time, which allows for analysis and decision-making about student performance and subsequent instruction or intervention. As assessment practices became more continuous and data-driven, educational systems began to shift toward prevention-oriented frameworks designed to support students earlier and more effectively.

Putting It into Practice

Ms. Lee, a teacher candidate completing a practicum with a fourth-grade class, is working with Marcus, who is receiving reading intervention. Marcus's goal is to read 105 words per minute, with no errors, on a fourth-grade oral fluency measure by the end of the semester. His baseline is 62 words per minute with 8 errors. Every week, Ms. Lee administers a CBM passage and graphs the results against Marcus's goal line. For the first six weeks, Marcus's scores

FIGURE 1: Marcus's Weekly CBM Oral Reading Fluency Scores



are 62, 64, 63, 66, 65, and 67 correct words per minute. His scores do show a slight improvement, but at his current rate he will not reach his goal by the end of the semester. Ms. Lee notices that many of Marcus's errors occur when he reaches multisyllabic words. As Ms. Lee and her cooperating teacher consider an instructional change, they consider several questions. Was the intervention implemented consistently? Were the CBM passages the same level of difficulty? Does Marcus's classwork show the same issues? Could other factors such as language or attendance have impacted his performance? After reviewing information related to these questions, Ms. Lee and her cooperating teacher decide Marcus needs more explicit instruction in decoding multisyllabic words and create a plan for intervention. Ms. Lee continues weekly CBM administration and after four more weeks Marcus's scores are 70, 73, 76, and 80 correct words per minute. As shown in Figure 1, Marcus's scores only slightly increased during the first six weeks, suggesting the initial intervention was not sufficient to meet his instructional goal. After adjusting the intervention to add more explicit multisyllabic decoding, his growth rate improved.

From Identification to Prevention: RTI

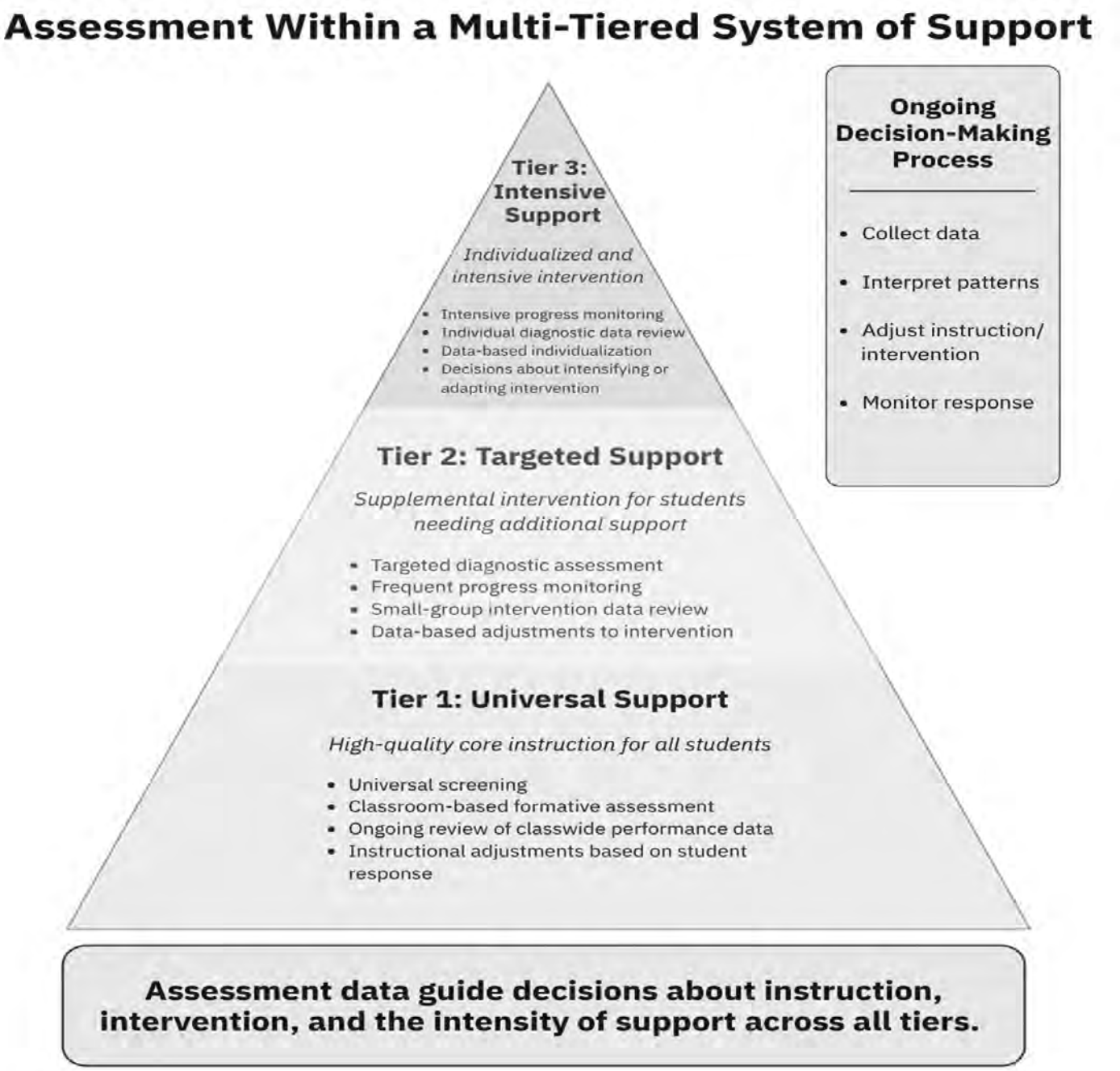
Madeline Will's Regular Education Initiative (REI), introduced in 1986, offered a vision for a more integrated system of education for all students, including students with disabilities (Leach & Helf, 2016; Will, 1986). Although REI received a mixed reception, its spirit continues to influence efforts to make schools more inclusive. In fact, multitiered systems of support frameworks harken back to Will's call for specialized instruction to take place in the general education classroom. Many students who are ultimately identified with disabilities begin in classrooms with their typically developing peers. When general education environments do not adequately meet students' needs, or when students do not respond to typical instruction, it may become necessary to provide more specialized and intensive supports.

Response to Intervention (RTI) is a prevention-oriented framework designed to identify and address student learning needs early. In RTI, educators use screening and progress monitoring to identify which students need additional support and whether current instruction or intervention is effective. In the typical three-tier model, all students receive high-quality core instruction and universal screening (Tier 1). Students who need additional assistance receive supplemental instruction and intervention (15% of students, Tier 2). Students with more intensive needs receive individualized supports (5% or fewer students, Tier 3). This structure builds on a sound general education foundation and provides earlier support and, in some instances, disability identification in contrast to other models that delay intervention or identification (Hoover, 2011; Kirby, 2017). Formative assessment is critical to an RTI framework to ensure that teachers have timely instructional information to adjust to the needs of students who are struggling or have disabilities in each context (Kressler et al., 2020). These developments in assessment reflect a shift in assessment from a reactive model focused on identification to a proactive, prevention-oriented approach that emphasizes early support, continuous monitoring, and data-informed instruction.

Reflection Questions

1. In what ways has the purpose of assessment in special education changed from identification and placement to instructional decision-making?
2. Why is it important for educators to understand the historical concerns related to assessment bias and misidentification?
3. How do IDEA's evaluation safeguards, family participation requirements, and emphasis on multiple sources of data influence the way assessment should be used today?

FIGURE 2: Assessment Within a Multi-tiered System of Support



MAJOR ADVANCES AND PRACTICE-CHANGING INNOVATIONS

Over the past several decades, assessment in special education has evolved from a system largely focused on eligibility and compliance toward one that supports ongoing instructional decision-making. Determining whether a student qualifies for special education services is no longer the primary role of assessment. Instead, advances in research, policy, and practice have expanded the role of assessment as a key component of ensuring educators understand how students learn and how instruction can be improved (Aceves & Kennedy, 2024). Today, assessment systems are designed to provide timely, meaningful information that guides teaching, supports collaboration among professionals and families, and promotes equitable learning opportunities for all students. Key innovations in assessment and the structures that support assessment systems have reshaped how educators collect and use information about student learning. This shift aligns with the growing emphasis on evidence-based assessment practices,

which require the integration of multiple data sources and theoretically grounded measurement approaches to inform educational decision-making (Talbott et al., 2023). Historically, assessment practices focused heavily on classification and eligibility, often relying on limited data sources that did not adequately inform instruction (Frey, 2019). These advances position assessment as a critical and central tool for improving instruction and supporting the success of students with disabilities and their peers.

Multi-Tiered Systems of Support

One of the most significant advances in assessment practice over the past several decades has been the development of Multi-Tiered Systems of Support (MTSS). MTSS reflects a shift away from assessment as a gatekeeping mechanism and toward assessment as a tool for improving instruction and supporting the success of all students, including students with disabilities (McIntosh & Goodman, 2016). Within MTSS, assessment, instruction, and intervention operate as an integrated system designed to respond to students' learning needs in a timely and coordinated way. In an MTSS framework, all students receive high-quality core instruction, while additional supports and interventions are provided for students who need more intensive assistance. Educators use student data to determine when additional supports and interventions are necessary and to evaluate whether those supports and interventions are effective. MTSS also supports more equitable identification practices by emphasizing the use of multiple sources of data and reducing reliance on single high-stakes assessments (Hoover et al., 2018). As shown in Figure 2, assessment data are used across all tiers to identify student needs, monitor response to instruction and intervention, and inform decisions about the level and type of support provided. Federal guidance under IDEA further reinforces the importance of comprehensive evaluation procedures that incorporate observations, progress data, and multiple assessment tools to inform eligibility and intervention planning (Power-deFur, 2023).

A comprehensive approach encourages educators to view assessment not as a single event, but as an ongoing process that informs instruction and guides decision-making (Cornelius et al., 2024). MTSS also strengthens collaboration among general educators, special educators, instructional specialists, and school leaders who work together to review data, identify student needs, and design appropriate supports and interventions. A collaborative approach reinforces the idea that supporting student learning is a shared responsibility across the school system. By integrating assessment and instruction, MTSS has helped move schools toward a more proactive and equitable model of support. Students receive help based on their needs rather than waiting for academic failure to occur before support and intervention.

Putting it into Practice

During the fall universal screening period, a sixth-grade mathematics team finds that 38% of students scored below the benchmark for fluently multiplying and dividing multi-digit decimals and positive fractions. Before assigning several students to Tier 2 intervention, the team examines class-wide performance patterns, alignment between the screener and recent instruction, and considers the consistency of core instruction. The teachers also review formative assessments, student work samples, and classroom observation reports. This review reveals that many students can multiply multi-digit decimals but are having difficulty dividing decimals and positive fractions accurately. Because this is a pattern across students and classrooms, the team determines student performance is likely due to core Tier 1 instruction. The teachers work together to strengthen core instruction by adding explicit instruction, frequent and responsive feedback, and multiple opportunities for students to practice. After five weeks, the math team gives an assessment aligned with the grade level skills. The majority of students demonstrate improvement, but a smaller group of 6 students is still struggling. These students will begin a targeted Tier 2 intervention, and their progress will be monitored weekly.

Universal Screening and Early Identification

Another important advancement in assessment practice is the widespread adoption of universal screening to identify students who may require additional academic or behavioral support. Universal screening involves assessing all students at regular intervals using brief measures designed to detect potential learning difficulties. Universal screening represents a significant departure from earlier models in which students were often identified for support only after prolonged struggles. However, researchers caution that universal screening tools must be carefully selected and interpreted to ensure validity across diverse student populations. For example, assessments that include unnecessary linguistic complexity may introduce measurement error, meaning that a student's score is influenced by factors other than the knowledge or skill the assessment is intended to measure. This can lead to inaccurate conclusions about student ability, particularly for English language learners (Richards-Tutor & Aceves, 2025). Incorporating culturally and linguistically responsive practices helps ensure that screening results accurately reflect students' learning needs rather than language differences (Hoover et al.,

2018; Richards-Tutor & Aceves, 2025).

Early identification allows educators to provide targeted support before gaps in learning become more difficult to address. Universal screening also highlights the importance of proactive assessment practices. Effective educators do not wait for students to fall behind before taking action. Instead, they regularly examine student performance data to identify patterns and determine which students may benefit from additional support (McIntosh & Goodman, 2016). From a policy perspective, universal screening has helped schools create more systematic and equitable processes for identifying students who need additional services. These practices, when implemented effectively, help ensure that decisions about student support are informed by data rather than subjective judgment alone. Screening results should be interpreted alongside classroom performance, instructional history, and other relevant information rather than used as the sole basis for an educational decision.

Progress Monitoring and Data-Based Instruction

The development of progress monitoring has also transformed the role of assessment in classrooms and schools. Progress monitoring is the frequent measurement of student performance to determine whether students are making adequate progress toward learning goals. Rather than relying only on end-of-year or periodic testing, educators now collect data regularly to track growth over time (Fry et al., 2023). Progress monitoring data allow teachers to evaluate whether current instructional strategies are effective by examining patterns in student performance over time. When progress is slower than expected, educators can use the data to determine whether to adjust instructional strategies, pacing, group size or the intensity of support. Within an evidence-based assessment framework, progress monitoring relies on the use of reliable, valid measurement tools and systematic data interpretation processes to guide instructional adjustments (Talbott et al., 2023). Educators play a critical role in administering and interpreting these assessments, though research suggests variability in training and implementation practices across preparation programs (Lockwood et al., 2022).

Progress monitoring supports a more responsive approach to teaching. When data show that students are progressing as expected, educators can continue with the current instructional approach and pacing. This process ensures students are meeting benchmarks and progressing toward intended outcomes. When progress slows or stalls, educators can modify instructional strategies and/or increase the intensity of support. Progress monitoring reinforces the idea that assessment is most powerful when it is closely connected to instructional decision-making. Data are not collected simply to document learning but to improve teaching and ensure that all students have access to meaningful learning opportunities.

Expanded Data Sources

Assessment practices have increasingly shifted toward the use of multiple, complementary sources of data to develop a more complete and equitable understanding of student learning (Cornelius et al., 2024; Fry et al., 2023). Multiple sources of information may include standardized and curriculum-based measures, classroom observations, student work samples, interviews, and input from families and other members of the educational team. The growing emphasis on evidence-based assessment practices reflects the need to draw on multiple methods, sources, and contexts to develop a comprehensive understanding of student learning (Talbott et al., 2023). Rather than relying solely on standardized or isolated measures, educators increasingly use a range of assessment approaches, including classroom observations, curriculum-based measures, student work samples, and interviews with key stakeholders. Family perspectives, in particular, provide critical context for understanding student performance across settings (Power-deFur, 2023; Talbott et al., 2023). Collectively, varied forms of assessment data offer a more nuanced picture of what students know and can do across contexts and over time (Jung & Thomas, 2010).

Increasingly, assessment frameworks recognize families as essential contributors to the assessment process, as they offer valuable perspectives on students' strengths, experiences, and learning outside of school contexts (McCray et al., 2025; Talbott et al., 2023). Family insights offer valuable information about students' strengths, cultural and linguistic assets, learning preferences, and experiences outside of school that may not be captured through traditional assessments (Gaspar & Sahay, 2025). Incorporating family perspectives can help educators interpret assessment results more accurately and develop instructional plans that are responsive to the whole student (McCray et al., 2025). This positions families as active partners in understanding and supporting student learning.

Incorporating multiple data sources also supports more equitable and accurate decision-making by reducing overreliance on standardized assessments that may not fully capture the abilities of diverse learners. Research has shown that failure to consider linguistic and cultural factors in assessment can lead to misinterpretation of student performance and inappropriate identification for special education services (Hoover et al., 2018; Richards-Tutor & Aceves, 2025). When educators rely on a single measure, particularly those

that may carry cultural or linguistic bias, important aspects of student ability can be overlooked (Stewart et al., 2022; Artiles, 2019). By integrating multiple data sources, including family input, educators can reduce bias and make more informed instructional decisions. Assessment becomes not only a tool for measuring learning but also a mechanism for ensuring that all students have meaningful opportunities to demonstrate their knowledge in ways that honor their identities and experiences.

Putting it Into Practice

A seventh-grade student, Elena, performs below the benchmark on a schoolwide reading assessment. Her teacher also notices that she sometimes needs additional time to complete written assignments. However, Elena participates actively in class discussions, demonstrates strong understanding when information is presented orally, and consistently completes complex projects successfully. Before drawing conclusions about Elena's reading performance, the team reviews several additional sources of information, including classroom work samples, previous assessment results, language development data, attendance records, and teacher observations. During a conversation with Elena's family, the team learns that she regularly reads and discusses texts in Spanish at home and that she has recently transitioned into more advanced English language coursework. The information from multiple data sources suggests that Elena's screening score should not be interpreted in isolation. The team decides to continue monitoring her reading performance, provide targeted language and literacy support within core instruction, and review her progress prior to additional intervention.

Technology-Based Data Systems

Technological advances have further strengthened the role of assessment in supporting student learning. Digital assessment platforms, data dashboards, and integrated data systems now allow educators to collect and analyze student information more efficiently than ever before. These systems make it possible for educators to track student performance across time, classrooms, and content areas. Technology can also empower students to track and monitor their own performance, a strategy that has been shown to motivate student learning (McIntosh & Goodman, 2016). Emerging technologies, including artificial intelligence (AI), are beginning to extend these capabilities by supporting more rapid analysis of student data, automating aspects of scoring, and generating insights to inform instructional decisions; however, the integration of AI into assessment remains an emerging area of research and practice (Ouyang et al., 2023; Owan et al., 2023). Although still developing, AI shows promise in enhancing assessment systems by identifying patterns in student learning and providing more timely, individualized feedback (Lin et al., 2023).

Technology-based data systems also allow teachers and school leaders to visualize trends in student learning and share information with colleagues and families. As a result, data that were once difficult to access or interpret are now more readily available to inform instructional decision-making in a more immediate manner. Technology-based data systems illustrate how assessment can function as a powerful tool for continuous improvement. Increased access to data also requires strong data literacy, including the ability to determine which information is relevant, interpret patterns accurately, recognize limitations, and connect findings to appropriate instructional decisions. When educators have access to timely and understandable information about student learning, they are better equipped to respond to student needs and strengthen instruction across classrooms and schools.

In addition to improving efficiency, technology-based assessment systems are increasingly shaping how educators conceptualize teaching and learning. As digital platforms become more integrated into classrooms, assessment is no longer confined to discrete moments but is embedded within daily instructional interactions. For example, adaptive learning technologies can continuously collect data on student responses, providing real-time insights into patterns of understanding, misconception, and engagement. This use of technology and data assists with moving toward more dynamic and responsive assessment environments in which data are generated through authentic learning experiences rather than isolated testing events. As a result, assessment becomes less intrusive and more seamlessly aligned with instruction.

Reflection Questions

1. How have MTSS, universal screening, progress monitoring, and data-based individualization changed the relationship between assessment and instruction?
2. Why is it important to consider multiple sources of information rather than relying on a single assessment result when making educational decisions?
3. How can assessment data help educators determine whether a student needs a change in instruction, additional intervention, or more intensive support?

IMPLICATIONS FOR RESEARCH AND PRACTICE

The evolution of assessment practices over the past fifty years has important implications for both research and professional practice. As assessment

systems have shifted toward continuous, instructionally relevant data use, educators must develop the skills and structures necessary to use these tools effectively. Teacher preparation programs, schools, and state education systems all play a role in ensuring that assessment practices support meaningful learning rather than simply fulfilling compliance requirements. Assessment literacy refers to the knowledge, skills, and dispositions educators need to select appropriate assessments, administer and score them accurately, interpret results, recognize limitations, communicate findings, and use assessment information to make informed educational decisions. Preparing educators to interpret and act on assessment data, strengthening collaborative data use, designing coherent assessment systems, and advancing equity through thoughtful data practices are key priorities for the future of assessment (Mandinach & Gummer, 2016; McCray et al., 2025).

Preparing Teachers to Use Assessment Effectively

Teacher preparation programs play a central role in ensuring that future educators can use assessment as a meaningful tool for improving instruction. As assessment systems have grown more sophisticated, teachers must develop strong assessment literacy, including the ability to interpret student data, monitor progress, and connect assessment results directly to instructional decisions (Mandinach & Gummer, 2016). This data literacy emphasis aligns with evidence-based assessment frameworks, which require educators to integrate multiple data sources and apply theoretically grounded decision-making processes when interpreting student performance (Talbott et al., 2023). Assessment data may be underutilized or misinterpreted without these competencies, limiting their impact on instructional improvement.

Teacher candidates should learn how to examine multiple forms of data to understand student learning and growth with diverse student populations, such as interpreting assessment results, identifying patterns in student performance, recognizing the limitations of individual measures, and determining when and how instructional adjustments are warranted. Research also highlights that effective assessment literacy includes understanding the limitations of individual measures and the importance of triangulating data across sources to improve accuracy and instructional relevance (Frey, 2019). Candidates must also develop the skills to monitor student progress over time, ensuring that instruction and interventions remain responsive to student needs (Deno, 2003; Fuchs & Fuchs, 2006).

Equally important is the ability to communicate assessment information effectively. Teachers regularly share data with colleagues, school teams, and families in order to coordinate supports and ensure that students receive appropriate instruction (Cornelius et al., 2024). Effective communication includes explaining assessment results in accessible language, inviting questions and perspectives, and helping families understand how the information connects to instructional goals and supports (Cornelius et al., 2024). When assessment is integrated into everyday instructional routines, teachers learn to view data not as a separate task but as an essential component of effective teaching (Aceves & Kennedy, 2024).

Strengthening Collaborative Data Use

Effective assessment practices depend on collaboration among educators. Teachers, specialists, administrators, and families each bring valuable perspectives that help schools interpret student data and design appropriate supports (Billingsley et al., 2024; Datnow & Hubbard, 2016; Talbott et al., 2023). Collaborative data use encourages teams to examine student progress together, identify areas where students may need additional assistance, and develop coordinated strategies for instruction and intervention (Billingsley et al., 2024). Regular team discussions around student data can help ensure that decisions are informed by multiple perspectives and that supports are implemented consistently across classrooms (Billingsley et al., 2024; Wayman, Jimerson, & Cho, 2012). For teacher candidates, learning to participate in these collaborative processes is an essential professional skill. Preparing educators to engage in productive data conversations helps schools build a culture in which assessment information is used constructively to improve teaching and learning.

Advancing Equity Through Assessment

Assessment also plays a critical role in advancing educational equity. When used thoughtfully, assessment data can reveal patterns in student opportunity, access to instruction, and academic outcomes across groups of learners (Darling-Hammond, 2010; McCray et al., 2025). Examining multiple sources of data helps educators develop a more complete understanding of student learning and reduces the risk that decisions will be based on a single measure. Overreliance on single measures, particularly standardized assessments, has been shown to introduce bias and contribute to inequitable identification practices, especially for culturally and linguistically diverse learners (Hoover et al., 2018; McCray et al., 2025; Richards-Tutor & Aceves, 2025). Ethical use of assessment data requires educators to consider not only whether a measure is technically sound, but also how the data

are interpreted, whose perspectives are represented, and how resulting decisions may expand or restrict a student's access to instruction and opportunity. A broader view of assessment supports more accurate and fair decision-making about instruction and student support (Cornelius et al., 2024). At the same time, maintaining high expectations for all students remains central to equitable assessment practices. Data should be used not to limit opportunities but to identify ways to strengthen instruction and expand access to meaningful learning experiences. When assessment is used in this way, it can help educators identify barriers to learning and support improved outcomes for students with disabilities and other historically underserved groups (Cornelius et al., 2024; Darling-Hammond, 2010).

Reflection Questions

1. What knowledge and skills do educators need to move from simply collecting assessment data to using those data to make informed instructional decisions?
2. How can collaboration among educators, students, families, and other professionals improve the interpretation and use of assessment information?
3. What responsibilities do educators have to ensure that assessment practices and data-based decisions are equitable, ethical, and responsive to individual learners?

LOOKING AHEAD TO THE NEXT FIFTY YEARS

Assessment in special education has evolved since 1975 from primarily an identification mechanism to an essential part of instructional decision-making. Both formal and informal assessments offer insights into a student's unique strengths and needs and provide the foundation for developing individualized goals documented in the IEP and monitoring meaningful progress. Additionally, assessment can provide short and long-term feedback on instruction and highlight a teacher's strengths and needs.

As MTSS models are increasingly adopted at school, district, and state levels, it is important to consider assessment as a key element of the system designed to support the whole child in learning. Evaluation and assessment are used for initial identification, to determine eligibility, to set goals and monitor progress, and to measure the appropriateness of instruction. Each of these purposes informs teaching and learning and decisions about the supports needed. In effective systems, educators, specialists, students, and families work together to identify needs, interpret assessment information, and determine appropriate supports in a timely manner. Depending on identified needs, support may include professional development or coaching for a teacher, release time for observations or team planning, or supplemental instruction, intervention, and assessment accommodations provided within the classroom.

Evidence-based assessment systems should include multiple assessments, appropriate technology tools, and effective collaboration to promote access, growth, and optimal outcomes for all learners. Summative assessments provide data relative to appropriate standards and developmental and grade-level expectations. These data facilitate longitudinal and cohort comparisons. Formative assessments (e.g., CBM, quizzes, observations) provide ongoing, real-time data that can inform instructional adjustments. Coupled together, summative and formative assessment data facilitate long and short-term progress monitoring. Multiple forms of data are important to developing an IEP that will "enable a child to make progress appropriate in light of the child's circumstances" consistent with the Supreme Court decision in the *Endrew F.* case (2017).

Educators must develop AI literacy to effectively evaluate and use technology tools to enhance assessment and instruction (Marino et al., 2023). According to Ding and colleagues (2024), non-technical users including teachers should possess three dimensions of AI literacy: AI mechanisms, AI capabilities, and AI ethics. The first dimension (AI mechanisms) focuses on a functional understanding of AI. The second dimension (AI capabilities) focuses on understanding the capabilities of AI, its strengths and weaknesses. Finally, AI ethics emphasizes considering the impact on society such as data privacy issues and algorithmic bias. Technology is ubiquitous and leveraging technology tools appropriately has the potential to enhance assessment systems. For instance, machine learning can facilitate student assessment and adjust difficulty in real time based on responses. Additionally, child study teams–and learners themselves–can use programs that will compile, analyze, and interpret performance data and make suggestions for instruction or intervention (Ding et al., 2024). These opportunities must be guided by ethical and professional judgement.

Using these technologies ethically will require ongoing professional learning and educator professional judgement to ensure sound instructional decisions and adherence to FERPA regulations. Technology should supplement and enhance educator knowledge and skill, not supplant it. Future improvements in assessment literacy will depend in part on how well teacher candidates learn to connect assessment knowledge to instructional practice. As they move through coursework and clinical experiences, candidates need opportunities to interpret authentic student data, examine the strengths and limitations of different

ABOUT THE AUTHORS

Meg Kamman, Ph.D.

Meg Kamman, Ph.D, is a Clinical Associate Professor at the University of Florida and Co-Director of the Collaboration for Effective Educator Development, Accountability, and Reform (CEEDAR) Center. Her work focuses on strengthening educator preparation and supporting state and institutional systems in implementing and sustaining evidence-based practices for students with disabilities. She brings extensive experience as a special education teacher, technical-assistance provider, and leader of national initiatives to improve educator effectiveness.

Erica D. McCray, Ph.D.

Erica D. McCray, Ph.D, is Professor of Special Education and Associate Dean for Personnel Affairs and Community Engagement at the University of Florida, where she also serves as Executive Director of the CEEDAR Center. Her scholarship focuses on educator preparation, educational policy, and the influence of culture and diversity on teaching and learning. A former special education teacher, she has led national efforts to strengthen the preparation of educators and improve educational opportunities and outcomes for students with disabilities.

assessment tools, communicate findings clearly, and use evidence to make instructional decisions. Developing these habits can help future educators move beyond simply creating, collecting, and reporting data toward using assessment as an ongoing tool for understanding student learning and improving instruction.

Technological advances offer a powerful means for data collection, analysis, and the development of responsive instructional supports, positioning assessment systems to become increasingly dynamic and personalized in the years ahead. Advances in artificial intelligence and machine learning have the potential to support more adaptive assessment practices, allowing educators to better understand student learning trajectories and respond to needs in real time. For example, emerging tools may adjust task difficulty based on student responses or generate timely insights that inform instructional planning and intervention. At the same time, these technologies can streamline data aggregation and interpretation, providing educators and teams with more accessible and actionable information to guide decision-making.

However, the effective use of these innovations will depend on educators' ability to evaluate and apply technology thoughtfully and responsibly. Developing AI literacy, including understanding AI mechanisms, capabilities, and ethical considerations such as data privacy and algorithmic bias, will be essential for ensuring that technology enhances rather than constrains equitable assessment practices. Ongoing professional learning and strong professional judgment will be necessary to ensure that data are interpreted accurately and used in ways that support meaningful learning. Ultimately, technology should supplement and strengthen educator expertise, not replace it. The future of assessment will depend not only on continued technological innovation, but also on the ability of educators and systems to integrate these tools in ways that are ethical, equitable, and responsive to the diverse and evolving needs of learners.

Reflection Questions

1. What assessment and data-literacy skills will future educators need as assessment systems and technologies continue to evolve?
2. How can artificial intelligence and other emerging technologies strengthen assessment practices without replacing educator expertise and professional judgment?
3. What ethical considerations should guide educators when using technology to collect, analyze, interpret, or act on student data?

REFERENCES

Aceves, T. C., & Kennedy, M. J. (Eds.). (2024). *High-leverage practices for students with disabilities* (2nd ed.). Council for Exceptional Children & CEEDAR Center.

Artiles, A. J. (2019). Understanding practice and intersectionality in teacher education in the age of diversity and inequality. *Teachers College Record, 121*(6), 1–6. https://doi.org/10.1177/016146811912100612

Billingsley, B., Francis, G., Weiss, M., Washburn, J., Aceves, T. & Vanderploeg, L. (2024). Collaboration. In T. C. Aceves & M. J. Kennedy (Eds.), *High-leverage practices for students with disabilities* (2nd ed., pp. 26–28). Council for Exceptional Children & CEEDAR Center.

Brown v. Board of Education, 347 U.S. 483 (1954).

Cornelius, K. D., Kamman, M., Driver, M. K., & McCray, E. D. (2024). Data-driven planning. In T. C. Aceves & M. J. Kennedy (Eds.), *High-leverage practices for students with disabilities* (2nd ed., pp. 50-77). Council for Exceptional Children & CEEDAR Center.

Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future*. Teachers College Press.

Datnow, A., & Hubbard, L. (2016). Teacher capacity for and beliefs about data-driven decision-making: A literature review of international research. *Journal of Educational Change,* 17, 7–28. http://dx.doi.org/10.1007/s10833-015-9264-2

Deno, S. L. (2003). Developments in curriculum-based measurement. *The Journal of Special Education*, *37*(3), 184–192. https://

doi.org/10.1177/00224669030370030801
Ding, L., Kim, S., & Allday, R. A. (2024). Development of an AI literacy assessment for non-technical individuals: What do teachers know? *Contemporary Educational Technology, 16*(3), ep512. https://doi.org/10.30935/cedtech/14619
Endrew F. v. Douglas County School District RE–1, 580 U.S. (2017).
Frey, J. R. (2019). Assessment for Special Education: Diagnosis and Placement. *The ANNALS of the American Academy of Political and Social Science*, *683*(1), 149–161. https://doi.org/10.1177/0002716219841352
Fry, E. C., Toste, J. R., & Espin, C. A. (2023). A systematic review of CBM content in practitioner-focused journals: Do we talk about instructional decision-making? *Journal of Learning Disabilities, 57*(5), 275–290. https://doi.org/10.1177/00222194231215031
Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 93–99. https://doi.org/10.1598/RRQ.41.1.4
Gaspar, C. R., & Sahay, D. (2025). Expanding the concept of parent involvement to special education: Considerations for inclusivity. *Journal of Family Theory & Review*, 17(3), 423–445. https://doi.org/10.1111/jftr.12634
Hoover, J. J. (2011). Making informed instructional adjustments in RTI models: Essentials for practitioners. *Intervention in School and Clinic*, *47*(2), 82–90. https://doi.org/10.1177/1053451211414193
Hoover, J. J., Erickson, J. R., Herron, S. R., & Smith, C. E. (2018). Implementing culturally and linguistically responsive special education eligibility assessment in rural county elementary schools: Pilot project. *Rural Special Education Quarterly, 37*(2), 90–102. https://doi.org/10.1177/8756870518761879
Individuals with Disabilities Education Act, 20 U.S.C. §§ 1401 et seq.
Jensen, A. R. (1980). *Bias in mental testing*. Free Press.
Jung, L. A., & Thomas, R. G. (2010). Grading exceptional learners. *Educational Leadership, 67*(5), 31–35.
Kamman, M. L., & McCray, E. D. (2022). Interpreting and communicating assessment information with stakeholders to collaboratively design and implement educational programs (pp. 71-84). In J. McLeskey, B. Billingsley, & T. Lewis (Eds.), *High-leverage practices for inclusive classrooms*, 2nd ed. Routledge.
Kirby, M. (2017). Implicit assumptions in special education policy: Promoting full inclusion for students with learning disabilities. *Child Youth Care Forum, 46*, 175–191. https://doi.org/10.1007/s10566-016-9382-x
Kressler, B., Chapman, L. A., Kunkel, A., & Hovey, K. A. (2020). Culturally responsive data-based decision-making in high school settings. *Intervention in School and Clinic*, *55*(4), 214–220. https://doi.org/10.1177/1053451219855737
Larry P. v. Riles, 343 F. Supp. 1306 (N.D. Cal. 1972), aff'd 502 F. 2d 963 (9th Cir. 1974); 495 F. Supp. 926 (N.D. Cal. 1979), aff'd 793 F. 2d 969 (9th Cir. 1984).
Leach, D., & Helf, S. (2016). Revisiting the Regular Education Initiative: Multi-tiered systems of support can strengthen the connection between general and special education. *Journal of the American Academy of Special Education Professionals*, p. 116–124. https://doi.org/10.64546/jaasep.321
Lin, C.-C., Huang, A. Y. Q., & Lu, O. H. T. (2023). Artificial intelligence in intelligent tutoring systems toward sustainable education: A systematic review. *Smart Learning Environments, 10*, 41. https://doi.org/10.1186/s40561-023-00260-y
Lockwood, A. B., Farmer, R. L., Schmitt, M., Sealander, K., Lanterman, C., & Adkins, M. (2022). The course on norm-referenced academic assessment: A survey of special education faculty. *Psychology in the Schools, 59*(2), 398–412. https://doi.org/10.1002/pits.22616
Mandinach, E. B., & Gummer, E. S. (2016). What does it mean for teachers to be data literate: Laying out the skills, knowledge, and dispositions. *Teaching and Teacher Education, 60*, 366–376. https://doi.org/10.1016/j.tate.2016.07.011
Marino, M. T., Vasquez, E., Dieker, L., Basham, J., & Blackorby, J. (2023). The future of artificial intelligence in special education technology. *Journal of Special Education Technology, 38*(3), 404–416. https://doi.org/10.1177/01626434231165977
Martin, E. W., Martin, R., & Terman, D. L. (1996). The legislative and litigation history of special education. *The Future of Children, 6*(1), p. 25–39. https://doi.org/10.2307/1602492
McCray, E. D., Kamman, M. L., Aceves, T. C., & Clardy, C. J. (2025). Culturally and Linguistically Responsive Pedagogy Innovation Configuration (Document No. IC-19). University of Florida, Collaboration for Effective Educator, Development, Accountability, and Reform Center. http://ceedar.education.ufl.edu/tools/innovation-configurations/
McIntosh, K., & Goodman, S. (2016). *Integrated multi-tiered systems of support: Blending RTI and PBIS* (2nd ed.). Guilford Press.
Mercer, J. (1973). *Labeling the mentally retarded*. University of California Press.
National Center on Intensive Intervention. (2013). *Data-based individualization: A framework for intensive intervention*. American Institutes for Research. Retrieved from https://intensiveintervention.org/sites/default/files/DBI_Framework.pdf
Owan, V. J., Abang, K. B., Idika, D. O., Etta, E. O., & Bassey, B. A. (2023). Exploring the potential of artificial intelligence tools in educational measurement and assessment. *EURASIA Journal of Mathematics, Science and Technology Education, 19*(8), em2307. https://doi.org/10.29333/ejmste/13428
Ouyang, F., Dinh, T. A., & Xu, W. (2023). A systematic review of AI-driven educational assessment in STEM education. *Journal for STEM Education Research, 6*, 408–426. https://doi.org/10.1007/s41979-023-00112-x
Park, S., Stecker, P. M., & Powell, S. R. (2024). A Teacher's Toolkit for Assessment When Implementing Data-Based Individualization in Mathematics. *Intervention in School and Clinic*, *59*(4), 243–253. https://doi.org/10.1177/10534512231182042
Power-deFur, L. A. (2023). Special education assessment: Practices that support eligibility and intervention. *Language, Speech, and Hearing Services in Schools, 55*(2), 336–348. https://doi.org/10.1044/2023_LSHSS-23-00077
Rehabilitation Act of 1973, 29 U.S.C. § 701 et seq.
Richards-Tutor, C., & Aceves, T. (2025). Effective Practices for Multilingual Learners Within a Multi-Tiered System of Supports (MTSS) Framework (Document No. IC-18b). University of Florida, Collaboration for Effective Educator, Development, Accountability, and Reform Center. http://ceedar.education.ufl.edu/tools/innovation-configurations/
Skiba, R. J., Simmons, A. B., Gibb, A. C., Rausch, M. K., Cuadrado, J., & Chung, C-G. (2008). Achieving equity in special education: History, status, and current challenges. *Exceptional Children, 74*(3), 264-288. https://doi.org/10.1177/001440290807400301
Stewart, M.A., Hansen-Thomas, H., Flint, P., & Núñez, M. (2022). Translingual disciplinary literacies: Equitable language environments to support literacy engagement. *Read Research Quarterly, 57*(1), 181–203. https://doi.org/10.1002/rrq.381
Talbott, E., De Los Reyes, A., Kearns, D. M., Mancilla-Martinez, J., & Wang, M. (2023). Evidence-based assessment in special education research: Advancing the use of evidence in assessment tools and empirical processes. *Exceptional Children, 89*(4), 467–487. https://doi.org/10.1177/00144029231171092
Wayman, J. C., Jimerson, J. B., & Cho, V. (2012). Organizational considerations in establishing the data-informed district. *School Effectiveness and School Improvement, 23*(2), 159–178. https://doi.org/10.1080/09243453.2011.652124
Will, M. C. (1986). *Educating students with learning problems: A shared responsibility*. *Exceptional Children, 52*(5), 411–415. https://doi.org/10.1177/001440298605200502

Teaching Students with Disabilities who Access the General Curriculum: A Historical Perspective

AUTHORS
Margaret P. Weiss
John W. Lloyd

Journal of Special Education Preparation
6(2), 46-59
© 2026 Weiss and Lloyd
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/ndeuy-4wmu78

ABSTRACT

As the field celebrates the 50th anniversary of the Individuals with Disabilities Education Act (IDEA), it is important to recognize the progress made in ensuring that students with disabilities have access to meaningful educational opportunities and improved outcomes. Effective instruction is at the heart of special education and meaningful access. In this article, we argue that effective instruction is complex and difficult, but much progress has been made. We trace the evolution of thinking about instruction for students with disabilities who access the general curriculum from the focus on psychological processes to evidence-based and high-leverage practices. We describe four themes around major advances and practice changing innovations: (1) specially designed instruction built on access to the general education curriculum, (2) a special education research base developing effective instructional components, (3) consensus around high-leverage practices, and (4) data collection acknowledged as a critical component of instruction. We conclude with implications and ideas for the future.

KEYWORDS

Evidence-based practices, general education curriculum, inclusive education, special education, specially designed instruction

Contemporary special education has been shaped by the Individuals with Disabilities Education Improvement Act (IDEA; 2004) since its passage in 1975 as the Education for All Handicapped Children Act (P.L. 94-142). Aspects of IDEA—child find, assessment, instruction, placement, funding, family-centered services, administration, and more—have substantially influenced the daily practice of special educators. IDEA also influences other aspects of society including medicine, psychology, and law. What is more, although it was a product of political processes in the United States of America, IDEA has also influenced disability services in many other countries (Gordon-Gould & Hornby, 2023). It would probably be too strong to say that IDEA *is* special education, but if it is not equivalent to special education, its core goal is to provide something that sounds a lot like special education: a Free Appropriate Public Education (FAPE) for students with disabilities. Processes that special educators use to pursue that goal are (a) Individualized Education Programs (IEPs) delivered in (b) least restrictive environments, using (c) equitable assessment procedures to identify eligible individuals and determine their needs with (d) decisions about children's education shared equally with parents, while (e) protecting the legal rights of the students and their families.

Although we believe that each of these pillars of special education is important, we argue that specially designed instruction historically was and should continue to be the foremost focus of special education for students with disabilities who access the general curriculum. Although it has sometimes been subordinated to the other important aspects of FAPE, we see the core function of providing FAPE as the development and implementation of IEPs with specially designed instruction that meets the unique needs of students with disabilities. Said another way, we are emphasizing special *education*. In this article, focused on students with disabilities

TABLE 1: Four Approaches to Instruction for Students with Disability who Access the General Curriculum

	Medical	Diagnostic-Remedial (Psychological)	Task-Analytic (Educational)	Legal
Causes	• Genetic • Structural • Chemical	• Developmental deviations • Mental processes	• Causes don't really matter • Learned behavior • Inadequate instruction	• Agnostic • Must fit characteristics definitions in regulations
Assessment	• Developmental history • Karyotyping • "Soft" neurological tests	• Psychological processes • Strengths & weaknesses • Psycho-battery	• Compare what task-specific knowledge and skills learners can and cannot do • Assess development formatively	• Non-discriminatory • Using measures that are reliable and valid • Tests administered by trained professionals
Intervention	• Medications • Sensory correction • Patterning	• Remediate weak processes • Teach through strong processes • Match instruction to strengths and weaknesses	• Systematically and explicitly teach needed skills • Adjust instruction based on formative mastery assessments	• FAPE • Individualized (IEP) • Least restrictive environment (LRE)

who access the general curriculum, we explain our view on the importance of instruction, tracing its evolution from historical foundations to contemporary, evidence-based and high-leverage practices. We describe how major advances have changed our thinking about effective instruction and the knowledge and skills necessary for teachers to implement it. Finally, we hypothesize the reasons why these effective practices are not seen in every classroom and suggest what the next 50 years might bring.

We make two critical assumptions in this article: (a) "If the child hasn't yet learned, he hasn't yet successfully been taught" (Bateman, 1967, p. 220) and (b) effective instruction is complex and requires significant skill and training to implement faithfully and successfully. These assumptions have not always been in vogue. However, specially designed instruction, the individualized instruction guaranteed by IDEA for students with disabilities, is the crux of what special educators do every day. Designing and implementing specially designed instruction requires expertise in understanding student characteristics, curriculum content, task analysis, assessment, and the components of effective instruction. As special education has advanced, the emphasis on effective instruction and what constitutes it has shifted and changed. We argue that these shifts and changes have brought special education to a time when there is an increased focus on instruction and the direct effect it has on student outcomes.

HISTORICAL FOUNDATIONS

Prior to the 1970s, there were few special services for students with disabilities. There were some special schools for children with sensory deficits, emotional or behavioral disorders, and intellectual disabilities, but many children with disabilities either stayed at home, lived in residential facilities (i.e., "hospitals"), or struggled to learn in public school systems that had minimal or no supports for them (Gerber, 2017; Kauffman & Landrum, 2006; Polloway et al., 2010). Specialized instruction, such as what Elizabeth Farrell provided in the 1920s in "ungraded classes" in New York City, was rare and only occurred in isolated locations around the US (Gerber, 2017). Parents and teachers who sought help for their children often turned to medical doctors or psychologists who were studying reading or intellectual disabilities. Adaptations in instruction simply were rarely available in U.S. classrooms of the 1950s and 60s. Thus, much of the emphasis in early provision of services for students with disabilities came from other disciplines.

Historical contributors to special

education represent those disciplines (Hallahan & Mercer, 2002; Kauffman & Landrum, 2006; Polloway et al., 2010). Samuel Orton, noted for his theories about reading disabilities, was a physician. Fritz Redl, who developed practices for assessing and treating students with emotional and behavioral disorders, was trained as a psychoanalyst. Alfred Strauss, who studied psychiatry and neurology, and Heinz Werner, who studied philosophy and psychology, were noted for their extensive research about children with intellectual disabilities.

As the category of learning disabilities emerged in the 1960s, Bateman (1967) described three approaches to assessment and intervention, including those allied disciplines. To what she called the "medical" and "diagnostic-remedial" orientations, she added a third perspective that she identified as "task-analytic." Of course, a fourth discipline, law, was also emerging in the 1960s and 70s. We created Table 1 to show Bateman's three approaches, and we added the legal discipline. Given their prominence in the evolution of instruction for students with disabilities who access the general curriculum, we describe these four approaches that affected special education in the table, and, in the following sections, we provide narrative about them with special consideration of assessment and intervention.

Medical

As shown in Table 1, medical personnel emphasized the physical nature of learning problems. They presumed that the problems were neurological in origin and, consequently, focused on "minimal brain dysfunction" (Clements & Peters, 1962). Lacking sophisticated neuroimaging techniques such as computerized axial tomography (CT scans) and magnetoencephalography (MEG) of the 21st century, they assessed children's behavior on tasks presumed to be affected by specific parts of the child's neurology. In addition to common school tests in, for example, reading, they assessed children's early history in search of late passage of developmental milestones (e.g., walking, speaking, toileting, etc.), and they tested their performance on common tasks such as standing on one foot, walking a straight line, touching one's nose, opening a doorknob, alternately puffing one cheek after the other, etc. The idea was that poor performance on certain tasks would indicate where in the physical nervous system problems were occurring (Clements & Peters, 1962; Rabe, 1969; Touwen & Prechtl, 1970).

The interventions recommended for addressing the problems of children with minimal brain dysfunction were often eclectic. Parents and children were referred for psychotherapy, counseling, perceptual training, and medication (e.g., Hatton, 1966). Some physicians prescribed amphetamines or other stimulants, for example, but gradually the medication of choice became methylphenidate (i.e., "Ritalin"). Although some early studies showed promising benefits (Conners & Eisenberg, 1963), subsequent studies raised concerns that pharmacological interventions mostly affected parents' and teachers' ratings of children's hyperactivity and rarely influenced academic outcomes (Conners, 1971; Kavale, 1982; see also DeGrandpre, 2000; Rodan et al., 2025; Schulz et al., 2021).

Diagnostic-Remedial/ Psychological

The diagnostic-remedial view of learning problems drew extensively from the psychology of perception and language. Academic learning problems were correlated with psychological processes in perceiving stimuli or in using language. Examples of these processes included visual discrimination, figure-ground, auditory association, and visual-motor association. Comparisons of the performance of students with disabilities to that of their non-disabled peers on tests such as the *Frostig Tests of Visual Perception* (Frostig et al., 1964) and the *Illinois Test of Psycholinguistic Abilities* (Kirk et al., 1961) bolstered the case that these processes were important (e.g., Gupta et al., 1978; Kass, 1966). Moreover, testing of individual students revealed inconsistent patterns of strengths and weaknesses across children. Whereas some were strong in certain areas and weak in others, others were strong and weak in different patterns of areas.

To address the problems revealed by diagnostic assessment of these process strengths and weaknesses, psychologists and educators created lessons, activities, and materials for use in clinics and classrooms. Some approaches emphasized remediating weak processes; others recommended modifying instruction so that it would take advantage of a learner's strengths.

Researchers examined the effects of remediating weak psychological processes such as visual perception (i.e., "reversals"), auditory sequential memory (more recently called "digit span"). The results of many studies were disappointing: After training to improve weak processes, students generally got better scores on the same measures that showed the weaknesses, they only sometimes got better scores on some similar tests, and very rarely got better scores in core academic skills (Hammill & Larsen, 1974; Kavale, 1981; Kavale & Mattson, 1983).

Researchers also examined the effectiveness of matching instruction to students' strengths. Reviews of the results of studies that tested the matching hypothesis showed that adapting instruction to learners' styles (i.e., modality preferences) did not result in better outcomes (Kavale & Forness, 1987; Pashler et al., 2008).

Task Analytic/Educational

Some special educators did not agree with the idea that medical and diagnostic-remedial approaches would change academic and social behavior of students. They challenged both the technical adequacy of the tests as well as the relevance of the underlying theories (e.g., Engelmann, 1967; Mann, 1971). Instead, they emphasized analysis of learning tasks and behavior to identify component skills that students needed to learn to succeed.

Some scholars conducted intensive studies, often of individual children, to compare detailed variations in teaching practices. For example, Thomas Lovitt and his colleagues developed and refined simple methods for measuring academic performance and studied teaching procedures for increasing reading and arithmetic computation fluency for students with learning disabilities (e.g., Lovitt, 1967; Lovitt & Curtis, 1968; Smith & Lovitt, 1973). These methods were early applications of behavior analysis and foreshadowed curriculum-based measurement.

Others began developing reading, language, and arithmetic curricula that were predicated, not on psychological theories, but on systematic examination of what students needed to know and do to achieve successfully. For example, Siegfried Engelmann followed task- and concept-analytic principles to design the *Direct Instruction Systems for Teaching Arithmetic and Reading* or "DISTAR," which was the forerunner of what is widely known as "Direct Instruction" (Engelmann, 1969; Engelmann & Carnine, 1970).

Legal

Court cases and legislation began influencing educational practice soon after Bateman (1967) described her three approaches. The most influential event was the passage of P.L. 94-142 or the "Education of All Handicapped Children Act" in the U. S. in 1975. That law, which was subsequently reauthorized as the "Individuals with Disabilities Education Act" or IDEA, required educators to develop child specific plans of instruction and to provide special education in the student's least restrictive environment (LRE).

Individualized Education Programs (IEPs) became signed legal agreements about what special education services—including instruction, if appropriate—students were to receive. They were to be developed collaboratively by educators and parents (and the student), based on individual and non-discriminatory assessments. They were to specify goals and objectives, the educational methods to attain those goals and objectives, and measurement systems to ascertain whether the methods were enabling the learner to reach those goals and objectives. Importantly, although the IEPs were essentially instructional designs, the law was largely agnostic about the instructional methods, practices, or procedures to be employed in teaching the learners.

A second legal factor that had substantial influence on special education was the favoring of LRE. Aimed at ensuring that children with disabilities would no longer be diverted into hospitals or their homes, the LRE provision became a primary focus of special education. It provided the authority for campaigns to deliver services, not only in the school buildings in children's neighborhoods, but also in general education classrooms, leading to "inclusion" becoming a marker of success (Crocket & Kauffman, 1999; Yell, 1995) and promoted in preparation of special educators (Markelz et al., 2022).

The formulation of special education practice as IEPs and the emphasis on LRE diverted special educators from systematically developing instructional practices that could be employed to address the primary presenting problems of large numbers of students with learning disabilities, emotional and behavioral disorders, autism, and other disabilities. Calling it the most important policy debate between 1975 and 2025, Fuchs and colleagues (2025) concluded that "the research on where to teach has generally been weak and inconclusive [but] the research on how to teach, stronger and more certain" (p. 257).

Much of the historical context for specialized instruction, with the exception of the work under the task-analytic approach, was only incidentally focused on instruction. Other disciplines—particularly medicine, psychology, and law—were influential during those formative times, but they offered little help with teaching. The other disciplines addressed changes in children's biochemistry, psychological competencies, or the physical location of schooling.

A SHIFT TO EMPHASIZING INSTRUCTION

There are at least three examples of how the task-analytic educational approach finally came to prominence over time: (a) inclusion of a requirement for evidence-based instruction and participation in the general education curriculum in the 2004 IDEA reauthorization, (b) ruling by the Supreme Court that IDEA guarantees students with disabilities make meaningful progress on their IEP goals (*Endrew F. v. Douglas County School District RE-1*, 2017), and (c) funding of critical projects and research by the U.S. Department of Education.

Reauthorization of IDEA

The reauthorization of PL 94-142 as IDEA in 1990 and 2004 included specific statements about evidence-based instruction and participation in the general education curriculum. Specifically, IDEA states that an IEP will include

[*emphasis added*]:

- (I) a statement of the child's present levels of academic achievement and functional performance, including—
  - (aa) how the child's disability affects the child's involvement and *progress in the general education curriculum*;
- (IV) a statement of the special education and related services and supplementary aids and services, *based on peer-reviewed research to the extent practicable*, to be provided to the child, or on behalf of the child, and a statement of the program modifications or supports for school personnel that will be provided for the child— [emphasis added]

In addition, IDEA (2004) included provisions for the professional development of teachers and others in the areas of evidence-based practices.

Ruling by the Supreme Court: *Endrew F.*

Counter to the *Rowley* decision (1982) that had set a low bar for progress for students with disabilities, the case of *Endrew F*. (2017) established a new level for "meaningful" progress. In writing for the unanimous court, Chief Justice Roberts stated [*emphasis added*]:

> When all is said and done, a student offered an educational program providing "merely more than de minimis" progress from year to year can hardly be said to have been offered an education at all. For children with disabilities, *receiving instruction that aims so low would be tantamount to "sitting idly . . . awaiting the time when they were old enough to 'drop out.'"* Rowley, 458 U. S., at 179 (some internal quotation marks omitted). *The IDEA demands more.* It requires an educational program reasonably calculated to enable a child to make progress appropriate in light of the child's circumstances…

Although the Court refused to provide a precise indicator of "making progress," the implications for the field have been clear: Provide services (including instruction) that promote meaningful progress in educational domains for students with disabilities.

Federal Funding of Research and Dissemination Projects

The U.S. government-funded research for special education-related initiatives began at about the same time as the passage of PL 94-142. These research projects created an important foundation for effective instruction and assessment of students with disabilities. For example, the Bureau for the Education of the Handicapped in the Department of Health, Education, and Welfare funded five research projects on learning disabilities in 1977/1978. The work at these institutes investigated the systematic practices such as curriculum-based measurement, self-management procedures, and strategic instructional methods that laid the foundation for instructional practices employed by most special educators today (see special issue of *Exceptional Education Quarterly, 4*(1), 1983).

Another sustained and large-scale initiative, originating at the National Institute of Child Health and Human Development, provided support for researchers in medicine and psychology to study learning disabilities, particularly dyslexia (Lyon, 1998). The projects' focus ultimately changed from the biological basis of the disability to instruction as the researchers began examining the direct effects of instructional practice. This research contributed greatly to what is often called the "science of reading" and tiered systems of assessment and services (e.g., "response to intervention").

Although many important research programs on instruction have been funded by the U.S. Department of Education's Institute for Education Sciences (IES), the Office of Special Education and Rehabilitative Services (OSERS) and the Office of Special Education Programs (OSEP) continued to fund significant research and personnel preparation in evidence-based practices. In fact, many of the interventions we describe in subsequent sections of this paper were developed with funding through grants from these agencies.

While funding research is important, it is equally important to get effective practices into the hands of teachers. What Works Clearinghouse, a website maintained by IES through the U.S. Department of Education, grades practices based on their research evidence and provides practice guides, intervention reports, and other resources related to evidence-based practices for professional learning. The IRIS Center, a website developed and maintained through an OSEP grant, is the gold standard in professional learning materials about evidence-based practices. The Center provides training modules and resources about practices, links to articles and reports on each practice, professional learning certification, and tips for faculty and professional learning providers. The efforts described in these examples are focused on instruction and have provided a springboard for major advances and practice-changing innovations for students with disabilities who access the general curriculum.

MAJOR ADVANCES AND PRACTICE-CHANGING INNOVATIONS

We are now at a point where the task-analytic/educational approach to instruction is the standard to teaching students with disabilities who access the

TABLE 2: Categories of Advances

Category	Description	Examples
Special designed instruction built on access to general education curriculum	Focus on instruction occurring, not on place where student sits	• Every Student Succeeds Act • *Endrew F. (2017)*
Developing a research base on evidence-based practices for specially designed instruction	Instructional strategies and approaches proven effective for students with disabilities through careful research	• Systematic, explicit instruction with multiple practice opportunities in the five components of reading can improve the skills of students with reading disabilities at all ages. • Self-regulated strategy development • Fundamentals in math such as vocabulary, computation, fractions, and word-problem solving; schema-based problem solving • Positive behavior supports • Multi-tiered systems of support
Building consensus around high-leverage practices	Teaching behaviors and practice that every beginning teacher should know and be able to do	• Use explicit instruction • Use strategies to increase student engagement • Provide positive and constructive feedback
Data collection as key component of instruction	Collecting student performance data as providing instruction to determine if instruction is working	• Progress monitoring • Curriculum-based measurement • Response-to-intervention • Data-based decision making

general curriculum. There are at least four categories of instructional advances and practice-changing innovations that have evolved as part of this approach: (1) specially designed instruction that is built on access to the general education curriculum, (2) evidence-based practices validated by rigorous research, (3) instructional practices for use in all settings, and (4) progress monitoring as a critical component of instruction. Each category has seen advances, yet efforts to refine them continue. See Table 2 for a summary.

Specially Designed Instruction Built on Access to the General Education Curriculum

During the 1996-97 school year, 46% of students with disabilities (ages 3-21) were served in what was then called the "regular classroom" (U.S. Department of Education, 1999). In 2024, 67% of students with disabilities (ages 5-21) spent more than 80% of their day in general education settings (U.S. Department of Education, 2025). Given that students with disabilities were originally excluded from public schools, this is a great accomplishment. And, as we have indicated, access—getting children into schools—has been a focus of special education for some time. As important as access is, FAPE must address both *what* services students receive as well as *where* they receive those services. As more students with disabilities gain access to general education settings, focus on specially designed instruction, the *what*, guaranteed by IDEA demands continuing consideration. According to IDEA, specially designed instruction is the adapting, as appropriate to the needs of the eligible child under this part, the content, methodology, or delivery of instruction—(i) to address the unique needs of the child that result from the child's disability; and (ii) to ensure access of the child to the general curriculum so that the child can meet the educational standards within the jurisdiction of the public agency that apply to all children (Section 300.39(a)(3)).

In other words, specially designed instruction is the instruction, not the place, accommodations, or modifications that a student with a disability needs to make progress in the curriculum. That is, to meet the unique needs of students with disabilities, it is what educators must do so that the general curriculum is accessible to them. For example, for the student with a need in reading fluency that makes it impossible for her to extract meaning from grade-level text independently, specially designed instruction must address her reading fluency problems. Her peers do not need this instruction to access grade-level content; she does and is guaranteed that instruction through IDEA. Someone might recommend providing audio recordings of the grade-level text, but that would be an accommodation, not specially designed instruction. Following the determination of students' present level of academic and functional performance and their annual goals, the special educator must determine what specially designed instruction will occur; how it will be individualized, systematic, and direct; how to determine whether the student is benefitting from it; and where it can be delivered.

In addition to specially designed instruction, the reader may notice the emphasis on access to the general *cur-*

riculum in the above text from IDEA. And, in other legislation such as No Child Left Behind Act (2001) and the subsequent Every Student Succeeds Act (2015), schools are required to include students with disabilities in the assessment programs used to measure all student progress toward academic standards and must justify removal from that participation based upon evidence included in the IEP (IDEA, 2004). And "accessing the general curriculum" is defined as meaningful engagement with the curriculum, not accessing the room in which it is delivered (Weiss et al., 2025). Though there is still some confusion in practice about how state level academic standards are to be used in determining annual goals in the IEP, there is general consensus that students with disabilities are general education students first, and their special education should be oriented to building skills so they can access the general curriculum in a meaningful way, as appropriate (IDEA, 2004). Because students with disabilities, by definition, lack some skills necessary to access the general curriculum, they require specially designed instruction that includes evidence-based practices to accelerate their progress. As Naomi Zigmond (2015) stated,

> *Setting is less important than what is going on in that setting* and *place* is not what makes special education "special" or effective. Effective teaching strategies and an individualized approach are the most critical ingredients in special education and neither of these is associated solely with one particular environment (emphasis in the original; p. 206).

Developing a Research Base on Evidence-Based Practices for Specially Designed Instruction

In addition to developing the understanding that specially designed instruction is all about instruction, there have been tremendous strides in developing evidence-based practices for students with disabilities through intervention research. Though we cannot examine all these advances in detail, special education intervention research is grounded in the task-analytic approach and has contributed substantially to the understanding of effective instruction for students with disabilities. Several examples stand out. These include the work in reading by colleagues associated with the University of Texas Meadows Center (e.g., Vaughn, et al., 2025; Vaughn & Wanzek, 2023), the University of California (O'Connor, 2014; O'Connor et al., 2015), and the University of Florida Literacy Institute (e.g., Lane & Contesse, 2022; Lane et al., 2023). This work has shown that systematic, explicit instruction with multiple practice opportunities in the five components of reading can improve the skills of students with reading disabilities at all ages.

In written expression, research about self-regulated strategy development (SRSD) has provided detailed guidance about effective writing instruction (e.g., Ciullo et al., 2026; Ciullo et al., 2025; Graham et al., 2024; Graham et al., 2026; Harris et al., 2008; Harris & Graham, 2018; Mason et al., 2017). SRSD includes both a structured approach to writing and integrated explicit instruction in self-regulation strategies. This combination has proven powerful for students of all ages and for those with and without writing disabilities (e.g., Graham et al., 2012).

In math, several lines of research have been critical to understanding effective instruction. First, special education researchers have provided evidence for instruction targeting fundamentals in math such as vocabulary, computation, fractions, and word-problem solving (e.g., Fuchs et al., 2022; Fuchs et al., 2023; Powell et al., 2023a; Powell et al., 2023b; Powell et al., 2022). Second, other special education researchers have shown the benefits of schema-based problem solving (e.g., Jitendra & Star, 2017; Jitendra et al., 2017). Like interventions in reading and writing, these researchers helped us understand that effective instruction in math required the breaking down of tasks (task analysis); systematic, explicit instruction with multiple practice opportunities; the use of manipulatives, organizational structures, and peer engagement; and continuous progress monitoring.

The work around positive behavior supports has provided similarly strong guidance. Researchers from the University of Oregon developed and refined explicit, systematic teaching practices for both preventing and remediating acting out and acting in behavior problems (Frey et al., 2022; Walker, 2023; Walker et al., 2024). Special education researchers have also examined and advanced the use of multi-tiered systems of support that help teachers build classroom environments that sustain students with disabilities (Lane et al., 2025; Lane et al., 2022; Simonsen et al., 2022). They have also refined and extended earlier efforts to teach students self-management methods that allow teachers to support the individual needs of students with autism, emotional and behavioral disorders, intellectual disabilities, and learning disabilities in general education settings (Briesch & Chafouleas, 2009; Chafouleas et al., 2012; Gureasko-Moore et al., 2006; Kern et al., 2024; Sulu et al., 2023). We have provided just a few examples of the critical work around interventions for academics and behavior; there is much more exciting work happening now. Together, the strides made through research to develop effective interventions that are based on instruction that directly teaches an academic or behavioral skill (the task-analytic approach) are practice-changing.

Building Consensus around High-leverage Practices

The evidence base in effective practices in special education is much broader than it was 50 years ago. And this evidence base has provided special education teachers with choices in their design of specially designed instruction. If one examines these interventions closely, patterns begin to emerge, and identifying these patterns of instructional behaviors can be informative. In 2014, the Council for Exceptional Children "appointed a High Leverage Practices [HLP] Writing Team to develop a set of HLPs for special educators" (McLeskey et al., 2022), that are like an earlier exercise in general education called "TeachingWorks" (2026). They defined high-leverage practices as "practices that are essential to effective teaching and fundamental to supporting student learning" (McLeskey et al., 2019, p. 332). This writing group reviewed research; engaged teachers, teacher educators, administrators and other stakeholders; and developed a set of 22 HLPs that were critical to practice. Twelve of the 22 focus on instruction and include practices such as use explicit instruction, use strategies to promote active student engagement, and provide positive and constructive feedback to guide students' learning and behavior. There are similarities to these HLPs and those of TeachingWorks, allowing opportunities for common vocabulary and understanding to develop across general and special education instruction. Through the CEEDAR Center, a federally funded project, teams have created new resources about HLPs. These teams include general and special educators, as well as administrators, preparation program faculty, school representatives, and representatives of state departments of education. Together, they have come together to better understand what effective instruction looks like across subject areas and how to support teachers to do it.

Explicit instruction is a core component shared across intervention research (both behavior and academics), HLP pillar practices, and task-analytic approaches previously discussed (Archer & Hughes, 2011; Bateman, 2004). To a novice, explicit instruction sounds simple, founded on only six principles: optimize engaged time, promote high levels of success, increase content coverage, spend more time in instructional groups, scaffold instruction, and address different forms of knowledge (Archer & Hughes, 2011, p. 5). However, to include all the elements of explicit instruction (16 in total, e.g., focus instruction on critical content, break down complex skills and strategies into smaller instructional units, use clear and concise language, provide an adequate range of examples and nonexamples) is a complex undertaking that requires a great deal of skill and practice. The shorthand version of "I do, we do, you do" or "gradual release model" belies the importance of integrating and coordinating all these teaching behaviors (Archer & Hughes, 2011). However, it provides a necessary starting point for what effective instruction looks like.

Educators also need data about the features and qualities of the instruction they deliver. Students with disabilities learn more when their teachers not only know about effective practices but employ them effectively. When teachers implement evidence-based practices with fidelity, students achieve better outcomes (Gage et al., 2017; Swanson, 2024). Researchers have outlined how teachers can assess their implementation fidelity and use that data to improve instruction. (e.g., McKenna et al., 2015).

Data Collection as Key Component of Instruction

Though ideas such as test-teach-test (Morrison, 1926) were developed around 100 years ago, using data to guide instruction, or progress monitoring, grew out of measuring academic behavior in the task-analytic work of the 1960s and 1970s (e.g., Lovitt, 1967). In the work on curriculum-based measurement (CBM) by Stan Deno, Lynn and Doug Fuchs, and their colleagues and students at the University of Minnesota (see Deno, 1985), progress monitoring became a standard practice of special education. Instead of mastery measurement (e.g., unit test), CBM is a general outcome measure that can be administered repeatedly to measure student progress over time. For example, the correct number of words read in a given text in a minute can be an indicator of reading fluency. As students are taught and practice skills related to fluency, the number of words read correctly in one minute in the same level text should increase. If it does not increase toward a set goal level, then instructional changes need to be considered (e.g., intervention type, dosage). CBM has been studied extensively in reading fluency, reading comprehension, math computation, writing, spelling, and math application (e.g., McMaster et al., 2022; Stecker et al., 2005). It has also been studied using vocabulary in other content areas (e.g., Espin et al., 2013; Lembke et al., 2017). At the individual student level, such data collection is a critical part of instruction to determine if a student is progressing to the annual goals set in their IEP. This type of progress monitoring, or data-based individualization, has solid research evidence to prove its effectiveness (Lembke, 2025; McMaster et al., 2022).

Progress monitoring has also become a regular component of general education instruction. Response to intervention (RTI) or multi-tiered systems of support uses data from regular assessments of student progress in Tier 1, or general education classrooms, to identify

students who may not be progressing in the curriculum at the same rate as their peers. If data indicate students are not progressing, they may receive additional supports such as instruction in small groups, more opportunities to practice with feedback, or different instructional strategies or interventions in Tier 2. If their progress continues to lag, they may receive even more intensive, individualized instruction in Tier 3 or be referred for evaluation of a disability (Zhang et al., 2023). Critical to both examples is that teachers monitor student progress repeatedly on measures that are systematic and tightly aligned with instruction (McMaster et al., 2022). The results of these measures allow teachers to change instruction to meet students' needs, without having to wait until the unit test or end of year test.

To summarize, in the last 50 years, our understanding of instruction and development of evidence-based practices has advanced drastically, particularly for students with disabilities who access the general curriculum. Similar progress has also been made in instruction for students with more significant disabilities, which is addressed in the article by Spooner and colleagues (this issue). A larger number of students with disabilities spend more of their school day in their home schools and in general education classrooms, accessing the curriculum and participating in standards-based assessments. What are the implications of these advancements for continued research and current practice?

IMPLICATIONS FOR RESEARCH AND PRACTICE

Despite these advances, students with disabilities overall are still not achieving educators' and parents' desired educational outcomes. For example, on the National Assessment of Educational Progress (NAEP) in both 2019 and 2022, average scale scores for students with disabilities have remained flat (NCES, 2024). In the 2021-22 school year, 71% of students with disabilities graduated with a diploma from high school (NCES, 2024). In 2022, 30% of 18–24-year-olds with disabilities were neither enrolled in school nor working (NCES, 2024). Clearly, these outcomes can be improved. So, what are the implications for research and practice of the instructional advances described? The answer is both simple and complex, both new and old—specially designed instruction using evidence-based practices and data-based decision making must happen in every school and every classroom for every student with a disability. Fuchs et al. (2025) stated:

> The good news about such individualized instruction is that there is a detailed approach, sometimes referred to as data-based individualization (e.g., Deno, 1985), that has been empirically validated across decades by many researchers in multiple countries. The bad news is that practitioners infrequently conduct it. (p. 267)

"Instruction and decision making do not occur in isolation; rather, they are implemented as part of a system that often operates in siloed spaces—research, schools, policy, and teacher preparation.

Instruction and decision making do not occur in isolation; rather, they are implemented as part of a system that often operates in siloed spaces—research, schools, policy, and teacher preparation. There are implications for each space.

Research

Research has contributed significantly to the field's understanding of effective instruction over the past 50 years. Continued research is paramount to improving student outcomes, to understanding critical features of evidence-based practices, including the "for whom" and "under what conditions." As evidence accumulates from diverse disciplines, it is important that the knowledge be integrated: Pullen (2026) exemplified this integration in reading, bringing together literacy, cognitive, and instructional sciences in a coherent way. It is important that this research be distributed across schooling levels and service delivery spaces (Fuchs et al., 2025). In addition, it is important that practices be evaluated when implemented by practitioners, not just researchers (Harvey et al., 2023). An additional implication for research is the need to develop more effective means of dissemination, both knowledge about the practices (for administrators and policy makers) and implementation of the practices (for practitioners). Without a focus on dissemination, the field will continue to experience the research-to-practice gap. Finally, research that moves the field forward requires strong funding and commitment at the federal level. Effective practices are a national concern, and there are not enough resources or time for each state to replicate studies of effective academic or behavioral practices.

Schools

Advances in effective instruction also have implications for schools and local education agencies. There are many implications, but two affect the day-to-day operations of schools. First, to

implement effective instruction, special educators need opportunities, support, and professional learning to be able to do so. Evidence on working conditions indicates that the demands on special educators far outweigh the resources available to them (e.g., Bettini et al., 2016; Stark et al., 2022). Special educators spend only a small portion of their day delivering instruction (Vannest & Hagan-Burke, 2009). Do special educators even have the opportunity to provide effective, specially designed instruction, given the ways schools and special education services are organized? There is a need to identify the conditions and structures needed in schools for special educators to deliver individualized, data-based instruction with fidelity.

Second, it is also necessary for school leaders to be knowledgeable of evidence-based practices and to make a commitment to the professional learning and coaching that their teachers need (DeMatthews et al., 2020a). This commitment is not easy when additional initiatives or legislative requirements are often beyond the control of school leaders. However, it is critical for leaders to develop a school culture that supports teachers so that they can provide effective instruction, no matter the context of their school (DeMatthews et al., 2020b).

Policy

The policy implications of the expanded understanding of effective instruction are also multifaceted. One example is the call for the use of evidence-based practices in IDEA (IDEA, 2004). The intention of these policies was originally to build the desire and regard for evidence-based practice in instruction, but in far too many cases, the requirement becomes more of check-the-box compliance (e.g., "we do that" or "the vendor says that intervention is evidence-based"). Another example is the changing of the regulations for teacher licensure requirements to allow for unprepared or underprepared teachers to meet the demands of chronic teacher shortages. These changes have a direct influence on the quality of instruction provided by those teachers, even if they make it easier to fill an empty teaching position. Reductions in requirements also make it more difficult for the public to understand that effective instruction is difficult and does require professional preparation, expertise, and experience. In sum, there is a need to focus on policy that encourages and incentivizes effective instruction and the conditions that will allow it, as well as the funding and preparation requirements to support those conditions.

Teacher Preparation

There are so many implications of advances in instruction for students with disabilities for teacher preparation. We will focus on three: (a) focus coursework on evidence-based and high-leverage practices in a coherent, developmental sequence; (b) provide multiple opportunities for practice with feedback; and (c) build a professional identity that includes instruction and data-based decision making at its core. The field of special education does not have an evidence-based practice to match with every need for every child. However, the combination of evidence-based and high-leverage practices, and the process of data-based decision making are a powerful combination for beginning teachers (e.g., Theobald et al., 2021; Theobald et al., 2022). Preparation programs can focus their coursework on depth in these areas instead of breadth. Learning about specific evidence-based or high-leverage practices in one or two methods courses is not enough to build confidence for independent implementation. Rather, understanding the critical features and when to use the practice with effective teaching behaviors (e.g., explicit instruction) must be repeated and reinforced across courses and in practica (Mathews et al., 2024). Preparation programs are often quite brief, so the focus must be on evidence-based practices and not on practices that have limited or no evidence of effectiveness. The need to focus on effective practices leads to the need for preparation programs to build in practice opportunities within courses and then in collaboration with schools. Practice-based learning opportunities that include simulations, video analysis, coaching, and lesson study have shown positive results in teacher learning (Leko et al., 2024) and can be used across courses and experiences. Finally, developing a strong professional identity and one that is grounded in effective instruction is foundational for teachers' instructional choices, their supportive working conditions, and their retention in the field (e.g., Hseih, 2016). It is especially critical for special educators whose expertise is either misunderstood, miscommunicated, or not acknowledged by other educators. Developing that identity in a preparation program requires intentional and explicit instruction and reinforcement (Weiss et al., 2025).

THE NEXT 50 YEARS

As we consider the 50 years since passage of PL 94-142, we see tremendous progress for students with disabilities. A greater percentage of students with disabilities are included in general classrooms, and more are accessing the general curriculum. The approach to disability has shifted from a medical model to one that emphasizes instruction that directly addresses a student's strengths and weaknesses in academics and behavior. Research on the methods to use in that instruction has provided teachers with evidence-based and high-leverage practices. Even with these advances, the outcomes for students with disabilities

are still not where we want them. So, what's next? If we put on our rose-colored glasses for the next 50 years, we would like to see (a) research expand and sharpen the instructional focus, (b) bridging of the research-to-practice gap, and (c) a revitalization of the professionalization of teaching.

Expanding and sharpening the research focus means that the field needs more research on effective instruction. This research needs to be targeted at the existing gaps. For the practices we have, what are the critical features? For whom do they work? Under what conditions? What is required for them to be implemented with fidelity by practitioners? For the areas we still do not have evidence-based practices, what are they? What are the lines of research we need? We need to incentivize both new scholars to address these gaps and the schools where these scholars will test their interventions. In 50 years, we would hope to see an even more robust, well-rounded, and accessible group of evidence-based practices that can be implemented with fidelity by educators.

Getting these practices into schools is the next area of need for the next 50 years. The ideal would be that, in 50 years, anyone observing specially designed instruction for a student with disabilities—wherever that instruction was being delivered—would witness a knowledgeable teacher using evidence-based practices toward a specific learning objective. The observer would see the teacher collecting data on student performance and the features of the instruction, and she would use those data to adapt future instruction. Bridging the research-to-practice gap is a continuing and tough problem. Finding ways to expand the dissemination tactics already in place such as What Works Clearinghouse, IRIS Center, the CEEDAR Center, and others must be a priority. Examining the work of technical assistance centers—what is working and what is not—is critical at all levels from the classroom to state departments of education. Incentivizing preparation programs to work with school partners to prepare teacher candidates to implement evidence-based and high-leverage practices, including multiple practice opportunities with feedback, will bring more of these practices into schools. And combining the efforts of preparation programs and schools to provide supportive coaching through induction will help sustain these teachers in their jobs and give students a better chance of receiving quality instruction.

Finally, providing high-quality instruction to students who have experienced failure to learn requires a great deal of professional knowledge, expertise, and skill. In the next 50 years, we would hope to see a revitalization of a strong professional identity for special educators and a professionalization of teaching. In other words, we would like to see special educators who can clearly articulate their unique expertise in knowledge and skill around students with disabilities and their instruction. These special educators would be agents for change in their schools, collaborating with general educators and administrators for opportunities for effective instruction and advocating for appropriate services for their students. We would hope to see that this professionalism and strong identity have an impact on the relationships special educators have with families and others, moving from sometimes adversarial or compliance-focused relationships to working in a more collaborative way that honors each member's unique expertise. Perhaps a stronger professional identity and more positive collaborative relationships would encourage individuals to go into special education and encourage those in the profession to stay. If, in the next 50 years as a field, we can bring together the many disparate groups that make up special education, focus on understanding and implementing effective instruction, we may be able to write an article celebrating that we have taught all students with disabilities and they have learned.

REFERENCES

Archer, A. L., & Hughes, C. A. (2011). *Explicit instruction: Effective and efficient teaching*. Guilford Press.

Bateman, B. D. (1967). Three approaches to diagnosis and educational planning for children with learning disabilities. *Academic Therapy Quarterly, 2*(4), 215–222. https://doi.org/10.1177/105345126700200402

Bateman, B. D. (2004). *Elements of successful teaching general and special education students*. Attainment.

Bettini, E. A., Crockett, J. B., Brownell, M. T., & Merrill, K. L. (2016). Relationships between working conditions and special educators' instruction. *The Journal of Special Education*, *50*(3), 178–190. https://doi.org/10.1177/0022466916644425

Board of Education of the Hendrick Hudson Central School District v. Rowley, 458 U.S. 176 (1982). https://supreme.justia.com/cases/federal/us/458/176/

Briesch, A. M., & Chafouleas, S. M. (2009). Review and analysis of literature on self-management interventions to promote appropriate classroom behaviors (1988–2008). *School Psychology Quarterly, 24*(2), 106–118. https://doi.org/10.1037/a0016159

Chafouleas, S. M., Sanetti, L., Jaffery, R., & Fallon, L. M. (2012). An evaluation of a classwide intervention package involving self-management and a group contingency on classroom behavior of middle school students. *Journal of Behavioral Education, 21*(1), 34–57. https://www.jstor.org/stable/43551220

Ciullo, S. P., Collins, A. A., & Graham, S. (2026). Addressing the enduring issue of writing achievement: Evidence-based strategies for students with disabilities. In C. Lemons, M. P. Weiss, & S. Hirsch (Eds.), *Enduring issues in special education: Personal perspectives* (2nd ed.). Routledge.

Ciullo, S. P., Collins, A. A., Graham, S., Kosaraju, S., & Lee, J. won. (2025). Teaching writing to students with learning disabilities: An observational study of classroom practices. *Learning Disabilities Research & Practice, 40*(4), 232–243. https://doi.org/10.1177/09388982251341363

Clements, S. D., & Peters, J. E. (1962). Minimal brain dysfunctions in the school-age child. Diagnosis and treatment. *Archives of General Psychiatry, 6*(3), 185–197. https://doi.org/10.1001/archpsyc.1962.01710210001001

Conners, C. K. (1971). Recent drug studies with hyperkinetic children. *Journal of Learning*

Disabilities, 4(9), 476–483. https://doi.org/10.1177/002221947100400904

Conners, C. K., & Eisenberg, L. (1963). The effects of methylphenidate on symptomatology and learning in disturbed children. *American Journal of Psychiatry, 120*(5), 458–464. https://doi.org/10.1176/ajp.120.5.458

Crockett, J. B., & Kauffman, J. M. (1999/2013). *The least restrictive environment: Its origins and interpretations in special education*. Routledge. https://doi.org/10.4324/9781410603722

DeGrandpre, R. J. (2000). *Ritalin nation: Rapid-fire culture and the transformation of human consciousness*. Norton.

DeMatthews D., Billingsley B, McLeskey J, & Sharma U (2020a). Principal leadership for students with disabilities in effective inclusive schools. *Journal of Educational Administration*, *58*(5), 539–554. https://doi.org/10.1108/JEA-10-2019-0177

DeMatthews, D. E., Serafini, A., & Watson, T. N. (2020b). Leading inclusive schools: Principal perceptions, practices, and challenges to meaningful change. *Educational Administration Quarterly*, *57*(1), 3–48. https://doi.org/10.1177/0013161X20913897

Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children, 52*(3), 219–232. https://doi.org/10.1177/001440298505200303

Education for All Handicapped Children Act, 20 U.S.C. § 1401 et seq. (1975). https://www.govinfo.gov/content/pkg/STATUTE-89/pdf/STATUTE-89-Pg773.pdf

Endrew F. v. Douglas County School District RE-1, 580 U.S. 386 (2017). https://www.supremecourt.gov/opinions/16pdf/15-827_0pm1.pdf

Engelmann, S. (1967). Relationship between psychological theories and the act of teaching. *Journal of School Psychology, 5*(2), 93–100. https://doi.org/10.1016/0022-4405(67)90022-2

Engelmann, S. (1969). *Preventing failure in the primary grades*. Science Research Associates.

Engelmann, S., & Carnine, D. (1970). *Distar arithmetic: Teacher guide*. Science Research Associates.

Espin, C. A., Busch, T. W., Lembke, E. S., Hampton, D. D., Seo, K., & Zukowski, B. A. (2013). Curriculum-based measurement in science learning: Vocabulary-matching as an indicator of performance and progress. *Assessment for Effective Intervention*, *38*(4), 203–213. https://doi.org/10.1177/1534508413489724

Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). https://www.congress.gov/bill/114th-congress/senate-bill/1177

Frey, A. J., Small, J. W., Seeley, J. R., Walker, H. M., Feil, E. G., Lee, J., Lissman, D. C., Crosby, S., & Forness, S. R. (2022). First Step Next and homeBase: A comparative efficacy study of children with disruptive behavior. *Exceptional Children*, *88*(2), 205–222. https://doi.org/10.1177/00144029211062588

Frostig, M., Lefever, D. W., & Whittlesey, J. R. B. (1964). *The Marianne Frostig developmental test of visual perception*. Consulting Psychologists Press.

Fuchs, D., Gilmour, A. F., & Wanzek, J. (2025). Reframing the most important special education policy debate in 50 years: How versus where to educate students with disabilities in America's schools. *Journal of Learning Disabilities, 58*(4), 257–273. https://doi.org/10.1177/00222194251315196

Fuchs, L. S., Fuchs, D., Sterba, S.K., Barnes, M. A., Seethaler, P. M., & Changas, P. (2022). Building word-problem solving and working memory capacity: A randomized controlled trial comparing three intervention approaches. *Journal of Educational Psychology, 114*(7), 1633–1653. https://doi.org/10.1037/edu0000752

Fuchs, L.S., Malone, A.S., Preacher, K.J., Cho, E., Fuchs, D., & Changas, P. (2023). Next-generation fraction intervention and the long-term advantage of interleaved instruction. *Exceptional Children, 89*(3), 332–352. https://doi.org/10.1177/00144029221135565

Gage, N. A., MacSuga-Gage, A. S., & Crews, E. (2017). Increasing teachers' use of behavior-specific praise using a multitiered system for professional development. *Journal of Positive Behavior Interventions, 19*(4), 239–251. https://doi.org/10.1177/1098300717693568

Gerber, M. M. (2017). A history of special education. In J. M. Kauffman, D. P. Hallahan, & P. C. Pullen (Eds.), *Handbook of special education* (2nd ed., pp. 3–15). Routledge.

Gordon-Gould, P., & Hornby. G. (2023). *Inclusive education at the crossroads: Exploring effective special needs provision in global contexts*. Routledge.

Graham, S., McKeown, D., Kiuhara, S., & Harris, K. R. (2012). A meta-analysis of writing instruction for students in elementary grades. *Journal of Educational Psychology, 104*(4), 879–896. https://doi.org/10.1037/a0029185

Graham, S., Olson, C., & Baker, T. (2026). *Writing instruction across the disciplines: Evidence-based practices in grades 6 to 12*. Guilford.

Graham, S., Skar, G., & Camping, A. (2024). Research examining the practice of critical instructional elements, and future research. In R. Fidalgo, K.R. Harris, & Braaksma, M. (Eds.), *Design principles for teaching effective writing: Theoretical and empirical grounded principles* (pp. 119–151). Brill. https://doi.org/10.1163/9789004270480_007

Gupta, R., Ceci, S. J., & Slater, A. M. (1978). Visual discrimination in good and poor readers. *The Journal of Special Education*, *12*(4), 409–416. https://doi.org/10.1177/002246697801200406

Gureasko-Moore, S., Dupaul, G. J., & White, G. P. (2006). The effects of self-management in general education classrooms on the organizational skills of adolescents with ADHD. *Behavior Modification, 30*(2), 159–183. https://doi.org/10.1177/0145445503259387

Hallahan, D. P., & Mercer, C. (2002). Learning disabilities: Historical perspectives. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice*. Routledge.

Hammill, D. D., & Larsen, S. C. (1974). The effectiveness of psycholinguistic training. *Exceptional Children, 41*(1), 5–14. https://doi.org/10.1177/001440297804400602

Harris, K. R., Graham, S., Mason, L., & Friedlander, B. (2008). *Powerful writing strategies for all students*. Brookes.

Harris, K.R., & Graham, S. (2018). Self-regulated strategy development: Theoretical bases, critical instructional elements, and future research. In R. F. Redondo, K. Harris, & M. Braaksma (Eds.), *Design principles for teaching effective writing*. Brill.

Harvey, G., Rycroft-Malone, J., Seers, K., Wilson, P., Cassidy, C., Embrett, M., Hu, J., Pearson, M., Semenic, S., Zhao, J., & Graham, I. D. (2023). Connecting the science and practice of implementation – applying the lens of context to inform study design in implementation research. *Frontiers in Health Services*, *3*, 1162762. https://doi.org/10.3389/frhs.2023.1162762

Hatton, D. A. (1966). The child with minimal cerebral dysfunction. *Developmental Medicine & Child Neurology, 8*(1), 71–78. https://doi.org/10.1111/j.1469-8749.1966.tb08275.x

Hseih, B. (2016). The importance of orientation: Implications of professional identity on classroom practice and for professional learning. *Teachers and Teaching, 21*(2), 178–190. https://doi.org/10.1080/13540602.2014.928133

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 118 Stat. 2647 (2004). https://www.congress.gov/bill/108th-congress/house-bill/1350/text

Jitendra, A. K., & Star, J. R. (2017). *Solving ratio, proportion, and percent problems using schema-based instruction*™. Center on Teaching and Learning, University of Oregon. https://ctlmarketplace.uoregon.edu/product/solving-ratio-proportion-percent-problems-using-schema-based-instruction

Jitendra, A. K., Harwell, M. R., Dupuis, D. N., & Karl, S. R. (2017). A randomized trial of the effects of schema-based instruction on proportional problem solving for students with mathematics problem-solving difficulties. *Journal of Learning Disabilities, 50*(3), 322–336. https://doi.org/10.1177/0022219416629646

Kass, C. E. (1966). Psycholinguistic disabilities of children with reading problems. *Exceptional Children*, *32*(8), 533–539. https://doi.org/10.1177/001440296603200804

Kauffman, J. M., & Landrum, T. J. (2006). *Chil-*

ABOUT THE AUTHORS

Margaret P. Weiss, Ph.D.

Margaret P. Weiss, Ph.D, is a Professor of Special Education at George Mason University. Her teaching and scholarship focus on strengthening special education teacher preparation and advancing effective approaches to co-teaching and specially designed instruction. Through her research, leadership, and work with educators, she has contributed to improving how teachers are prepared to collaborate and deliver responsive, high-quality instruction to students with disabilities.

John Wills Lloyd, Ph.D.

John Wills Lloyd, Ph.D, began his career working with students with disabilities in 1966 and earned his doctorate from the University of Oregon in 1976. Over the next four decades, he taught and conducted research at Northern Illinois University and the University of Virginia, where he served until his retirement in 2017. His enduring legacy includes generations of special education scholars and practitioners influenced by his teaching, scholarship, and mentorship, and he continues to contribute to the field as editor of Special Education Today.

dren and youth with emotional and behavioral disorders: A history of their education. Hammill.

Kavale, K. A. (1981). Functions of the Illinois Test of Psycholinguistic Abilities (ITPA): Are they trainable? *Exceptional Children, 47*(7), 496–510. https://doi.org/10.1177/001440298104700703

Kavale, K. (1982). The efficacy of stimulant drug treatment for hyperactivity: A meta-analysis. *Journal of Learning Disabilities, 15*(5), 280–289. https://doi.org/10.1177/002221948201500508

Kavale, K. A., & Forness, S. R. (1987). Substance over style: Assessing the efficacy of modality testing and teaching. *Exceptional Children*, *54*(3), 228–239. https://doi.org/10.1177/001440298705400305

Kavale, K., & Mattson, P. D. (1983). "One jumped off the balance beam": Meta-analysis of perceptual-motor training. *Journal of Learning Disabilities, 16*(3), 165–173. https://doi.org/10.1177/002221948301600307

Kern, L., Simonsen, B., Sugai, G., Freeman, J., Lewis, T. J., & Chafouleas, S. M. (2024). Supporting paraeducators and their use of active supervision at recess: An exploratory study. *Teacher Education and Special Education, 47*(3), 185–202. https://doi.org/10.1177/08884064241234631

Kirk, S. A., & McCarthy, J. J. (1961). The Illinois Test of Psycholinguistic Abilities: An approach to differential diagnosis. *American Journal of Mental Deficiency*, 66(3), 399–412.

Lane, H. B. & Contesse, V. A. (2022). *UFLI foundations: An explicit & systematic phonics program*. Ventris Learning.

Lane, H. B., Contesse, V., & Gallingane, C. (2023). Phonics 101: Preparing teachers to provide effective intervention in word reading skills. *Intervention in School & Clinic, 59*(1) 9–19. https://doi.org/10.1177/10534512221130065

Lane, K. L., Menzies, H. M., Smith-Menzies, L., & Lane, K. S. (2022). Classroom management to support students with disabilities: Empowering general and special educators. In E. J. Sabornie & D. J. Espelage (Eds.), *Handbook of classroom management* (3rd ed., pp. 499–516). Routledge.

Lane, K. L., Menzies, H. M., Bruhn, A. L., & Crnobori, M. (2025). *Managing challenging behaviors in schools: Research-based strategies.* Guilford.

Leko, M. M., Brownell, M. T., O'Brien, K., & Nagro, S. (2024). Capitalizing on the potential of practice-based preparation in special education teacher preparation. In E. D. McCray, E. Bettini, M. T. Brownell, J. McLeskey, & P. T. Sindelar (Eds.), *Handbook of research on special education teacher preparation* (2nd ed.). Routledge.

Lembke, E. S. (2025). Data-based decision-making (DBDM) teams in middle school: What progress have we made in middle school DBDM in the past 10 years? *Assessment for Effective Intervention*, *50*(4), 173–175. https://doi.org/10.1177/15345084251357503

Lembke, E. S., Allen, A., Cohen, D., Hubbuch, C., Landon, D., Bess, J., & Bruns, H. (2017). Progress monitoring in social studies using vocabulary matching curriculum–based measurement. *Learning Disabilities Research & Practice*, *32*(2), 112–120. https://doi.org/10.1111/ldrp.12130

Lovitt, T. C. (1967). Assessment of children with learning disabilities. *Exceptional Children, 34*(4), 233–239. https://doi.org/10.1177/001440296703400401

Lovitt, T. C., & Curtiss, K. A. (1968). Effects of manipulating an antecedent event on mathematics response rate. *Journal of Applied Behavior Analysis, 1*(4), 329–333. https://doi.org/10.1901/jaba.1968.1-329

Lyon, G. R. (1998). *Overview of reading and literacy initiatives at National Institute of Child Health and Human Development*. Statement to United States Senate Committee on Labor and Human Resources. https://eric.ed.gov/?id=ED444128

Mann, L. (1971). The ground game in special education. *The Journal of Special Education, 5*(1), 53–65. https://doi.org/10.1177/002246697100500109

Markelz, A. M., Nagro, S. A., Szocik, K., Monnin, K., Gerry, M., Macedonia, A., & Mason, A. (2022). The nature and extent of special education law in teacher preparation. *Teacher Education and Special Education, 45*(3), 185–203. https://doi.org/10.1177/08884064211046248

Mason, L. H., Cramer, A. M., Garwood, J. D., Varghese, C., Hamm, J., & Murray, A. (2017). Efficacy of self-regulated strategy development instruction for developing writers with and without disabilities in rural schools: A randomized controlled trial. *Rural Special Education Quarterly, 36*(4), 168–179. https://doi.org/10.1177/8756870517723617

Mathews, H. M., Weiss, M. P., McKenney, N., & Silva, R. (2024). Coherence in special education teacher preparation: Developing sustainable professional identities. In E. D. McCray, E. Bettini, M. T. Brownell, J. McLeskey, & P. T. Sindelar (Eds.), *Handbook of research on special education teacher preparation* (2nd ed.). Routledge.

McKenna, J. W., Shin, M., & Ciullo, S. (2015). Evaluating reading and mathematics instruction for students with learning disabilities: A synthesis of observation research. *Learning Disability Quarterly, 38*(4), 195–207. https://doi.org/10.1177/0731948714564576

McLeskey, J., Billingsley, B., Brownell, M., Maheady, L., & Lewis, T. (2019). What are high-leverage practices for special education teachers and why are they important? *Remedial and Special Education, 40*(6), 331–337. https://doi.org/10.1177/0741932518773477

McLeskey, J. Maheady, L., Billingsley, B., Brownell, M. T., & Lewis, T. J. (2022). Introduction to high leverage practices. In J. McLeskey, L. Maheady, B. Billingsley, M.

T. Brownell, & T. J. Lewis (Eds.), *High leverage practices for inclusive classrooms* (2nd ed.). Routledge.

McMaster, K. L., Bresina, B. C., Fuchs, L. S., & Fuchs, D. (2022). Using data in research and practice: Intensifying and strengthening the effectiveness of academic instruction. In T. W. Farmer, E. Talbott, K. McMaster, D. Lee, & T. C. Aceves (Eds.), *Handbook of special education research*: Vol. 1. (pp. 40–52). Routledge.

Morrison, H. C. (1926). *The practice of teaching in the secondary school*. University of Chicago Press.

National Center for Education Statistics. (2024). *Condition of Education*. https://nces.ed.gov/programs/coe/

No Child Left Behind Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002). https://www.congress.gov/bill/107th-congress/house-bill/1

O'Connor, R. (2014). *Teaching word recognition: Effective strategies for students with learning difficulties* (2nd ed). Guilford Press.

O'Connor, R. E., Beach, K. B., Sanchez, V. M., Bocian, K. M., & Flynn, L. J. (2015). Building BRIDGES: A design experiment to improve reading and United States history knowledge of poor readers in eighth grade. *Exceptional Children, 81*(4), 409–425. https://doi.org/10.1177/0014402914563706

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest, 9*(3), 105–119. https://doi.org/10.1111/j.1539-6053.2009.01038.x

Polloway, E. A., Lubin, J., Smith, J. D., & Patton, J. R. (2010). Mild intellectual disabilities: Legacies and trends in concepts and educational practices. *Education and Training in Autism and Developmental Disabilities, 45*(1), 54–68. https://www.jstor.org/stable/23880150

Powell, S. R., Akther, S. S., Yoon, N. Y., Berry, K. A., Nemcek, C., Fall, A.-M. & Roberts, G. (2023a). The effect of addition and subtraction practice within word-problem intervention on addition and subtraction outcomes. *Learning Disabilities Research and Practice*, *38*(3), 182–198. https://doi.org/10.1111/ldrp.12319

Powell, S. R., Bouck, E. C., Sutherland, M., Clarke, B., Arsenault, T. L. & Freeman-Green, S. (2023b). Essential components for math instruction. *Teaching Exceptional Children*, *56*(1), 14–24. https://doi.org/10.1177/00400599221125892

Powell, S. R., Namkung, J. M. & Lin, X. (2022). An investigation of using keywords to solve word problems. *The Elementary School Journal*, *122*(3), 452–473. https://doi.org/10.1086/717888

Pullen, P. C. (2026). *The canon of literacy: A three sciences framework*. Evidence Advocacy Center.

Rabe, E. F. (1969). *Neurological evaluation in minimal brain dysfunction* (Publication number 2015). US Dept of Health, Education and Welfare.

Rodan, L. H., Stoler, J., Chen, E., & Geleske, T. (2025). Genetic evaluation of the child with intellectual disability or global developmental delay: Clinical report. *Pediatrics*, *156*(1). https://doi.org/10.1542/peds.2025-072219

Schulz, R. A., Stein, J. A., & Pelc, N. J. (2021). How CT happened: The early development of medical computed tomography. *Journal of Medical Imaging*, *8*(5). https://doi.org/10.1117/1.JMI.8.5.052110

Simonsen, B., Robbie, K., Meyer, K., Freeman, J., Everett, S., & Feinberg, A. B. (2022). Supporting students' social, emotional, and behavior (SEB) growth through Tier 2 and 3 interventions within a multi-tiered system of supports (MTSS) framework. In E. J. Sabornie & D. J. Espelage (Eds.), *Handbook of classroom management* (3rd ed., pp. 102–127). Routledge.

Smith, D. D., & Lovitt, T. C. (1973). The educational diagnosis and remediation of written b and d reversal problems: A case study. *Journal of Learning Disabilities, 6*(6), 356–363. https://doi.org/10.1177/002221947300600604

Stark, K., Bettini, E., Cumming, M., O'Brien, K. M., Brunsting, N., Huggins-Manley, C., Binkert, G., & Shaheen, T. (2022). Measuring special educators' working conditions: A systematic review. *Remedial and Special Education*, *44*(2), 137–153. https://doi.org/10.1177/07419325221079015

Stecker, P. M., Fuchs, L. S. and Fuchs, D. (2005), Using curriculum-based measurement to improve student achievement: Review of research. *Psychology in the Schools, 42*, 795–819. https://doi.org/10.1002/pits.20113

Sulu, M. D., Martella, R. C., Grimmet, K., Borosh, A. M., & Erden, E. (2023). Investigating the effects of self-monitoring interventions with students with disabilities on the maintenance and generalization of on-task behavior: A systematic literature review. *Journal of Autism and Developmental Disorders, 10*(3), 458–476. https://api.semanticscholar.org/CorpusID:261559859

Swanson, H. (2024). Meta-analysis of research on children with learning disabilities. *Learning Disabilities: A Multidisciplinary Journal, 28*(2), 1–17. https://doi.org/10.18666/LDMJ-2023-V28-I2-12307

Teaching Works. (2026). *High Leverage Practices*. https://library.teachingworks.org/curriculum-resources/high-leverage-practices/

Theobald, R. J., Goldhaber, D. D., Naito, N., & Stein, M. L. (2021). The special education teacher pipeline: Teacher preparation, workforce entry, and retention. *Exceptional Children*, *88*(1), 65–80. https://doi.org/10.1177/00144029211010162

Theobald, R. J., Goldhaber, D. D., Holden, K. L., & Stein, M. L. (2022). Special education teacher preparation, literacy instructional alignment, and reading achievement for students with high-incidence disabilities. *Exceptional Children*, *88*(4), 381–400. https://doi.org/10.1177/00144029221081236

Touwen, B. C. L., & Prechtl, H. F. R. (1970). The neurological examination of the child with minor nervous dysfunction. In R. C. M. Keith (Ed.), *Clinics in developmental medicine, 38*. Heinemann.

U.S. Department of Education. (1999). *21st annual report to Congress on the implementation of the Individuals with Disabilities Education Act.*

U.S. Department of Education. (2025). *46th annual report to Congress on the implementation of the Individuals with Disabilities Education Act*.

Vannest, K. J., & Hagan-Burke, S. (2009). Teacher time use in special education. *Remedial and Special Education*, *31*(2), 126–142. https://doi.org/10.1177/0741932508327459

Vaughn, S., & Wanzek, J. (2023). Promoting adolescents' comprehension of text: Efficacy and effectiveness. *Remedial and Special Education, 45(1), 58–67.* https://doi.org/10.1177/07419325231190805

Vaughn, S., Wanzek, J., Martinez, L. R., Hancock, E., Fall, A.-M., Payne, S. B., & Fluhler, S. K. (2025). The efficacy of a content area reading comprehension intervention for students with disabilities. *Remedial and Special Education, 47(3), 194–207.* https://doi.org/10.1177/07419325241310499

Walker, H. (2023). *Solutions for critical behavioral issues in the classroom*. Guilford

Walker, H. M., Paine, S. C., & Crossen, J. R. (2024). Research and development of short-term interventions for K–3 students having externalizing and internalizing behavior disorders. *Journal of Emotional and Behavioral Disorders*, Online First. https://doi.org/10.1177/10634266241256893

Weiss, M. P., Faggella-Luby, M., Goran, L., & Bateman, D. F. (2025). *Specially designed instruction: The definitive guide*. Bloomsbury.

Yell, M. L. (1995). Least restrictive environment, inclusion, and students with disabilities: A legal analysis. *The Journal of Special Education*, *28*(4), 389–404. https://doi.org/10.1177/002246699502800401

Zhang, J., Martella, R. C., Kang S., & Yeniogl u, B. Y. (2023). Response to intervention (RTI)/multi-tiered systems of support (MTSS): A nationwide analysis. *Journal of Educational Leadership and Policy Studies*, 7(2), 1–26. https://eric.ed.gov/?id=EJ1396417

Zigmond, N. (2015). Where should students with disabilities receive their education? In B. Bateman, J. W. Lloyd, & M. Tankersley (Eds.), *Enduring issues in special education: Personal perspectives* (pp. 198–214). Routledge.

Building a Knowledge Base to Inform Special Education Practice: Evidence-Based and High-Leverage Practices

AUTHORS
Bryan G. Cook
Michael J. Kennedy

Journal of Special Education Preparation
6(1), 60-70
© 2026 Cook and Kennedy
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/4n-jg35urzxs

ABSTRACT

As the field celebrates the 50th anniversary of the Individuals with Disabilities Education Act (IDEA), it is worth recognizing the extraordinary progress made in building a knowledge base to support effective instruction for students with disabilities. This article traces the development of two of the field's most influential contributions: evidence-based practices (EBPs) and high-leverage practices (HLPs). We describe how special education evolved from a primary focus on establishing access and legal rights to identifying, validating, and disseminating instructional practices that improve student outcomes. EBPs provide research-validated interventions shown to be effective for specific learners and outcomes, while HLPs identify the foundational teaching practices essential across settings and contexts. Together, these complementary frameworks have strengthened teacher preparation, informed instructional decision making, and improved the quality of special education. We conclude by considering how continued refinement of EBPs and HLPs can further advance IDEA's promise of meaningful educational outcomes for all learners.

KEYWORDS

Evidence-based practices, high-leverage practices, instruction, special education

At the heart of special education is the provision of instruction that is both individualized and effective. The Individuals with Disabilities Education Act (IDEA, 2004) requires that every eligible student receive instruction that is both individualized (i.e., based on an Individualized Education Program or IEP) and reasonably calculated to enable the child to make meaningful progress in light of their specific circumstances (i.e., effective; see *Endrew F. v. Douglas County School Dist. RE-1*, 2017). A strict application of individualization might suggest that special educators should approach each student as a blank slate, with all types of instruction applied in an individual process of trial and error. However, this would be incredibly inefficient and ignore a substantial knowledge base regarding effective special education instruction. Although some level of individualization is needed to address the unique learning needs and goals of learners with disabilities, established knowledge bases on core and effective practices should be used as the foundation for special education instruction.

The purpose of this article is to explore two separate but related knowledge bases for informing instructional practice in special and teacher education: (a) evidence-based practices (EBPs), or discrete instructional practices validated by bodies of experimental research to improve one or more outcomes for a group of learners, and (b) high-leverage practices (HLPs), or core teaching behaviors identified by leaders in the field as fundamental to effective and individualized special education. EBPs and HLPs have distinct origins and purposes, yet they complement each other; the utility of each is increased when used in conjunction with the other. In this article, we briefly discuss historical eras of special education; provide historical perspectives and foundational milestones, major advances and practice-changing innovations, implications for research and practice, and forward-looking recommen-

dations to inspire the next 50 years for both EBPs and HLPs; and conclude with a brief discussion and example of how EBPs and HLPs can be used together to provide individualized and effective instruction in special education.

HISTORICAL PERSPECTIVE ON SPECIAL EDUCATION PRACTICE

To contextualize EBPs and HLPs, we briefly discuss key eras in special education as described by Collins and colleagues (2025). The pioneer era involved trailblazers in the field such as Jean Marc Gaspard Itard and Elizabeth Farrell developing and applying foundational special education practices for teaching children and youth with disabilities. In the United States, the advocacy era (approximately 1950s–1970s) saw parent groups and others stridently and successfully advocate for legislative protections for students with disabilities to receive specialized instruction, culminating in the passage of the Education for All Handicapped Children Act in 1975, now called IDEA.

In these early developmental eras of the field, though important research was conducted, the focus tended to be on developing new instructional practices and providing access to special education rather than developing knowledge bases to inform and refine instruction. This is reflected in the most highly cited article published in what is generally regarded as the flagship scholarly journal in special education, *Exceptional Children*, prior to 1975: "Special education for the mildly retarded—Is much of it justifiable?" (Dunn, 1968). In this powerful piece of advocacy typical of the era, Dunn warned about the ineffectiveness and stigma of separate special education, especially for students of color, advocating instead for placement in mainstream classes.

After the rights of students with disabilities to special education were established in law and policy (e.g., IDEA), the field progressed into an era of research-based practices in the 1980s and 1990s. During this time, scholars focused on researching the effectiveness of specific instructional practices with the aim of informing and improving instruction based on research evidence. In the United States, this era culminated in the specification that IEPs must include "a statement of the special education and related services and supplementary aids and services, *based on peer-reviewed research* to the extent practicable, to be provided to the child" (emphasis added) in the 2004 reauthorization of IDEA.

The most highly cited article published in *Exceptional Children* from 1980 to 2004, Deno's (1985) "Curriculum-based measurement: The emerging alternative," in which the author reviewed research supporting curriculum-based measurement, reflects this emphasis. Although Deno's review supported the effectiveness of the practice, at the time there were not established standards to evaluate the quality or quantity of research bases in special education in a standardized way or an established set of practices to situate curriculum-based measurement within the broader context of core special education practices. As discussed in the following section, the next and current era of special education is the EBP era (Collins et al., 2025), when EBPs and HLPs in special education were developed to address these gaps.

EVIDENCE-BASED AND HIGH-LEVERAGE PRACTICES

Knowledge bases of EBPs and HLPs are the two core developments of the current EBP era of special education. In this section, we review the historical perspective and foundational milestones, major advances and innovations, implications for research and practice, and forward-looking recommendations for EBPs and then HLPs.

Evidence-Based Practices: Identifying What Works

Historical Perspective and Foundational Milestones

In 2005, special education entered the EBP era with the publication of a special issue of *Exceptional Children* devoted to establishing indicators for high-quality research and presenting standards for EBPs based on high-quality experimental research studies (Odom et al., 2005). In education, the What Works Clearinghouse pioneered a systematic approach to evaluate research for the purpose of answering the question of "What works in education?" Special education scholars built on this work by developing rigorous, standardized rules to identify what works for students with disabilities based on research. The four most highly cited articles in *Exceptional Children* since 2005 are from that special issue, including articles that proffered standards for EBPs in special education (Gersten et al., 2005; Horner et al., 2005).

Using the standards developed by Gersten and colleagues (2005) and Horner and colleagues (2005), researchers began to conduct EBP reviews to systematically evaluate bodies of research studies examining the effectiveness of discrete instructional practices (i.e., practices with a defined list of steps to follow). Instructional practices supported by evidence bases that meet EBP standards are identified as EBPs (see Cook et al., 2020, for more on EBP reviews), signaling a meaningful level of research support for the effectiveness of the practice. Key elements of EBP reviews are examining research designs, quality of research, quantity of research, and magnitude of effects in the studies investigating the effects of an instruc-

tional practice.

Research Design. Different study designs (i.e., types of studies) answer different types of research questions (Cook & Cook, 2016). Experimental studies are designed specifically to establish cause-and-effect relationships, which refer to whether one variable causes change in another. Experimental research is, then, essential for answering causal questions, such as whether an intervention (e.g., repeated reading) causes improved outcomes (e.g., reading fluency) for a group of learners (e.g., elementary students with learning disabilities). Two types of experimental studies are common in special education: group experiments and single-case designs. In group experiments, some students are assigned (randomly in a type of experiment called a randomized controlled trial) to a treatment group and others to a control group. The changes in outcomes for the two groups are compared to estimate the effectiveness of the practice being investigated. In single-case designs, individuals typically serve as their own control conditions and researchers systematically introduce and withdraw the intervention and examine whether a functional relation exists between the intervention and the outcome being measured (see Maggin et al., 2018). For example, if a student's engagement is consistently high when the teacher uses behavior-specific praise, but consistently low when the teacher does not across multiple phases of a single-case design study, it can be concluded that behavior-specific praise caused improved engagement for that student.

The first step of an EBP review is, then, for researchers to identify all the experimental research conducted relevant to their research question. For example, if researchers wanted to examine whether repeated reading is an EBP for improving reading fluency for elementary students with learning disabilities, they would identify all the experimental studies examining that question for their review.

Study Quality. To minimize error and bias in studies, which can result in invalid findings, researchers adhere to standards of quality or rigor in the field. EBP standards stipulate sets of quality indicators, all or most of which must be adhered to in order for an experimental study to be included in an EBP review. For example, one quality indicator specified by Gersten and colleagues (2005) for group experimental studies is: "Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions?" (p. 152). This is important because if the treatment and control groups are not comparable, it is possible that any observed differences between the groups in outcome growth are due to pre-existing differences in the groups, not the intervention. An example of a quality indicator for single-case designs is: "The design provides at least three demonstrations of experimental effect at three different points in time" (Horner et al., 2005, p. 174). That is, one should not conclude that an intervention caused changed outcomes for a student if researchers intervene and observe a change in behavior once; that change could have been caused by many things other than the instructional practice being examined. But if student behavior changes in the predicted manner three times corresponding to three changes in the presence of the instructional practice, then one can validly infer a functional relation between the practice and change in outcomes for that participant. Excluding studies from EBP reviews that do not sufficiently address prescribed quality indicators reduces the likelihood that the EBP review is influenced by potentially misleading findings.

Quantity of Studies. Because no single study is perfect, replications of effects across multiple studies are needed to be confident in research findings. Accordingly, EBPs must be supported by multiple high-quality, experimental studies as effective. For example, Gersten and colleagues (2005) required that "at least four acceptable quality studies, or two high quality [group experimental] studies" (p. 162) support a practice for it to be classified as an EBP. Under these standards, acceptable studies meet most quality indicators, but fewer than what is required for high-quality designation by Gersten and colleagues' EBP standards. Horner and colleagues (2005) required that five single-case design studies (with a minimum of 20 participants, conducted by at least three different researchers across at least three different locations) support a practice for it to be identified as an EBP.

Magnitude of Effects. Finally, for an experimental study to show that a practice causes improved learner outcomes, it should show meaningful, as opposed to trivial, positive effects on the outcome. Gersten and colleagues (2005) addressed this issue by requiring that the weighted effect size across high- and acceptable-quality studies in the review be significantly greater than 0. Horner and colleagues (2005) required that the five single-case studies supporting an EBP demonstrate meaningfully positive effects by (a) establishing a functional relation between the practice and targeted outcome through visual analysis and (b) demonstrating change in learner outcomes that is considered socially important.

Major Advances and Practice-Changing Innovations

There are now multiple sets of standards for identifying EBPs in special education. In addition to the original standards developed by Gersten and colleagues (2005) and Horner and

TABLE 1: Recommended Resources for Evidence-Based Practices and High-Leverage Practices

RESOURCE	DESCRIPTION
Evidence-Based Practices	
What Works Clearinghouse https://ies.ed.gov/ncee/WWC/Search/Products?productType=2	What Works Clearinghouse Intervention Reports evaluate the effectiveness of instructional practices. Practices meeting the highest evidence standards are classified as having *positive effects*.
National Standards Project https://www.nationalautismcenter.org/wp-content/uploads/2015/04/NSP2.pdf	The National Autism Center's latest review evaluates research on instructional practices for learners with autism. Rather than using *evidence-based practice*, it designates the strongest-supported practices as *established*.
Evidence-Based Practices for Children, Youth, and Young Adults with Autism https://tinyurl.com/bd2ccdm4	The National Clearinghouse on Autism Evidence and Practice's review of research on the effectiveness of instructional practices for learners with autism.
National Technical Assistance Center on Transition https://transitionta.org/topics/effective-practices/	Search for evidence-based practices related to transition outcomes for secondary students and youth with disabilities as identified by the National Technical Assistance Center on Transition.
A Systematic Review of Targeted Evidence-Based Reviews https://doi.org/10.1177/07419325251388491	A review of 117 evidence-based reviews published in peer-reviewed journals, published in *Remedial and Special Education*.
How Evidence–Based Practices are Systematically Identified https://doi.org/10.1111/ldrp.12213	Published in *Learning Disabilities Research & Practice*, the authors provide a detailed and accessible discussion of EBPs, key issues related to EBPs, and the process for identifying evidence-based practices.
The IRIS Center's module on evidence-based practices https://iris.peabody.vanderbilt.edu/module/ebp_01/	This free, 3-part module provides descriptions, examples, interviews with experts, and assessments for selecting, implementing, and evaluating evidence-based practices.
High-Leverage Practices	
CEEDAR Center HLP Website https://ceedar.education.ufl.edu/high-leverage-practices-2/	This CEEDAR Center website provides the original and updated *High-Leverage Practices* texts, along with free resources for download and online use.
IRIS Center HLP Resources https://iris.peabody.vanderbilt.edu/resources/high-leverage-practices/	The IRIS Center is a longstanding resource containing modules and other content for professional learning.
Council for Exceptional Children's HLP Website www.highleveragepractices.org	This resource contains links to videos, leadership guides, and other content created by a range of researchers and practitioners in the field.
Library of HLP Videos https://vimeo.com/showcase/HLPVideos	This Vimeo collection, curated by Michael Kennedy, includes original and updated high-leverage practice videos and other free resources for teacher preparation and professional development.

colleagues (2005), Reichow and colleagues (2008) and the National Autism Center (2015) developed EBP standards specifically for learners with autism, and the Council for Exceptional Children (CEC) developed their own set of EBP standards for the field (Cook et al., 2015). See Cook and colleagues (2025) for an overview of these and other sets of EBP standards. Despite some differences in these standards, they all require that multiple, high-quality, experimental studies demonstrate meaningfully positive effects on a targeted outcome for a practice to be considered an EBP.

Perhaps the most significant advance in EBPs is the development of a large body of practices identified as EBPs in special education. EBP reviews have been conducted by organizations such as the What Works Clearinghouse

(n.d.), National Autism Center (2015), the National Clearinghouse on Autism Evidence and Practice (Steinbrenner et al., 2020), and the National Technical Assistance Center on Transition (n.d.) to identify EBPs for different groups of learners with disabilities. Researchers have also published numerous EBP reviews in peer-reviewed journals resulting in the identification of many more EBPs for a variety of learners and outcomes (see Cook et al., 2025, for a review of 117 EBP reviews). See Table 1 for links to these and other resources related to EBPs in special education. Collectively, these resources provide special educators with many practices supported as effective by robust research bases that can be prioritized to improve the outcomes of learners with disabilities.

Implications for Research and Practice

EBP standards spurred additional, high-quality, experimental research studies to be conducted. There were (and continue to be) many instructional practices that special educators generally consider as effective that are not supported as effective by a sufficient body of high-quality, experimental studies to be classified as EBPs. Researchers have addressed (and continue to address) this gap by conducting additional, high-quality experimental studies. Delineating quality indicators for experimental research as part of EBP standards has also positively affected the quality of research conducted in the field. Special education researchers now have clear guidance of what is expected of rigorous experimental research and the quality of experimental studies has increased accordingly.

The primary purpose of EBPs is to inform and improve instructional practice. Implementing EBPs with learners with disabilities is critical, as they are supported by robust research evidence as being effective and are highly likely to result in improving student outcomes. Moreover, it is important that special educators avoid the ineffective fads and pseudoscience (i.e., practices presented as if they were supported as effective by scientific research but actually are not; see Travers & Ayres, 2016) that are sometimes promoted. Although fads and pseudoscientific practices—such as facilitated communication (see Ganz et al., 2018), learning styles (Cleary & Robinson, 2025), and Brain Gym (Ruhaak & Cook, 2016)—may seem appealing, research shows they are ineffective. They represent a significant opportunity lost because the time spent implementing them would likely have resulted in improved student outcomes had an EBP been implemented instead. A logical first step in bridging the longstanding gap between research and practice in special education (see Cook & Farley, 2019) is to identify instructional practices that are, in fact, effective for different groups of learners (EBPs) as well as which practices are not; and prioritize use of the former and avoidance of the latter.

> EBPs will not address the needs and goals of every learner, and any instructional practice—including EBPs—can be implemented ineffectively. In other words, special educators cannot rely just on EBPs; high-quality special education is much more than implementing a series of EBPs.

Previous to the development and application of EBP standards, claims could be made that an instructional practice was supported as effective based on research even if that research was flimsy. For example, a single published survey study showing a small group of special educators rated a practice as effective is research, but that does not mean the practice is truly effective (i.e., the teachers could be mistaken about the effects of the practices, one study is insufficient to make claims about the general effects of a practice). Indeed, in the absence of clear standards about what type and how much research evidence is needed to identify a practice as an EBP, many ineffective practices could be claimed to be supported by some research. EBPs, then, have enabled the field to systematically evaluate bodies of research on discrete instructional practices in ways that facilitate practical decisions. Simply put, special educators can access hundreds of EBP reviews that reliably indicate whether practices are EBPs to inform their instructional decisions (e.g., prioritize the application of EBPs when they align with the goals and characteristics of their learners).

Forward-Looking Recommendations: The Next 50 Years

EBP standards and reviews are often full of technical research concepts designed to support methodological replication rather than classroom application. To optimize their utility for everyday practice and teacher preparation, we encourage developers of EBP-related products to create non-technical guides that provide actionable, step-by-step implementation procedures for pre- and in-service educators. The AFIRM Modules (Frank Porter Graham Child Development Institute, n.d.) are an excellent example of making the results of EBP reviews accessible and usable.

The field appears to be evolving from a broad focus on what works for popula-

tions of learners to what works for whom (which specific sub-groups of learners), for which outcomes, and under which conditions (e.g., Cox et al., 2024). EBPs with this more granular level of specificity may more closely align with the interests of special educators, who tend to be concerned with whether a practice works for their students in their classrooms, not about whether a practice tends to work for broad populations of learners. Of course, such a focus will require expanded research bases with multiple, high-quality experimental studies conducted for specific sub-groups of learners, different outcomes, and under different conditions.

We anticipate that EBP standards will become more nuanced. Many sets of EBP standards use dichotomous evaluations of studies (i.e., high quality or not high quality) and dichotomous EBP classifications (i.e., practices are classified as either an EBP or not an EBP). Although such approaches result in straightforward recommendations, which is the primary rationale for EBPs, they do not reflect the nuanced reality of research evidence. Treating studies simply as high quality or not and research bases as meeting EBP standards or not loses that nuance. For example, special educators would likely consider a practice supported as effective by multiple studies that just missed meeting a sufficient number of quality indicators quite differently than a practice that has been shown to be ineffective by multiple high-quality studies; yet both are classified as not being EBPs. Future EBP standards may incorporate rating scales or descriptions of strengths and weaknesses of research bases in addition to EBP classifications.

Finally, we suspect the role of EBPs will become more circumscribed. EBPs are helpful tools that can inform instructional decisions, but they are just one consideration; they address a narrow question regarding the research evidence supporting discrete instructional practices. EBPs will not address the needs and goals of every learner, and any instructional practice—including EBPs—can be implemented ineffectively. In other words, special educators cannot rely just on EBPs; high-quality special education is much more than implementing a series of EBPs. Indeed, many elements of educators' jobs related to supporting students with disabilities are not easily measured using experimental research studies considered in EBP reviews. A prime example of this is collaboration with colleagues and families, where it would not be ethical or practical to randomly assign educators to collaborate with some families but not others.

As discussed in the following section, the knowledge base around HLPs in special education complements EBPs to provide more holistic guidance for high-quality special education and informs the implementation of EBPs. EBPs alone, however, did not close the research-to-practice gap or resolve the difficulty practitioners face in accessing and applying a growing number of discrete interventions classified as EBPs. Researchers and teacher preparation leaders responded by developing HLPs—a foundational knowledge base of broader instructional approaches that cut across individual interventions such as EBPs.

High-Leverage Practices: A Field in Motion

Historical Perspective and Foundational Milestones

Over the past two decades, teacher education has shifted in important ways toward a clear focus on what teachers actually do in classrooms (Brownell et al., 2019). Earlier approaches often emphasized theory, broad instructional models, or lists of strategies that were difficult for novices to access, organize, or apply. The question of which practices are so central that every teacher should be able to use them effectively from the beginning of their career is essential for researchers, teacher educators, and other stakeholders to address (Windschitl et al., 2019). This line of inquiry led to the development of HLPs (Leko et al., 2015). This movement in part was intended to address the aforementioned issues practitioners have with accessing and applying the volumes of EBPs spanning the grade levels and content areas.

HLPs were identified as those practices that occur frequently in teaching, apply across content areas and grade levels, and are strongly connected to student learning (Ball & Forzani, 2011; Grossman et al., 2009). The goal was not to simplify teaching, but to make its complexity more manageable by identifying a core set of practices that could be taught, practiced, and improved over time (McLeskey et al., 2017). Since first entering the lexicon of educators about a decade ago, HLPs have had a positive and lasting impact on the field, but also raised important questions regarding their role in teaching and relationship to EBPs (Nelson et al., 2022).

Early efforts in general education, including work associated with TeachingWorks (www.teachingworks.org), helped define HLPs as the central actions of teaching (Windschitl et al., 2012). These included practices such as leading discussions, explaining content clearly, and interpreting student thinking. A key milestone in this work was the recognition that teacher preparation should focus not only on what teachers know, but also on what they can do in real instructional settings (Cohen, 2015). The TeachingWorks HLPs do not include many practices considered core to the work of educators who work with students with disabilities (e.g., running effective meetings, collaborating with families, intensifying instruction and behavioral supports when needed), which

led leaders at the CEC and the CEEDAR Center to develop their own set (Aceves & Kennedy, 2024).

Leaders in special education saw the potential of this approach but also recognized that additional considerations were needed relative to the set of practices identified by Teaching Works (McLeskey et al., 2017). Teaching students with disabilities involves similar core practices, but these practices often require intentional adaptation, collaboration, and use of data. In response, the CEC and the CEEDAR Center convened a group of researchers, teacher educators, and practitioners to identify HLPs specific to supporting students with disabilities.

This effort resulted in the 2017 publication of a set of 22 HLPs for students with disabilities organized into four domains (McLeskey et al., 2017). This was a significant milestone because it provided the field with a shared and practical framework that connected research, preparation, and classroom practice. It also reflected a growing consensus that improving outcomes for students with disabilities depends in part on strengthening the day-to-day instructional behaviors of educators.

Major Advances and Practice-Changing Innovations

Since their introduction, HLPs have influenced how educators think about teaching and how teacher preparation programs are designed (Aceves & Kennedy, 2024). One of the most important developments has been the emergence of a shared language for discussing teaching practice. Instead of relying on general descriptions of effective teaching, educators can now refer to specific teaching practices and behaviors such as using explicit instruction (HLP 16), collaborating with professionals (HLP 1), or using data to guide instructional decisions (HLP 6). This clarity has made it easier to align coursework, field experiences, and professional development (Brownell et al., 2019). Because many HLPs are also recognized as EBPs (e.g., explicit instruction, make data-driven decisions, use functional behavioral assessments), this movement has helped elevate the conversation and awareness around both.

Another important advance has been the movement toward practice-based teacher education (Billingsley et al., 2019). Teacher candidates are now more frequently engaged in opportunities to practice core instructional behaviors in structured settings. These opportunities include rehearsals, simulations, and guided practice in classrooms. This approach helps candidates develop confidence and competence by allowing them to focus on core aspects of teaching (i.e., HLPs) while receiving targeted feedback.

HLPs have also strengthened the connection between research and classroom practice (Riccomini et al., 2017). Rather than asking teachers to navigate a wide range of isolated strategies, HLPs provide a foundation that supports the use of many EBPs. For example, explicit instruction and scaffolding are not tied to a single program or subject area. They are flexible practices that teachers can apply across a variety of contexts and learners.

Another important development has been the recognition that HLPs are relevant for all educators (Aceves & Kennedy, 2024). Although they were developed within general and special education contexts, they are increasingly understood as essential for teaching in inclusive classrooms. Because most students with disabilities spend a significant portion of their time in general education settings, all teachers benefit from learning and using these practices (Sayeski, 2018).

Recent work (see Aceves & Kennedy, 2024) has focused on refining and strengthening the HLP framework. Updates have emphasized the importance of prioritizing certain core behaviors, clarifying how HLPs work together, and making culturally inclusive approaches more visible. These refinements have made the practices more accessible for teacher candidates who are learning to manage the many demands of teaching.

Implications for Research and Practice

The development and use of HLPs have important implications for both teacher preparation and classroom instruction. For teacher candidates, HLPs provide a clear and manageable starting point. Instead of trying to learn a large number of disconnected strategies, candidates can focus on developing a smaller set of core behaviors that are widely applicable and meaningful. This focus supports deeper learning and helps candidates build confidence as they enter the profession.

For teacher preparation programs, HLPs offer a way to design more coherent experiences. Coursework and field experiences can be aligned around the same set of practices, allowing candidates to encounter, practice, and refine those practices in multiple contexts. This alignment helps bridge the gap between university-based learning and classroom practice. Universities can also create observation tools that are aligned to HLPs (see VanUitert & Holdheide, n.d.).

In school settings, HLPs support more focused and collaborative professional learning. When teachers, coaches, and administrators share an understanding of core teaching behaviors, it becomes easier to provide feedback, support one another, and work toward common goals. This shared focus can strengthen partnerships between schools and preparation programs, creating a more consistent experience for

TABLE 2: Comparing and Contrasting Key Features of Evidence-Based and High-Leverage Practices

Feature	Evidence-Based Practices	High-Leverage Practices
Purpose	To improve student outcomes by providing guidance on how to teach	
Target Audiences	Practitioners, teacher educators, and researchers	
Target Practices	Discrete instructional interventions	Foundational, overarching teaching behaviors
Target Outcomes	Specific learner outcomes (e.g., reading fluency)	Broad learning outcomes (e.g., student learning)
Identification Method	Applying standards to bodies of experimental research on a practice	Professional consensus based on practice and research

new teachers. Numerous professional development materials supporting the HLPs have been developed by the CEEDAR Center, CEC, and the IRIS Center (see Table 1 for links to these and other resources).

From a research perspective, HLPs provide a useful framework for studying teaching practice. Researchers can examine how specific HLPs are learned, how they are implemented in classrooms, and how they relate to student outcomes. This work can continue to inform both preparation and professional learning.

Forward-Looking Recommendations: The Next 50 Years

Looking ahead, the continued impact of HLPs will depend on how the field builds on the progress that has already been made. One important direction is maintaining a clear focus on a manageable set of practices. As new initiatives and priorities emerge in education, it will be important to preserve the clarity and usability that have made HLPs effective.

Another important direction is continuing to strengthen the integration of culturally inclusive and responsive practices. Teaching is always shaped by the identities, experiences, and communities of students. HLPs are most effective when they are used in ways that recognize and build on these factors.

Advances in technology also offer new opportunities to support the learning and use of HLPs. Tools such as video analysis, simulation, and artificial intelligence can provide additional opportunities for practice and feedback. When used thoughtfully, these tools can help make high-quality preparation and professional learning more widely available.

Ongoing collaboration between researchers, teacher educators, and practitioners will also be essential. HLPs were developed through this kind of collaboration, and their continued refinement will depend on maintaining strong connections between research and practice.

Most importantly, HLPs should continue to support teachers in developing a sense of competence and purpose in their work. Teaching is complex, and no framework can eliminate that complexity. What HLPs offer is a way to navigate it. They provide a foundation that helps teachers focus their efforts, build their skills, and support the learning of all students.

Evidence-Based Practices and High-Leverage Practices: Promising Partners

EBPs and HLPs are two influential knowledge bases used to inform and improve instructional practice in special education in distinct but complementary ways. As McCray and colleagues (2017) noted, EBPs and HLPs are a promising pair. As summarized in Table 2, EBPs and HLPs have some core similarities (e.g., the ultimate purpose of both is to improve student outcomes by informing teacher practice and preparation). Yet they differ in critical ways along multiple dimensions; for example, EBPs focus on discrete instructional practices with defined implementation steps to improve specific outcomes (e.g., reading fluency), whereas HLPs focus on broad teaching behaviors to improve learning outcomes across domains.

One potentially confusing point is that EBPs and HLPs are both types of practices. Although "practice" is common in both terms, EBPs and HLPs denote different types of practices: as described previously, EBPs are discrete instructional practices and HLPs are broad teaching behaviors used across settings that typically do not follow a prescribed set of steps (e.g., teachers shouldn't follow a script or set of steps

to effectively collaborate with families, HLP 3). However, some practices are both an EBP and an HLP. or example, Steinbrenner and colleagues (2020) identified functional behavioral assessment (FBA) as an EBP for learners with autism, and conducting FBAs to develop individual student behavior support plans is HLP 10. This is because FBA is both a discrete practice with codified steps supported as effective by multiple high-quality experimental studies, and thus an EBP, as well as a core practice special educators use across settings to understand and address student behavior, and is thus an HLP.

Though HLPs and EBPs each play important roles on their own, neither provides a complete prescription for effective teaching and teacher preparation in special education. For example, HLPs provide a robust guide for teaching students with disabilities. They indicate key outcome areas to target (e.g., behavioral, academic, social; HLPs 9 and 20), provide general principles to guide teaching across domains (e.g., adapt for specific learning goals, HLP 13; use explicit instruction, HLP 16; provide scaffolding and use flexible grouping, HLPs 15 and 17; promote student engagement, HLP 18; adjust instruction based on student assessments, HLP 6), and indicate with whom special educators should collaborate (e.g., families and other professionals, HLPs 1 and 3). Although these are sound guiding principles, they do not provide discrete practices with step-by-step procedures to effectively teach students with disabilities specific skills. This is where EBPs come in.

EBPs are discrete practices that have been validated by robust bodies of experimental research as generally improving targeted outcomes for different groups of learners. But as Cook et al. (2012) noted, EBPs need to be implemented in the context of effective teaching. Just as following a recipe does not guarantee a perfect dish, following the prescribed implementation steps of an EBP does not necessarily result in effective learning. And this is where HLPs come back in; special educators use HLPs to provide a broader framework of effective teaching that facilitates the effective implementation of EBPs. For example, EBPs need to be implemented with adequate intensity (HLP 20); delivered in a consistent, organized, and respectful learning environment (HLP 7); and adjusted based on student assessment data (HLP 6).

To illustrate how HLPs and EBPs can work together to inform special education instruction, we provide a hypothetical example of Ms. Smith, a first-year special education teacher at an elementary school whose class is primarily composed of students with autism. Ms. Smith's teacher preparation program emphasized HLPs, and she uses them to guide her teaching. For example, she infuses instruction in social behavior throughout the day (HLP 9), uses explicit instruction across domains (HLP 16), and frequently provides scaffolded supports (HLP 15). However, her formative assessments indicate that her students' social behavior is not improving adequately, and she decides she wants to implement an EBP to improve her students' social outcomes.

She examines the EBPs identified for learners with autism by the National Clearinghouse on Autism Evidence and Practice (Steinbrenner et al., 2020). She sees that Peer-Based Instruction and Intervention (PBII) is an EBP with evidence supporting positive effects specifically for the social outcomes for elementary students with autism. After reading about PBII, she is encouraged that it aligns well with the HLPs (e.g., involves explicit instruction for peers and as needed, for students with autism; is intensive [daily]; involves collecting data on learner progress and providing feedback) and decides to implement it. She downloads the tools and resources available from the AFIRM module on PBII (Autism Focused Intervention Resources & Modules, n.d.), which includes a step-by-step practice guide, an implementation checklist, and a tip sheet for professionals. In addition to following the specific implementation steps provided, she continues to apply the HLPs while implementing PBII (e.g., promoting generalization by conducting PBII sessions in different locations, adapting PBII by providing visual supports such as timers showing how much "friend time" is left in the session). By integrating HLPs and EBPs, Ms. Smith begins to see social behaviors improve in most of her students and is hard at work on further adaptations with her non-responders.

CONCLUSION

Special education has transitioned from (a) developing new instructional approaches and providing legal access to services to (b) informing instructional practice with knowledge bases that rest on the foundation of decades of research and practice. The synergy between EBPs and HLPs helps enable special educators to address the mandate of IDEA to effectively apply scientifically validated supports and instruction. EBPs provide the "what" side of the instructional coin in special education—the discrete, research-validated interventions for improving targeted outcomes for specific learners, whereas HLPs offer the "how" side of the coin—the foundational teaching behaviors essential for effective special education across learners, settings, and outcomes.

The hypothetical case of Ms. Smith demonstrates how EBPs and HLPs are complementary tools, each made more complete and robust when used in conjunction with the other. Grounded in research- and practice-based evidence, EBPs and HLPs reflect and drive

high-quality instruction and improved learner outcomes. Looking ahead, the next 50 years in special education will be well positioned for success if these knowledge bases continue to evolve, expand, and be refined in ways that meet future challenges and changes in the field. Ultimately, anchoring teacher preparation and classroom practice in these complementary frameworks will contribute to the continuing growth and effectiveness of special education instruction.

REFERENCES

Aceves, T. C., & Kennedy, M. J. (Eds.). (2024). *High-leverage practices for students with disabilities* (2nd ed.). Council for Exceptional Children and CEEDAR Center.

Autism Focused Intervention Resources & Modules. (n.d.). *Peer-based instruction & intervention (PBII)*. https://afirm.fpg.unc.edu/ebp-module/peer-based-instruction-intervention-pbii/

Ball, D. L., & Forzani, F. M. (2011). Building a common core for learning to teach. *American Educator*, *35*(2), 17–21. https://files.eric.ed.gov/fulltext/EJ931211.pdf

Billingsley, B., Bettini, E., & Jones, N. D. (2019). Supporting special education teacher induction through high-leverage practices. *Remedial and Special Education*, *40*(6), 365–379. https://doi.org/10.1177/0741932518816826

Brownell, M. T., Benedict, A. E., Leko, M. M., Peyton, D., Pua, D., & Richards-Tutor, C. (2019). A continuum of pedagogies for preparing teachers to use high-leverage practices. *Remedial and Special Education*, *40*(6), 338–355. https://doi.org/10.1177/0741932518824990

Cleary, A. M., & Robinson, D. H. (2025). Institutionalized misinformation in US education: Combatting the overselling of learning styles and underselling of spaced effort. *Journal of Social Issues, 81*(1), e70005. https://doi.org/10.1111/josi.70005

Cohen, J. (2015). The challenge of identifying high-leverage practices. *Teachers College Record, 117*(8), 1–41. https://doi.org/10.1177/016146811511700702

Collins, L. W., Cook, S. E. C., & Cook, B. G. (2025). Evidence-based practices in special education: A brief evolution and noteworthy practices. *Teaching Exceptional Children, 58*(2), 76–77. https://doi.org/10.1177/00400599251382310

Cook, B. G., Buysse, V., Klingner, J., Landrum, T. J., McWilliam, R. A., Tankersley, M., & Test, D. W. (2015). CEC's standards for classifying the evidence base of practices in special education. *Remedial and Special Education, 36*(4), 220–234. https://doi.org/10.1177/0741932514557271

Cook, B. G., Collins, L. W., Cook, S. C., & Cook, L. (2020). Evidence-based reviews: How evidence-based practices are systematically identified. *Learning Disabilities Research & Practice, 35*(1), 6–13. https://doi.org/10.1111/ldrp.12213

Cook, B. G., & Cook, L. (2016). Research designs and special education research: Different designs address different questions. *Learning Disabilities Research & Practice, 31*(4), 190–198. https://doi.org/10.1111/ldrp.12110

Cook, B. G., & Farley, C. (2019). The research-to-practice gap in special education. In D. F. Bateman & M. L. Yell (Eds.), *Current trends and legal issues in special education* (pp. 110–125). Corwin.

Cook, B. G., Smith, G. J., & Tankersley, M. (2012). Evidence-based practices in education. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *APA educational psychology handbook: Vol.1*. (pp. 495–528). American Psychological Association.

Cook, S. E. C., Collins, L. W., Cook, B. G., & Cook, L. (2025). A comprehensive systematic review of targeted evidence-based reviews in special education. Advance online publication. *Remedial and Special Education*. https://doi.org/10.1177/07419325251388491

Cox, S. K., Root, J. R., McConomy, A., & Davis, K. (2024). "For whom" and "under what conditions" is MSBI effective? A conceptual replication with high school students with autism. *Exceptional Children, 90*(4), 361–381. https://doi.org/10.1177/00144029241259013

Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children, 52*(3), 219–232. https://doi.org/10.1177/001440298505200303

Dunn, L. M. (1968). Special education for the mildly retarded—Is much of it justifiable? *Exceptional Children, 35*(1), 5–22. https://doi.org/10.1177/001440296803500101

Endrew F. v. Douglas County School Dist. RE-1, 580 U.S. 386 (2017). https://www.supremecourt.gov/opinions/16pdf/15-827_0pm1.pdf

Frank Porter Graham Child Development Institute (n.d.). Autism-focused intervention resources & modules. https://afirm.fpg.unc.edu/afirm-modules/

Ganz, J. B., Katsiyannis, A., & Morin, K. L. (2018). Facilitated communication: The resurgence of a disproven treatment for individuals with autism. *Intervention in School and Clinic, 54*(1), 52-56. https://doi.org/10.1177/1053451217692564

Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children, 71*(2), 149–164. https://doi.org/10.1177/001440290507100202

Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching: Re-imagining teacher education. *Teachers and Teaching: Theory and Practice*, *15*(2), 273–289. https://doi.org/10.1080/13540600902875340

Horner, R. H., Carr, E. G., Halle, J. W., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*(2), 165–179. https://doi.org/10.1177/001440290507100203

Individuals with Disabilities Education Improvement Act, 20 U.S.C. § 1400 *et seq.* (2004). https://www.govinfo.gov/app/details/PLAW-108publ446

Leko, M. M., Brownell, M. T., Sindelar, P. T., & Kiely, M. T. (2015). Envisioning the future of special education personnel preparation in a standards-based era. *Exceptional Children*, *82*(1), 25–43. https://doi.org/10.1177/0014402915598782

Maggin, D. M., Cook, B. G., & Cook, L. (2018). Using single-case research designs to examine the effects of interventions in special education. *Learning Disabilities Research & Practice, 33*(4), 182–191. https://doi.org/10.1111/ldrp.12184

McCray, E. D., Kamman, M., Brownell, M., & Robinson, S. (2017). High-leverage practices and evidence-based practices: A promising pair. CEEDAR Center. https://ceedar.education.ufl.edu/wp-content/uploads/2017/12/HLPs-and-EBPs-A-Promising-Pair.pdf

McLeskey, J., Barringer, M.-D., Billingsley, B., Brownell, M. T., Jackson, D., Kennedy, M., Lewis, T. J., Maheady, L., Rodriguez, J., Scheeler, M. C., Winn, J., & Ziegler, D. (2017). *High-leverage practices in special education*. Council for Exceptional Children & CEEDAR Center.

National Autism Center. (2015). National standards: Phase 2. https://nationalautismcenter.org/national-standards/phase-2-2015/

National Technical Assistance Center on Transition. (n.d.). Effective practices. https://transitionta.org/topics/effective-practices/

Nelson, G., Cook, S. C., Zarate, K., Powell, S. R., Maggin, D. M., Drake, K. R., Kiss, A. J., Ford, J. W., Sun, L., & Espinas, D. R. (2022). A systematic review of meta-analyses in special education: Exploring the evidence base for high-leverage practices. *Remedial and Special Education*, *43*(5), 344–358. https://doi.org/10.1177/07419325211063491

Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional*

ABOUT THE AUTHORS

Bryan Cook, Ph.D.

Bryan Cook, Ph.D., is Professor of Special Education at the University of Virginia, where his scholarship focuses on evidence-based practices in special education, open science, and meta-research. He chaired the Working Group that developed Council for Exceptional Children's Standards for Evidence-Based Practices in Special Education, is founding co-editor of Research in Special Education, and co-directs the Special Education Research Accelerator (SERA).

Michael J. Kennedy, Ph.D.

Michael J. Kennedy, Ph.D., is Commonwealth Professor of Education at the University of Virginia's School of Education and Human Development. His research focuses on the design and evaluation of multimedia, technology-enhanced, and AI-supported approaches to improve teaching and learning for students with disabilities and the educators who support them. He was a member of the original writing team for the High-Leverage Practices for Students with Disabilities published in 2017 and co-team lead for the revised and updated edition published in 2024.

Children, 71(2), 137–148. https://doi.org/10.1177/001440290507100201

Reichow, B., Volkmar, F. R., & Cicchetti, D. V. (2008). Development of the evaluative method for evaluating and determining evidence-based practices in autism. *Journal of Autism and Developmental Disorders, 38*, 1311–1319. https://doi.org/10.1007/s10803-007-0517-7

Riccomini, P. J., Morano, S., & Hughes, C. A. (2017). Big ideas in special education: Specially designed instruction, high-leverage practices, explicit instruction, and intensive instruction. *TEACHING Exceptional Children*, *50*(1), 20–27. https://doi.org/10.1177/0040059917724412

Ruhaak, A. E., & Cook, B. G. (2016). Movement as behavioral moderator: What does the research say? In B. G. Cook, M. Tankersley, & T. J. Landrum (Eds.), *Advances in learning and behavioral disabilities: Effective and ineffective practices for learners with learning and behavioral disabilities: Vol. 29.* (pp. 111–134). Emerald. https://doi.org/10.1108/S0735-004X20160000029008

Sayeski, K. L. (2018). Putting high-leverage practices into practice. *Teaching Exceptional Children*, *50*(4), 169–171. https://doi.org/10.1177/0040059918755021

Steinbrenner, J. R., Hume, K., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yücesoy-Özkan, S., & Savage, M. N. (2020). *Evidence-based practices for children, youth, and young adults with Autism*. The University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Institute, National Clearinghouse on Autism Evidence and Practice Review Team. https://files.eric.ed.gov/fulltext/ED609029.pdf

Travers, J. C., & Ayres, K. M. (2016). Fad, pseudoscientific, and controversial interventions. In R. Lang, T. B. Hancock, & N. N. Singh (Eds.), *Early intervention for young children with autism spectrum disorder* (pp. 223–253). Springer.

What Works Clearinghouse. (n.d.). What Works Clearinghouse. https://ies.ed.gov/ncee/wwc/

Windschitl, M., Thompson, J., Braaten, M., & Stroupe, D. (2012). Proposing a core set of instructional practices and tools for teachers of science. *Science Education*, *96*(5), 878–903. https://doi.org/10.1002/sce.21027

Windschitl, M., Thompson, J., Braaten, M., & Stroupe, D. (2019). Sharing a vision, sharing practices: How communities of educators improve teaching. *Remedial and Special Education*, *40*(6), 380–390. https://doi.org/10.1177/0741932518810796

VanUitert, V., & Holdheide, L. R. (n.d.). High-leverage practices for students with disabilities. Self-assessment tools. CEEDAR Center. https://ceedar.education.ufl.edu/wp-content/uploads/2021/07/HLP-Self-Assessment-Tools-Cover-Page-combined.pdf

Celebrating 50 Years of Creating Inclusive and Supportive Classrooms

AUTHORS
Shanna E. Hirsch
Brandi Simonsen

Journal of Special Education Preparation
6(2), 71-78
© 2026 Hirsch and Simonsen
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/dn9kp-w7cjkc

ABSTRACT

In 1975, Public Law (PL) 94-142—the precursor to the Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004), set the stage for creating inclusive and supportive classrooms. Five decades since the initial law was passed, the field of education has made tremendous progress. This includes shifting away from restrictive, reactive, and exclusionary practices to implementing inclusive, proactive, and positive approaches. Other shifts include recognizing growth in social, emotional, and behavioral skills rather than managing behaviors, and valuing student and family partnerships. In this article, we highlight: (a) milestones related to IDEA and students with disabilities in the area of behavior; (b) advances in evidence-based practice to support behavior; (c) implications for practice; and (d) possibilities of an even more inclusive and supportive future for students in the next 50 years.

KEYWORDS

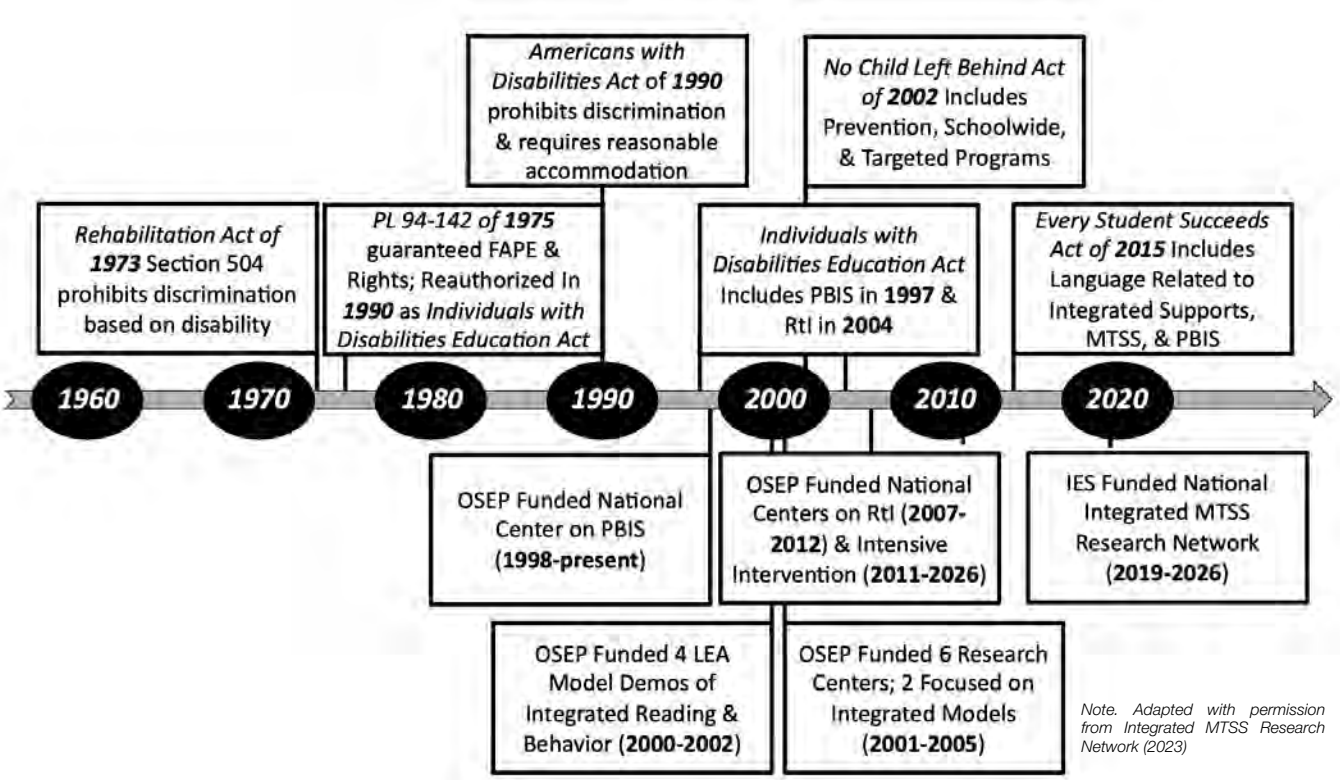
Classroom management, positive behavioral interventions and supports, positive behavior support, special education

Inclusive, proactive, and positive approaches to supporting students with disabilities' social, emotional, and behavioral growth have evolved significantly over the last 50 years. To understand the gravity of this evolution, it is important to pause and acknowledge what life was like for individuals with disabilities before the 1975 passage of Public Law (PL) 94-142—the precursor to the Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004). Before 1975, students with disabilities did not have guaranteed access to a free and appropriate public education (FAPE). Available placements and supports were varied and often far from optimal. For example, students with disabilities exhibiting severe behavioral challenges or extensive support needs could be excluded entirely from the public education system (Wehmeyer, 2026). Fortunately, strong advocacy from the disability community—including self-advocates and family advocates—fought and achieved important milestones in federal legislation. In this article, we describe (a) two major federal milestones related to supporting students with disabilities in the area of behavior; (b) advances in evidence-based practice to support behavior; (c) implications for practice; and (d) possibilities for students and teachers in the next 50 years.

FOCUS ON THE FIRST 50 YEARS OF IDEA: FOUNDATIONAL FEDERAL MILESTONES

During the 50 years since the passage of PL 94-142 in 1975, the field has continued to evolve—driven by both a push to improve the experiences and outcomes of students, families, and educators and a pull of scientific advances in the fields of special education and behavior. PL-94-142, followed by the Individuals with Disabilities Education Act of 1990; 20 U.S.C.§1400) guarantees that eligible students receive special education and related services to support their needs by providing FAPE (U.S. Department of Education, 2022b). Although summarizing 50 years of advocacy, practice, and scientific advances is beyond the scope of this article, we

FIGURE 1: Key Federal Legislation and Investment Milestones Toward PBIS & MTSS



Note. Adapted with permission from Integrated MTSS Research Network (2023)

identified a few milestones (see Figure 1) that have emerged from these decades in the area of supporting students with disabilities whose behavior interferes with their learning or the learning of others.

Inclusive, Proactive, and Positive Approaches in IDEA and Federal Supports

There has been a shift from (a) restrictive, reactive, and exclusionary to (b) inclusive, proactive, and positive approaches to social, emotional, and behavior support. Advocates, practitioners, and scholars argued for the importance of positive approaches to support students' social, emotional, and behavioral skill growth (Kincaid et al., 2015). The field of positive behavior support emerged from these efforts, with a combined emphasis on (a) inclusion and normalization from strong advocacy, (b) social validity and contextual relevance in practice, and (c) scientific advances in the field of applied behavior analysis (Kincaid et al., 2015).

Efforts to implement positive behavior support have largely been supported by the U.S. federal government. As shifts in practice occurred, we also saw an increased emphasis on understanding and addressing behavior as part of a student's individualized education program (IEP). For example, when a student receiving special education services exhibits behaviors that interfere with their learning or the learning of others, the student's IEP may also address their behavior in the student's annual goals (34 C.F.R. § 300.320(a)(2)(i)) and services (Hirsch et al., 2026; 34 C.F.R. § 300.320(a)(4)).

Under IDEA, IEP teams should consider the use of positive behavior interventions and supports (U.S. Department of Education, 2022b; 20 U.S.C. § 1414(d)(3)(B)(i); 34 C.F.R. § 300.324(a)(2)(i)). In 1998, the U.S. Department of Education funded the first National Technical Assistance and Dissemination Center on Positive Behavior Supports (PBIS). The Center was established to address the social, emotional, and behavioral needs of students whose behavior interfered with learning (Center on PBIS, 2023a). PBIS is an evidence-based, school-wide framework that provides a continuum of support to meet students' academic, behavioral, social, and emotional needs. Six years later, in 2004 the U.S. Congress reauthorized IDEA (IDEA, 2004; 20 U.S.C. § 1400). As part of the reauthorization, the law retained an emphasis on PBIS, which is now the most widely implemented (implemented by > 28,000 schools; Center on PBIS, 2026) and extensively researched (Santiago-Rosario et al., 2023) Multi-Tiered System of Support (MTSS) framework. Learn more about PBIS at the Center on PBIS website (www.pbis.org).

Students with Disabilities' Behavioral Needs and IDEA's Discipline Provision

IDEA affords additional protections for students with disabilities whose behavior impedes their learning. Under the law, students' behavioral needs are considered throughout the evaluation and reevaluation process, as well as during IEP development (U.S. Department of Education, 2022b). In addition, IDEA includes disciplinary safeguards related to suspensions, removals, and changes in a student's placement from their current educational setting. For instance, when a student is removed for more than 10 school days, or when a series of removals constitutes a pattern, the removal may be considered a change in placement and trigger a manifestation determination review. This review determines whether the student's behavior was a manifestation of the disability or was a result of the school, or local education agency's (LEA), failure to implement the IEP.

The U.S. Department of Education released a series of guidance documents to support the implementation of IDEA for students with disabilities, related to student behavior. For example, in 2022, the Department of Education released *Positive, Proactive Approaches to Supporting Children with Disabilities: A Guide for Stakeholders* (U.S. Department of Education, 2022a). This guide outlined evidence-based practices, strategies, and resources for states, schools, LEAs, and other entities. Topics include reducing exclusionary discipline, using evidence-based approaches to support and respond to student needs, and implementing positive behavior interventions and supports. That same year, the U.S. Department of Education also released *Questions and Answers: Addressing the Needs of Children with Disabilities and IDEA's Discipline Provision* (U.S. Department of Education 2022b).

MAJOR ADVANCES IN EVIDENCE-BASED PRACTICES TO SUPPORT BEHAVIOR

In addition to witnessing the evolution of behavior supports within the federal law, we have witnessed advances and innovations to support behavior in the classroom. Among them, we would like to highlight two noteworthy advancements: (a) evidence-based classroom or classwide practices for all students and (b) intensive behavioral supports for individual students.

Classwide Positive Behavioral Interventions and Supports (CW-PBIS)

Although IDEA (2004) does not explicitly describe classroom behavior support, it does require IEP teams to consider "positive behavioral interventions, supports, and other strategies" when a student's behavior interferes with learning. This provision provides a foundation for the use of classroom-level practices, which complement individualized applications of PBIS for students with disabilities. Consistent with the shift to more positive approaches, advocates, practitioners, and scholars shifted language from "behavior modification" (Whitman & Whitman, 1971) to "classroom management" (Emmer & Stough, 2001) and, more recently, to "positive and proactive behavior support" or "Classwide Positive Behavioral Interventions and Supports" (CW-PBIS; Simonsen & Myers, 2025). These changes reflect more than just updated vocabulary; they represent a broader evolution from controlling student behavior to supporting skill growth and designing environments where all students can thrive (Center on PBIS, 2025). This conceptual shift also contributed to increased attention to classroom practices that are supported by empirical research and designed to promote positive student outcomes.

Over the last 5 decades, scholars have identified a range of practices with sufficient empirical research to be considered evidence based. Although educators can do their own research to identify specific evidence-based practices (see, for example, the What Works Clearinghouse at https://ies.ed.gov/ncee/WWC/), national centers and professional organizations offer curated lists and resources to support implementation of evidence-based practices, including high-leverage practices for supporting students with disabilities (Aceves & Kennedy, 2024). As indicated earlier, PBIS is the most widely used framework for supporting students' social, emotional, and behavioral needs (Center on PBIS, 2025).

The PBIS framework consists of universal, preventive practices, including school-wide and classroom-level strategies to support all students. Although PBIS is implemented at the school-wide level, there are specific classroom-level practices, often considered Tier 1 universal supports, which are critical to the overall success of student behavior (Center on PBIS, 2025). More specifically, these practices build the foundation of a positive classroom climate that maximizes student engagement, resulting in higher student academic achievement and reduced behavioral issues. Many of these student-level practices are also associated with positive teacher-level outcomes including higher levels of self-efficacy (i.e., the belief in one's ability to enact CW-PBIS and support student behavior; Tschannaen-Moran & Woolfork-Hoy, 2001). This matters because higher levels of CW-PBIS self-efficacy are associated with lower levels of teacher burnout (Aloe et al., 2014) and lower levels of school-related stress (Barouch Gilbert et al., 2014). Training in CW-PBIS can also reduce teachers' risk for attrition (Metlife Inc., 2013).

Examples of CW-PBIS practices include behavior-specific praise (BSP), opportunities to respond (OTR), and redirection. BSP is a brief statement recognizing a specific student or group of students immediately after they exhibit desired behaviors or engage in a desired task. This sort of positive feedback statement has been shown to increase on-task behavior for both students with and without disabilities (Waxman & Walberg, 1991). OTRs are academic questions, prompts, or statements directed to an individual student, group of students, or the whole class that require a response. Active engagement via OTRs has been shown to decrease disruptive behavior while increasing student understanding. Redirections are brief statements that describe behavior that does not meet expectations and remind students of the expected behavior. When delivered calmly and specifically, redirections can help students return to task while preserving instructional momentum. Together, these practices illustrate a shift from reactive behavior control to proactive instruction, engagement, and skill development.

Intensive Behavioral Support for Individual Students

Students with disabilities, including students whose behavior interferes with learning, often have complex needs. This includes social, behavioral, and mental health needs. Addressing these needs requires schools to use evidence-based assessments and to help identify the factors surrounding the behavior that will be used to develop appropriate supports. The functional behavioral assessment (FBA) process was incorporated into IDEA in 1997 as part of an evaluation and then under procedural safeguards. The U.S. Department of Education (2022b) provides the following definition:

> An FBA is used to understand the function or purpose of a child's specific, interfering behavior and factors that contribute to the behavior's occurrence and nonoccurrence for the purpose of developing effective positive behavioral interventions, supports, and other strategies to mitigate or eliminate the interfering behavior. (p. 52)

The same document defined a behavior intervention plan (BIP) as "a component of a child's educational program designed to address behaviors that interfere with the child's learning or that of others and behaviors that are inconsistent with school expectations" (U.S. Department of Education, 2022b, p. 51).

In cases involving a disciplinary change in placement, IDEA requires that an FBA be conducted and a BIP be reviewed and revised or developed (IDEA, 20 U.S.C. § 1415[k][1][F]). Although IDEA references the application of FBAs and BIPs in a reactive manner related to disciplinary procedures, recent federal guidance focuses on their use as a preventive tool. In 2024, the U.S. Department of Education released guidance on *Using Functional Behavioral Assessments to Create Supportive Learning Environments*, which describes FBAs as tools to support a student's access, participation, and engagement in the learning environment and to promote inclusive educational practices. The guidance also emphasizes that FBAs should be available for any student (with or without a disability) whose behavior interferes with learning. It also highlights FBAs as a tool to inform instruction and support planning. Together, FBAs and BIPs provide a framework for identifying the causes of interfering behavior and designing individualized, behavioral supports.

Effective implementation of both FBAs and BIPs depends on meaningful collaboration with families and students. Family and student engagement are also foundational principles of IDEA. Consistent with broader shifts toward authentic partnerships with students and families, the recent guidance emphasizes the importance of actively engaging students and families in behavior-related situations. For example, the U.S. Department of Education's (2024) guidance emphasizes that schools should "collaborate and actively engage parents and students in the process" (p. 6). They go on to use the term "parent" over 40 times, emphasizing the key role that parents and guardians play in supporting behavior.

These partnerships center students' strengths, preferences, and needs. For example, person-centered planning emerged as an approach to ensure the IEP process centered students and their family (e.g., Flannery et al., 2000), and practitioners talk about family and student "voice" (Regional Educational Laboratory Pacific, n.d.). Although we prefer a more inclusive term, like partnership, that recognizes people communicate in both vocal and non-vocal ways, we appreciate the focus of elevating partnerships with students and families. Regardless of terminology, the central idea remains the same: behavior support planning is strengthened when students and families are meaningfully included as partners in the process.

MOVING FROM PRACTICES ON PAPER INTO CLASSROOMS

Many educators and researchers have dedicated their careers to *identifying* positive and inclusive behavior support and *developing* systems of support that ensure all students are taught in positive classroom environments (Marzano & Marzano, 2003; Youngs et al., 2023). Fortunately, our field offers effective strategies for moving from paper-based practices into classrooms.

Strategies for Implementing CW-PBIS

Our field has embraced data-driven professional development models to strengthen CW-PBIS (Wilkinson et al., 2020). For instance, educators and researchers use data to differentiate professional development, match supports to individual or group needs, and include multiple components such as modeling, guided practice, independent practice with structured reflection (see Center on PBIS, 2023b).

Researchers have also leveraged technology to develop contextualized professional learning opportunities focused on CW-PBIS. Kennedy et al. (2020), for example, developed a multi-component intervention that provides teachers with explicit instruction and video models on each CW-PBIS practice. Next, teachers practice the skills in the classroom while recording themselves teaching. They review the videos using a structured self-reflection and receive feedback from a coach (via email) using Capturing Observations And Collaboratively sHaring Educational Data (COACHED; Kennedy & Kunemund, n.d.). COACHED is a web-based coaching platform that uses video analysis to identify key implementation markers and provide practice-based feedback. Nagro et al. (2020) combined COACHED with a systematic, self-led approach that includes learning about CW-PBIS practices by watching high-quality instructional videos, followed by a sequential video analysis process which involves recording a lesson using the classroom management practice, reviewing the video, reflecting using a structured rubric, and revising their instruction. Throughout the process, teachers can analyze the choices they make while creating an observable plan for improvement. All of the CW-PBIS materials along with access to COACHED are available for free online. Learn more about COACHED on the www.buildtheframe.com website.

Strategies for Implementing FBA-BIPs

Similar to CW-PBIS, there are a variety of resources to support FBA and BIPs. If you are not familiar with FBA and BIPs, we recommend reviewing resources available from the U.S. Department of Education, federally funded technical assistance centers (e.g., the Center on PBIS, the National Center for Pyramid Model Innovations, and the IRIS Center), and state or university technical assistance providers.

Several reputable online resources are available to support educators' understanding of the FBA-BIP process. Among these, The IRIS Center provides several free online modules related to FBA and BIPs, including *Behavior Principles: The Basics of Understanding Student Behavior* (Iris Center, n.d.-b), *Functional Behavioral Assessment: Elementary and Secondary* (Iris Center, n.d.-c). and *Behavior Intervention Plans: Elementary and Secondary* (Iris Center, n.d.-a).

The Basic FBA to BIP Training Series is a free online program designed to help educators create brief FBA-BIPs (Borgmeier et al., 2016). The website includes two comprehensive training series that are designed to help individuals conduct FBA-BIPs. Each module contains step-by-step directions, templates, data collection tools, and homework tasks which are designed to be completed with an actual student.

RECOMMENDATIONS TO INSPIRE THE NEXT FIFTY YEARS

Over the past 50 years, our field has developed new ways to support teachers and their students, and we expect it will continue to evolve. With that in mind, we offer the following recommendations.

Continue to Foster Social Emotional and Behavioral Skills

As we shared, many have recommended that we focus on supporting social, emotional, and behavioral skill development (see Center on PBIS, 2025; Stevenson et al., 2024). This is an important shift away from compliance and adult-centered classroom management. Rather, we encourage teachers to keep thinking about their role as an educator who teach social, emotional, and behavioral skills similar to teaching academic skills such as math and reading. We encourage you to teach these skills explicitly as part of CW-PBIS practices and FBA and BIPs (see Center on PBIS, 2025; Greenberg et al., 2016; McCarthy et al., 2023). Together, this helps create classrooms and supports where student well-being is centered, critical skills are explicitly taught and recognized, and students thrive.

Embed Teacher Well-Being into CW-PBIS and FBA-BIP Professional Development

We would be remiss if we neglected to address the potential stress associated with teaching and supporting students with behavioral concerns. Stress has long challenged our field (Eaton et al., 1990; Greenberg et al., 2016; Maslach et al., 2001), and teachers report student behavior as a top reason for leaving the classroom (Ingersoll, 2001; MetLife Inc., 2013). High levels of teacher stress and burnout are associated with lower levels of classroom practices and negative student outcomes (Aloe et al., 2014; Bottani et al., 2019; Herman et al., 2018). Scholars have emphasized teacher well-being as a resource for helping teachers regulate their emotions in relation to CW-PBIS skills (McCarthy et al., 2023) and for nurturing a healthy classroom environment (Greenberg et al., 2016).

Fortunately, our field has identified several interventions for improving teacher well-being in schools. Cann et al. (2023) suggested that teacher interventions fall into five categories: gratitude interventions; mindfulness-based interventions; physical environment interventions; multiple component interventions (which may include cognitive behavioral therapy and time management); and training teachers to deliver a wellbeing curriculum for students. Interventions that included multiple components (e.g., mindfulness, coping, and exercise) demonstrated the largest improvements in positive outcomes such as stress and anxiety. These findings are promising, however more work is necessary. Specifically, future research and professional development should integrate teacher well-being into CW-PBIS and FBA-BIP professional development. Doing so may help educators build their own coping skills (i.e., manage stress in the moment, increase their ability to respond with kindness) while also increasing their use of evidence-based and culturally sustaining practices (Greenberg et al., 2016; McCarthy et al., 2023). Additionally, improving CW-PBIS implementation is an important practice for reducing stress and burnout and improving self-efficacy (e.g., Reinke et al., 2013). So, taking care of yourself while supporting your students' social, emotional, and behavioral growth are key ingredients to success as an educator.

Integrate Technology with Care

Technology is a tremendous resource for educators. It enables us to have real-time communication, strengthen partnerships with other educators and families, engage in data-based decisions, and implement meaningful differentiation. In the areas of CW-PBIS and student behavior, technology helps us understand student behavior and provide data-driven interventions.

> Although we have seen major milestones and advances in practice, we still have work to do to improve educational experiences for students with disabilities in the area of behavior.

At the time we wrote this article, several research-based tools were widely accessible and free for educators to use in the classrooms. These include apps that promote teachers' use of Tier 1 evidence-based practices such as specific praise (acknowledgements), OTRs, and prompts or precorrections (reminders). Researchers at the University of Oregon designed *Be+* (PBISApps, 2019) to help educators and coaches collect and share data. Existing apps also directly support student behavior. For example, Researchers at the University of Iowa and Vanderbilt built *Monitoring Behavior on the Go* (MoBeGo; Bruhn et al., 2022) to help students self-monitor their behavior in the classroom and help their teachers make expert level decision rules to aid in data-based decision making. MoBeGo is fully customizable to meet an individual student's needs.

Building on current technologies, we anticipate that over the next 50 years, artificial intelligence (AI) will drive the refinement and emergence of new classroom applications, tools, and platforms (Waterfield et al., 2024). A byproduct of AI will likely be personalized behavior supports (i.e., Marino et al., 2023; Wang et al., 2025). For instance, researchers at the University of South Florida created *TeacherServer* (Unal, 2025), which is a free platform that uses AI to support a variety of concepts such as developing behavior plans. Unlike a commercial tool such as ChatGPT, *TeacherServer* processes data locally. Furthermore, they adhere to the U.S. Department of Education's Guidelines for ensuring safety and privacy. At this time, the platform includes several generic tools that educators can use.

We anticipate that AI tools will quickly gain the capability to analyze multiple data sources (e.g., observation videos, student rating scales, interventions) and develop customized classroom plans. This could lead to timely individualized behavior supports. However, as AI-based apps and programs become widely available, we caution you to integrate them with care. AI prompting sequences (decision logic) lack human knowledge. For example, AI may not understand important variables such as classroom context, cultural norms, or individual student needs. With that, researchers have raised concerns to whether AI may amplify biases and lead to harming historically underserved student groups. Further, individual student information must be stored in accordance with strict security measures, and various AI tools may not adhere to privacy measures.

Although technology will continue to evolve, we strongly encourage considering low-tech approaches that may be feasible and efficient. These approaches rely on meaningful human input and judgment. Perhaps you will find a way to blend the low-tech and high-tech. Regardless of your approach, it is important to spend time building relationships with your colleagues, students, and their families. At the end of the day, we hope the next fifty years of CW-PBIS and FBA-BIPs will continue to rely heavily on human connections.

CONCLUSION

In 1975, students with disabilities were guaranteed a free and appropriate public education with the passage of PL-94-142. Our current law, IDEA (2004), continues to ensure the rights of students with disabilities. The law also promotes the use of positive behavior interventions and supports to support students in behavior. In this article we describe two core practices: CW-PBIS and function-based supports, including FBAs and BIPs. Although we have seen major milestones and advances in practice, we still have work to do to improve educational experiences for students with disabilities in the area of behavior.

REFERENCES

Aceves, T. C., & Kennedy, M. J. (Eds.) (2024, February). *High-leverage practices for students with disabilities. 2nd edition*. Council for Exceptional Children and CEEDAR Center. https://ceedar.education.ufl.edu/wp-content/uploads/2024/03/High-Leverage-Practices-for-Students-with-Disabilties-updated.pdf

Aloe, A. M., Amo, L. C., & Shanahan, M. E. (2014). Classroom management self-efficacy and burnout: A multivariate meta-analysis. *Educational Psychology Review*, *26*, 101–126. https://doi.org/10.1007/s10648-013-9244-0

Barouch Gilbert, R., Adesope, O. O., & Schroeder, N. L. (2014). Efficacy beliefs, job satisfaction, stress and their influence on the occupational commitment of English-medium content teachers in the Dominican Republic. *Educational Psychology*, *34*(7), 876–899. https://doi.org/10.1080/01443410.2013.814193

Borgmeier, C., Loman, C., & Strickland-Cohen, K. (2016). *Basic FBA to BIP*. https://basicfba.com/

Bottiani, J. H., Duran, C. A. K., Pas, E. T., & Bradshaw, C. P. (2019). Teacher stress and burnout in urban middle schools: Associations with job demands, resources, and effective classroom practices. *Journal of School Psychology*, *77,* 36–51. https://doi.org/10.1016/j.jsp.2019.10.002

Bruhn, A., Wehby, J., Hoffman, L., Estrapala, S., Rila, A., Hancock, E., Van Camp, A., Sheaffer, A., & Copeland, B. (2022). A randomized control trial on the effects of MoBeGo, a self-monitoring app for challenging behavior. *Behavioral Disorders*, *48*(1), 29–43. https://doi.org/10.1177/01987429221093987

Cann, R., Sinnema, C., Rodway, J., & Daly, A. J. (2023). What do we know about interventions to improve educator wellbeing? A systematic literature review. *Journal of Educational Change*, *25*(2), 231–270. https://doi.org/10.1007/s10833-023-09490-w

Center on PBIS (2023a). *PBIS Implementation Blueprint.* Center on PBIS, University of Oregon. https://www.pbis.org/resource/pbis-implementation-blueprint

Center on PBIS (2023b). *Supporting and responding to educators' classroom PBIS implementation needs: Guide to classroom systems and data.* Center on PBIS, University of Oregon. https://www.pbis.org/resource/supporting-and-responding-to-educators-classroom-pbis-implementation-needs-guide-to-classroom-systems-and-data.

Center on PBIS. (2025). *Supporting and responding to student's social, emotional, and behavioral needs: Evidence-based practices for educators (Version 2).* Center on PBIS, University of Oregon. https://www.pbis.org/resource/supporting-and-responding-to-behavior-evidence-based-classroom-strategies-for-teachers

Center on PBIS (2026, January). *PBIS Professional Development Blueprint.* University of Oregon. https://www.pbis.org/resource/pbis-professional-development-blueprint.

Center on PBIS (2026). *What is PBIS?* https://www.pbis.org/pbis/what-is-pbis

Emmer, E. T, & Stough, L. M. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational Psychologist*, *36*(2), 102–112. https://doi.org/10.1207/S15326985EP3602_5

Eaton, W. W., Anthony, J. C., Mandel, W., & Garrison, R. (1990). Occupations and the prevalence of major depressive disorder. *Journal of Occupational and Environmental Medicine*, *32*, 1079–1087. https://www.jstor.org/stable/45012690

Flannery, K. B., Newton, S., Horner, R. H., Slovic, R., Blumberg, R., & Ard, W. R. (2000). The impact of person centered planning on the content and organization of individual supports. *Career Development for Exceptional Individuals*, *23*(2), 123–137. https://doi.org/10.1177/088572880002300202

Greenberg, M. T., Brown, J. L., & Abenovli, R. M. (2016, September 1). *Teacher stress and health*. Robert Wood Johnson Foundation. https://www.rwjf.org/en/insights/our-research/2016/07/teacher-stress-and-health.html

Herman, K. C., Hickmon-Rosa, J., & Reinke, W. M. (2018). Empirically derived profiles of teacher stress, burnout, self-efficacy, and coping and associated student outcomes. *Journal of Positive Behavior Interventions*, *20*(2), 90–100. https://doi.org/10.1177/1098300717732066

Hirsch, S. E., Strickland-Cohen, K., Duble Moore, T., & Yell, M. L. (2026). Function-based supports: What the law requires and guidance recommends. *Preventing School Failure: Alternative Education for Children and Youth*, 1–9. https://doi.org/10.1080/1045988X.2026.2656992

Integrated MTSS Research Network. (2023). *Brief history of I-MTSS: Summary of major milestones toward an I-MTSS framework*. Integrated Multi-Tiered Systems of Support Research Network, University of Connecticut. https://mtss.org/wp-content/uploads/2023/03/Major-Milestones-toward-I-MTSS-3.13.23.pdf

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, *38*(3), 499–534. https://doi.org/10.3102/00028312038003499

IRIS Center. (n.d.-a). *Behavior intervention plans: Elementary*. https://iris.peabody.vanderbilt.edu/module/bip-elem/

IRIS Center. (n.d.-b). *Behavior principles: The basics of understanding student behavior*. https://iris.peabody.vanderbilt.edu/module/bp/

IRIS Center. (n.d.-c). *Functional behavioral assessment: Elementary*. https://iris.peabody.vanderbilt.edu/module/fba-elem/

Kennedy, M., & Kunemund, R. (n.d.) *Capturing Observations and Collaboratively Sharing Educational Data (COACHED).* https://coached.education.virginia.edu/

Kennedy, M., Nagro, S., & Hirsch, S. E. (2020). *Build the FRaME: Using feedback, reflection, and multimedia to teach evidence-based practice for effective classroom management.* Institute of Education Sciences, National Center for Special Education Research [Awarded Grant: R324A200061]. https://ies.ed.gov/use-work/awards/build-frame-using-feedback-reflection-and-multimedia-teach-evidence-based-practices-effective?ID=4491

Kincaid, D., Dunlap, G., Kern, L., Lane, K. L., Bambara, L. M., Brown, F., Fox, L., & Knoster, T. P. (2015). Positive behavior support: A proposal for updating and refining the definition. *Journal of Positive Behavior Interventions*, *18*(2), 69–73. https://doi.org/10.1177/1098300715604826

Marino, M. T., Vasquez, E., Dieker, L., Basham, J., & Blackorby, J. (2023). The future of artificial intelligence in special education technology. *Journal of Special Education Technology*, *38*(3), 404–416. https://doi.org/10.1177/01626434231165977

Marzano, R. J., & Marzano, J. S. (2003). The key to classroom management. *Educational Leadership*, *64*(1), 6–13.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397–422. https://doi.org/10.1146/annurev.psych.52.1.397

McCarthy, C. J., Mosley, K. C., & Dillard, J. B. (2023). Teacher stress and classroom man-

ABOUT THE AUTHORS

Shanna E. Hirsch, Ph.D.

Shanna E. Hirsch, Ph.D., BCBA-D, is an Associate Professor of Special Education at the University of Maryland. Dr. Hirsch is dedicated to bridging the research-to-practice gap by utilizing community engagement strategies, which build coalitions between community members and researchers. Her research focuses on identifying effective and practical instructional methods for supporting student behavior. She is particularly interested in studying Tier 1 classroom positive behavior interventions and supports, function-based thinking, and functional behavioral assessment-based interventions.

Brandi Simonsen, Ph.D.

Brandi Simonsen, Ph.D., is a Professor of Special Education in the Neag School of Education at the University of Connecticut. She is also a Co-Director of the National Technical Assistance Center on Positive Behavioral Interventions and Supports (pbis.org) and a member of the MTSS Leadership Collaborative (mtss.org). Professor Simonsen's scholarship focuses on supporting educators' implementation of PBIS/MTSS across a continuum of settings.

agement. In E. Sabornie and D. L. Espelage (Eds). *Handbook of classroom management* (3rd ed., pp. 189–210). Routledge.

MetLife Inc. (2013, February). *The MetLife survey of the American teacher: Challenges for school leadership.* https://www.metlife.com/content/dam/microsites/about/corporate-profile/MetLife-Teacher-Survey-2012.pdf

Nagro, S., Hirsch, S. E., & Kennedy, M. J. (2020). A self-led approach to improving classroom management practices using video analysis. *TEACHING Exceptional Children*, *53*, 24–32. https://doi.org/10.1177/0040059920914329

PBISApps (2019). *Be+* (Version 1.0) [Mobile app]. https://www.pbis.org/announcements/track-positive-reinforcement-with-our-be-app

Regional Educational Laboratory Pacific. (n.d.). *Including voice in education: Addressing equity through student and family voice in classroom learning*. REL Pacific. https://ies.ed.gov/sites/default/files/migrated/rel/infographics/pdf/REL_PA_Including_Voice_in_Education_Addressing_Equity_Through_Student_and_Family_Voice_in_Classroom_Learning.pdf

Reinke, W. M., Herman, K. C., & Stormont, M. (2013). Classroom-level positive behavior supports in schools implementing SW-PBIS: Identifying areas for enhancement. *Journal of Positive Behavior Interventions*, *15*(1), 39–50. https://doi.org/10.1177/1098300712459079

Santiago-Rosario, M. R., McIntosh, K., Izzard, S., Cohen-Lissman, D., & Calhoun, T. E. (2023). *Is positive behavioral interventions and supports (PBIS) an evidence-based practice?* Center on PBIS, University of Oregon. https://www.pbis.org/resource/is-school-wide-positive-behavior-support-an-evidence-based-practice

Simonsen, B., & Myers, D. (2025). *Classwide positive behavioral interventions and supports: A guide to proactive classroom management* (2nd ed.). Guilford Press.

Stevenson, N., McDaniel, S. M., & Hirsch, S. E. (2024). Assessing classroom management practices: Setting the stage for effective and equitable interventions. *Assessment for Effective Intervention*, *49(*2), 55–59. https://doi.org/10.1177/15345084231214418

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, *17,* 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Unal, Z. (2025). Enhancing educator engagement with AI: The Teacher-Server experience and its impact on teaching practices. *Southeastern Regional Association of Teacher Educators Journal*, 34(1), 1–10.

U.S. Department of Education, Office of Special Education and Rehabilitation Services. (2022a). *Positive, proactive approaches to supporting children with disabilities: A guide for stakeholders*. https://sites.ed.gov/idea/files/guide-positive-proactive-approaches-to-supporting-children-with-disabilities.pdf

U.S. Department of Education, Office of Special Education and Rehabilitation Services. (2022b). *Questions and answers addressing the needs of children with disabilities and the IDEAs discipline provisions*. https://sites.ed.gov/idea/files/qa-addressing-the-needs-of-children-with-disabilities-and-idea-discipline-provisions.pdf

U.S. Department of Education, Office of Special Education and Rehabilitation Services, Office of Elementary and Secondary Education. (2024). *Using functional behavioral assessments to create supportive learning environments*. https://sites.ed.gov/idea/files/Functional-Behavioral-Assessments-11-19-2024.pdf

Wang, H. T., Lin, F. Y., Wang, J. Y., Liang, J. C., & Wang, K. Y. (2025). Transforming support for individuals with severe ID and/or ASD with an AI-assisted APP: The framework and the pilot research. *Education and Information Technologies*, *30*(16), 22499–22519. https://doi.org/10.1007/s10639-025-13619-0

Waterfield, D. A., Watson, L., & Day, J. (2024). Applying artificial intelligence in special education: Exploring availability and functionality of ai platforms for special educators. *Journal of Special Education Technology*, *39*(3), 448–454. https://doi.org/10.1177/01626434241257237

Wehmeyer, M. L. (2026). What can history tell us about enduring issues in special education? In C. Lemons, M. Weiss, and S. E. Hirsch (Eds), *Enduring issues in special education: Personal perspectives*, (2nd ed., pp. 67–100). Routledge.

Whitman, M., & Whitman, J. (1971). Behavior modification in the classroom. *Psychology in the Schools*, *8*(2), 176–186. https://doi.org/10.1002/1520-6807(197104)8:2

Wilkinson, S., Freeman, J., Simonsen, B., Sears, S., Byun, S. G., Xu, X., & Luh, H.-J. (2020). Professional development for classroom management: A review of the literature. *Educational Research and Evaluation*, *26*(3–4), 182–212. https://doi.org/10.1080/13803611.2021.1934034

Youngs, P., Hirsch, S. E., Nagro, S., & Kennedy, M. (2023). Approaches to teaching classroom management at 33 universities: More commonality than difference? *Teacher Education and Special Education*, *46*(4), 284–299. https://doi.org/10.1177/08884064231170577

Stronger Together: Co-Teaching and Collaboration as Cornerstones of Special Education

AUTHORS
Wendy W. Murawski
Bryan E. Thornton

Journal of Special Education Preparation
6(2), 79-90
© 2026 Murawski and Thornton
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/skvtm-m7u54x

ABSTRACT

Since the passage of the Education for All Handicapped Children Act in 1975, later renamed the Individuals with Disabilities Education Act (IDEA), collaboration has been a defining feature of special education. Initially embedded in legal requirements such as individualized education program (IEP) development and related services, collaboration has evolved into a core professional practice shaping instruction, service delivery, and student participation. This article traces the historical and legal foundations of collaboration under IDEA, highlights major advances such as co-teaching and interprofessional teaming, and examines the expanding roles of families and students. Implications for research, practice, and educator preparation are discussed, along with recommendations to strengthen collaborative systems for the next generation of special educators.

KEYWORDS

IDEA, collaboration, educator preparation, co-teaching, interprofessional practice, family–professional partnerships

Since the passage of the Education for All Handicapped Children Act (EAHCA) in 1975, later renamed the Individuals with Disabilities Education Act (IDEA), collaboration has been a defining feature of special education. Federal law established shared responsibility among educators, related service providers, and families through requirements such as individualized education programs (IEPs), related services, procedural safeguards, and education in the least restrictive environment (LRE; IDEA, 2004). These provisions positioned collaboration as a structural expectation rather than an optional practice.

Over time, collaboration moved beyond compliance and into instruction. As access to the general education curriculum expanded for students with disabilities, educators were expected not only to plan together but to jointly design, deliver, and assess learning. Collaboration became a driver of instructional practice and student outcomes rather than a process confined to formal meetings. Within this shift, co-teaching emerged as a prominent model of shared instructional responsibility, alongside consultation, interprofessional teaming, and family-school partnerships (Friend & Cook, 2020). Today, collaboration also encompasses interdisciplinary service delivery, student participation, interagency partnerships for transition, and professional standards that define collaboration as a core competency. Because these competencies do not develop automatically, educator preparation programs must intentionally teach and develop them, with ongoing professional learning reinforcing them throughout educators' careers (Shidler, 2024).

This article examines how collaboration evolved from a legal requirement to a cornerstone of inclusive education under IDEA. We highlight key developments, including co-teaching and interprofessional models, and examine their implications for research, practice, and educator preparation. As collaboration has expanded to include students, families, and community partners, preparation programs must equip future educators not only to collaborate effectively, but also to strengthen the collaborative systems that support inclusive education. We conclude

with recommendations to guide the next generation of special educators as IDEA enters its next 50 years.

HISTORICAL PERSPECTIVE AND FOUNDATIONAL MILESTONES

Mandating Collaboration

From its inception, federal special education law required coordinated decision making among educators, related service providers, and families (EAHCA, 1975). Core provisions, including IEPs, related services, procedural safeguards, and education in the LRE, embedded shared responsibility within the legal framework of special education. Although implementation continues to vary across states, districts, and schools, the law established team-based practice as an essential component of special education.

The IEP formalized this expectation by requiring collective decisions about student needs, goals, services, and progress monitoring. Participation by parents and multiple professionals was intended to bring varied expertise to those decisions, while related services reinforced interdisciplinary coordination. The LRE mandate also required teams to determine how students could be educated alongside nondisabled peers with appropriate supports. Together, these provisions positioned collaboration as the primary means through which IDEA's vision is intended to be realized in practice (IDEA, 2004).

Legal Support for Collaboration

Early court decisions reinforced the role of collaboration in implementing IDEA by affirming the importance of the IEP process. In *Board of Education v. Rowley* (1982), the U.S. Supreme Court confirmed that the IEP is the primary mechanism for providing a free appropriate public education (FAPE).

> Over time, collaboration evolved beyond addressing the needs of individual students to strengthening teacher practice and school systems. This shift reflected a more proactive, systems-oriented view that recognized building educators' capacity could improve outcomes for many learners.

Although the Court did not mandate specific instructional methods or require schools to maximize a student's potential, it emphasized procedural compliance, individualized planning, and meaningful parental participation. *Rowley* underscored that FAPE is developed through structured, team-based planning rather than unilateral school decision making.

As inclusion expanded, later cases shifted attention from placement alone to the supports needed for student success. In *Oberti v. Board of Education* (1993), the court held that schools must first determine whether students can be educated in general education classrooms with appropriate supplementary aids and services before considering more restrictive settings. This decision reframed the LRE as a collaborative problem-solving process, requiring teams to design supports rather than simply select placements.

Subsequent rulings further emphasized access and coordinated services. In *Cedar Rapids Community School District v. Garret F.* (1999), the Supreme Court held that schools must provide necessary related services, even when those supports are intensive. That same year, in *Olmstead v. L.C.* (1999), the U.S. Supreme Court held under the Americans with Disabilities Act (ADA) that unjustified segregation of individuals with disabilities constitutes discrimination and that services should be provided in the most integrated setting appropriate. Taken together, these cases clarify that providing FAPE in the LRE requires intentional, team-based planning. Educational access is achieved not by placement alone, but through collaborative decision making that aligns instruction, services, and supports. For educators, these rulings demonstrate that collaboration is not simply a professional preference; it is how IDEA's legal protections become meaningful educational practice.

Collaboration as Professional Practice

Although collaboration in special education was initially shaped by legal mandates and procedural requirements, the field increasingly came to view it as a distinct professional skill set. As inclusive practices expanded, educators recognized that effective collaboration could not be assumed; it required intentional development of communication, role clarity, and shared problem solving (Friend & Cook, 2020). This evolution marked a transition from collaboration as compliance to collaboration as professional practice.

Early models of collaboration were grounded in behavioral consultation. Caplan (1970) emphasized indirect service delivery through a consultant-consultee relationship in which specialists supported classroom teachers by analyzing problems and recommending

interventions. Over time, collaboration evolved beyond addressing the needs of individual students to strengthening teacher practice and school systems. This shift reflected a more proactive, systems-oriented view that recognized building educators' capacity could improve outcomes for many learners. Collaboration was no longer viewed as merely a response to student difficulties, but as a strategy for improving teaching and learning across entire schools.

By the 1980s and 1990s, collaborative models increasingly emphasized parity and shared responsibility among educators. Idol et al. (1994) conceptualized collaboration as a non-hierarchical professional partnership characterized by shared expertise and joint responsibility, positioning general and special educators as instructional partners rather than consultant and consultee. Building on this shift, Cook and Friend (1995) advanced co-teaching as a structured model of shared instructional delivery that integrated collaborative planning and instruction within the general education classroom.

As standards-based reform expanded in the late 1990s and early 2000s, collaboration became embedded within broader educational systems. Fuchs and Fuchs (2006) helped define and advance Response to Intervention (RTI), a framework in which educators use student data to identify learning needs early, provide increasingly intensive supports, and monitor progress. RTI later evolved into the broader framework of Multi-Tiered Systems of Supports (MTSS), which integrates academic, behavioral, and social-emotional supports within a coordinated schoolwide system. Both RTI and MTSS rely on teams of educators who analyze data, solve problems collaboratively, and adjust instruction based on student response. In doing so, these frameworks made collaboration an expected part of everyday school practice rather than an individual professional choice.

Since the mid-2000s, research has shifted from establishing collaboration as a promising practice to understanding how it can be implemented most effectively. Implementation science emphasizes the importance of organizational structures, leadership, and fidelity, while recent meta-analyses and international syntheses (e.g., Strogilos et al., 2023; Vembye et al., 2024) examine how collaboration functions across contexts. Rather than asking *whether* collaboration works, current research examines how it works, under what conditions, and for whom. This shift reflects a maturing field that evaluates collaboration not only by its presence, but also by the quality of its implementation and its impact on educators and students. The following sections highlight major innovations that demonstrate how collaboration has continued to evolve in response to changing research, policy, and practice.

MAJOR ADVANCES AND PRACTICE-CHANGING INNOVATIONS

Co-Teaching as an Instructional Expression of Collaboration

The 1997 reauthorization of IDEA marked a shift from procedural collaboration to instructional collaboration by moving collaborative practices directly into the classroom. By requiring general educators to participate in IEP teams and emphasizing access to the general education curriculum, IDEA positioned special education as a shared instructional responsibility rather than a separate system (IDEA, 2004). Collaboration was no longer confined to meetings; it became part of daily teaching.

These expectations intensified under the No Child Left Behind Act (NCLB, 2002), which required students with disabilities to receive standards-based instruction and participate in accountability systems. At the secondary level, many special educators were not certified as "highly qualified" in specific content areas. Schools therefore needed instructional models that combined content expertise with specialized support in the same classroom (Brownell et al., 2010). Co-teaching emerged as one practical and effective response.

Cook and Friend (1995) initially defined co-teaching as "two or more professionals delivering substantive instruction to a diverse, or blended, group of students in a single physical space" (p. 2). Their definition established co-teaching as shared instruction rather than a support role, but it offered little guidance for implementation. Building on this foundation, Murawski and Swanson (2001) and Murawski (2006) operationalized co-teaching through the framework of "co-planning, co-instruction, and co-assessment," helping educators translate the concept into classroom practice. More recently, co-reflection has been recognized as an essential component for sustaining effective partnerships (Fluijt et al., 2016).

Co-teaching also reshaped professional roles by positioning special educators as instructional partners who share responsibility for the learning of all students rather than as classroom assistants (Jenkins & Murawski, 2024). When implemented well, co-teaching reflects IDEA's vision for educating students in the LRE by embedding collaboration within daily instruction. Research consistently demonstrates, however, that successful co-teaching depends on intentional preparation, including communication, role clarity, collaborative planning, and strategic use of co-teaching approaches (King-Sears et al., 2021). It also requires organizational supports such as common planning time, aligned scheduling, and

administrative leadership (Murawski & Jenkins, in press). Clearly, administrators and school leaders are also integral members of collaborative teams. When treated as a schoolwide priority rather than an individual accommodation, co-teaching is far more likely to succeed.

Although co-teaching is one of the most visible expressions of collaboration, it is not synonymous with collaboration itself, nor is it appropriate in every setting. Instead, it represents one model within a broader continuum of collaborative practices. When implemented with fidelity and supported by strong leadership, co-teaching demonstrates how collaboration can be embedded within daily instruction to improve access, participation, and shared responsibility. One resource that can guide this work is the Co-Teaching Competency Framework (Murawski & Lochner, 2018), particularly its 22 core competencies, which provide a common language for developing, observing, and strengthening effective co-teaching across preparation programs and school settings.

Expansion Beyond the Teacher Dyad

Growth of Interprofessional Collaboration

As IDEA expanded expectations for educating students with IEPs in general education settings, it became clear that co-teaching was not always feasible or appropriate in every context. At the same time, research showed that traditional pull-out models for related services often had limited impact on classroom learning and student outcomes (McLeskey et al., 2012). In response, the field increasingly emphasized interprofessional collaboration, which coordinates instruction and related services around shared goals rather than separate, discipline-specific interventions (Friend & Cook, 2020).

FIGURE 1: Collaboration in Practice

Collaboration in Practice

"That was probably the most productive lunch I've had all year," Barb, the 5th grade teacher, laughed as she gathered her notebook. "Thank you all for helping me figure out how to better support Jason. Honestly, every strategy you suggested will help lots of my students."

Suz, the gifted education teacher, nodded. "Exactly. Jason's twice-exceptionality brought us together, but lots of these ideas work for many kids."

The speech-language pathologist smiled. "Maybe we shouldn't wait for an IEP meeting to collaborate. Imagine what we could accomplish if we met like this once a month." The behavior specialist and special educator both nodded, smiling. This might be the beginning of a professional – and fun – lunch bunch.

Early scholarship distinguished among multidisciplinary, interdisciplinary, and transdisciplinary models, with transdisciplinary teaming representing the most integrated approach (Bruder, 1994). Across these models, professionals increasingly shared responsibility for assessment, planning, and implementation. They coordinated supports within natural learning environments rather than working in isolation. For example, instead of a general educator, special educator, speech-language pathologist, multilingual specialist, and behavior specialist each developing separate plans, the team works together to design coordinated supports that address students' multiple and often overlapping needs. These approaches align closely with IDEA's emphasis on educating students in the LRE through coordinated, team-based supports.

Transdisciplinary teaming gained momentum in early childhood and early intervention, where fragmented services often created challenges for families. Bruder (1994) and others emphasized shared assessment, role release, and coaching, enabling team members to implement strategies informed by one another's expertise. The focus shifted from isolated therapeutic goals to functional, family-centered outcomes embedded within daily routines. These practices later influenced K-12 service delivery and the development of more coordinated systems of support.

In K-12 settings, researchers likewise advocated for teachers, administrators, school psychologists, speech-language pathologists, occupational therapists, and other specialists to collaboratively design and deliver instruction (Rainforth & York-Barr, 1997). Coordinated service delivery and shared progress monitoring help teams address the needs of the whole child rather than working in professional silos. Despite these advances, interdisciplinary and transdisciplinary collaboration remain unevenly implemented. Scheduling constraints, caseload demands, and discipline-specific preparation continue to limit sustained collaboration (Murawski & Lochner, 2018). Advancing interprofessional collaboration therefore requires leadership support, protected planning time, and shared accountability. Schools intentionally designed around inclusive education, such as the CHIME Institute and WISH Community Schools in Los Angeles, illustrate how collaboration becomes more effective when it is embedded within a school's mission, organizational structures, and daily routines rather than treated as an isolated initiative. Both schools have served as national demonstration sites for inclusive educa-

tion, highlighting the value of school-wide systems that integrate co-teaching, interdisciplinary collaboration, and family partnerships.

Evolution of Family–Professional Partnerships

Family advocacy, particularly through legislative efforts and the disability rights movement, played a central role in challenging exclusion and securing access to public education for students with disabilities (Turnbull et al., 2011). IDEA established family participation as a legal requirement by including parents as members of the IEP team, shifting educational decision making from schools alone to a shared process. Over time, research and practice have moved beyond procedural involvement toward authentic partnerships characterized by communication, mutual respect, and shared problem solving. High-quality family-professional partnerships have been associated with increased family trust, stronger parent advocacy and participation, greater consistency between home and school supports, enhanced student engagement and achievement, and improved social-emotional outcomes for students with disabilities (Johnston & Burke, 2024).

More recently, attention has expanded to culturally responsive family-school collaboration. Emerging work highlights the importance of honoring cultural and linguistic diversity while addressing systemic barriers that families may face (e.g., Hepburn et al., 2025). For example, before developing goals or classroom supports, a teacher might ask families, *"What should we know about your child, your family, or your culture that will help us better support your child?"* and *"Are there strengths, routines, or traditions from home that could be easily incorporated into the classroom?"* Questions like these position families as valued partners and help educators build on students' cultural and linguistic assets rather than viewing differences as deficits. Historical inequities, language differences, communication practices, and power imbalances may also influence families' trust in schools, underscoring the importance of approaching collaboration with humility and responsiveness (Harry & Klingner, 2022). This includes creating welcoming environments, ensuring language access, and engaging families in developing goals and services. When educators intentionally integrate family knowledge and cultural context into instructional planning, collaboration extends beyond meetings and becomes part of everyday teaching (Hepburn et al., 2025).

For future educators, this evolution requires more than learning effective communication strategies. It also requires examining deficit-based assumptions that families may be "uninvolved," "difficult," or "adversarial," recognizing that such perceptions often overlook barriers such as previous experiences with schools, language differences, work schedules, or the ongoing need to advocate for appropriate services (Harry & Klingner, 2022). By approaching every family with curiosity, respect, and an asset-based mindset, educators can build trusting partnerships that strengthen inclusive education for all students.

Student-Centered Collaboration

IDEA positions students not only as recipients of services but also as participants in educational decision making, particularly during transition planning. Collaboration is most effective when it centers students' goals, strengths, and aspirations. This requires that IEP development, instructional planning, and transition discussions actively include students, especially as they grow older.

Student-centered collaboration also requires intentional support for student voice. Students benefit when they are prepared to participate in or co-lead IEP meetings, reflect on their goals, and monitor their own progress (Bross & Craig, 2024). These practices align with research on self-determination, which identifies goal setting, decision making, and self-advocacy as important predictors of positive adult outcomes (Shogren et al., 2015). At its core, this evolution shifts collaborative teams from planning *about* students to planning *with* them.

When students are meaningful participants, collaboration becomes a partnership among educators, families, and students that promotes engagement, independence, and preparation for adult life. Embedding opportunities for student choice, goal setting, and reflection throughout instruction reinforces these outcomes and aligns with the high-leverage practices, which identify both collaboration and student-centered instruction as essential competencies for beginning special educators (Council for Exceptional Children [CEC] & CEEDAR Center, 2024; Jenkins & Murawski, 2024).

Expanding Collaboration Beyond the School

Students with disabilities do not leave their needs behind when they leave school. As IDEA's focus expanded from school success to successful adult outcomes, collaboration similarly expanded beyond educators, families, and students to include community agencies, employers, postsecondary institutions, and adult service providers. The IDEA Amendments of 1990 established transition services as a required component of the IEP for students beginning no later than age 16, recognizing that successful transitions to adulthood require coordinated planning across

multiple systems. The 1997 and 2004 reauthorizations strengthened these provisions by emphasizing student involvement, measurable postsecondary goals, and coordinated transition services designed to support employment, postsecondary education, independent living, and community participation.

These legislative changes established interagency collaboration as a core component of effective transition planning. Depending on students' goals and needs, collaborative teams may include representatives from vocational rehabilitation, developmental disability agencies, independent living centers, postsecondary education programs, employers, and other community organizations. IDEA also permits participating agency representatives to be invited to IEP meetings, with appropriate consent, to coordinate services and support successful transitions beyond high school (IDEA, 2004). As a result, collaboration expanded beyond school personnel to include community partners who help students navigate the transition to adulthood.

Within this expanded collaborative network, educators play an important role in helping students and families identify available agencies, understand eligibility requirements, and establish connections with community resources that support postsecondary goals (Harvey et al., 2020). Recognizing this shift, the Division on Career Development and Transition of the CEC has argued that educator preparation should extend beyond the legal requirements of transition planning to include explicit preparation in interagency collaboration and community partnerships (Harvey et al., 2020).

Collaborative Innovations Expanding Inclusion Across the Disability Spectrum

One of the most significant advances under IDEA has been the growing expectation and expanding evidence base for educating students with extensive support needs (ESN), including those with intellectual disabilities and complex communication needs, in general education settings. Historically, these students were often excluded based on assumptions about readiness or potential. Although inclusion rates remain uneven, research increasingly suggests that barriers stem less from student ability than from the absence of collaborative systems that support meaningful participation (Ruppar et al., 2023). When teams intentionally design instruction, communication supports, and classroom routines, students with ESN demonstrate measurable academic, social, and communicative growth (Mansouri et al., 2022).

Interdisciplinary collaboration has driven major innovations, particularly in terms of providing communication supports for students. Rather than assigning communication needs solely to speech-language pathologists, effective teams now view it as a shared responsibility among educators, families, paraprofessionals, and peers. Practices such as Functional Communication Training emphasize teaching meaningful communication within natural classroom contexts (Ghaemmaghami et al., 2021). Likewise, principles such as the *Communication Bill of Rights* (National Joint Committee for the Communication Needs of Persons with Severe Disabilities, 2024) reinforce that every student deserves meaningful opportunities to communicate, participate, and have their voice heard. To support these efforts, educators should understand the potential of augmentative and alternative communication and learn to design inclusive learning environments in which students with significant communication needs can participate meaningfully alongside their peers.

Another important innovation involves the evolving roles of paraprofessionals and peers. Traditional one-to-one paraprofessional support can unintentionally limit student independence and peer interaction in general education settings. Contemporary approaches instead position paraprofessionals as instructional partners who collaborate with teachers to promote access, participation, and student autonomy (Brock & Anderson, 2021). While Karten and Murawski (2020) clarified that paraprofessionals are not expected to co-teach, they encouraged educators to co-instruct with paraeducators in the classroom. As districts increasingly develop paraprofessional-to-teacher pathways to address educator shortages, these future educators benefit from explicit preparation in collaborative practice (Fogle et al., 2024). In addition, peer support strategies expand opportunities for belonging by preparing classmates to serve as collaborators, communication partners, and natural supports, reinforcing that meaningful inclusion depends on students participating with one another as members of the classroom community rather than relying exclusively on adult support (Brock et al., 2020).

Together, these innovations demonstrate that greater inclusion for students with ESN has advanced not only through policy, but through the collaborative redesign of instruction, communication supports, and classroom roles. As collaboration has expanded to include paraprofessionals, peers, related service providers, and families, students with the most significant support needs have gained greater opportunities for meaningful participation in inclusive schools.

Codification of Collaboration Into Professional Standards

Over time, collaboration has evolved

from a recommended professional attribute to an explicit expectation within educator preparation and accreditation standards. The InTASC Model Core Teaching Standards identify collaboration as a professional responsibility, expecting educators to work with colleagues, families, and other professionals to support student learning (Council of Chief State School Officers, 2013). Similarly, the Council for the Accreditation of Educator Preparation (2022) embedded collaboration within its professional dispositions and clinical practice standards. These frameworks translate IDEA's principles of shared responsibility into expectations for educator preparation and professional practice.

Within special education, collaboration is defined even more explicitly as both a professional competency and an ethical responsibility. The CEC's Initial Practice-Based Professional Preparation Standards embed collaboration across assessment, instruction, and professional practice (CEC, 2020), while the high-leverage practices identify it as one of the core domains of effective special education (CEC & CEEDAR Center, 2024). These frameworks reflect an important evolution: collaboration is no longer assumed to develop naturally. It is expected to be intentionally taught, practiced, assessed, and continuously refined throughout an educator's career.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Maturation of the Evidence Base

The research base on collaboration, particularly co-teaching, has expanded substantially over the past decades. Early studies were largely descriptive, focusing on teacher perceptions, feasibility, and classroom structures. Although this work helped define collaborative practice, it provided limited evidence regarding instructional quality or student outcomes (e.g., Scruggs et al., 2007).

> Overall, the evidence base reflects a maturing field that recognizes collaboration and co-teaching as multidimensional, context dependent, and central to improving access, participation, and outcomes for students with disabilities.

Early research syntheses on co-teaching reflected these limitations. Murawski and Swanson's (2001) meta-analysis reported a moderate overall effect while noting concerns about study quality and inconsistent outcome measures. Similarly, Scruggs et al. (2007) synthesized research on teacher experiences and structural challenges during co-teaching but found limited evidence regarding academic outcomes. More recent research demonstrates greater methodological rigor and clearer conceptual distinctions. Quantitative meta-analyses include larger numbers of studies and apply stronger quality criteria, resulting in positive but more cautious conclusions about academic effects (King-Sears et al., 2021). Vembye et al. (2024) further distinguished co-teaching from related collaborative models while examining the influence of implementation quality. Qualitative syntheses on co-teaching have also matured. For example, Strogilos et al. (2023) incorporated international perspectives while examining both teacher learning and student outcomes. Collectively, this body of research reflects a shift from asking **w**hether collaboration works when co-teaching to examining how, under what conditions, and for whom it is most effective.

The evidence base has also broadened in how success is defined. In addition to academic achievement, researchers now examine cognitive engagement (Lochner et al., 2019), access to the general education curriculum (Hudson et al., 2021), social participation (Mansouri et al., 2022), and students' sense of belonging (Brock et al., 2020). This broader perspective aligns with IDEA's emphasis on meaningful participation in the least restrictive environment. At the same time, researchers continue to call for stronger evidence regarding academic outcomes (e.g., King-Sears et al., 2021) and for studies that examine culturally responsive and contextually grounded implementation (CEC & CEEDAR Center, 2024). Overall, the evidence base reflects a maturing field that recognizes collaboration and co-teaching as multidimensional, context dependent, and central to improving access, participation, and outcomes for students with disabilities.

Implications for Practice and Preparation

The growth of research on collaboration has clear implications for both practice and educator preparation. Collaboration is not an automatic skill; it must be intentionally taught, practiced, and assessed. When schools assume educators already know how to collab-

TABLE 1: Developing Collaborative Competencies Across the Teacher Preparation Continuum

Collaboration Competency	Observe During Field Experiences	Practice During Preparation	Build Before Entering the Profession
Communication Skills	Observe effective communication among educators, families, and related service providers.	Role-play difficult conversations, active listening, and collaborative problem solving.	Communicate professionally with colleagues and families using respectful, strengths-based language.
Collaborative Decision Making	Observe IEP meetings, MTSS/problem-solving teams, and data discussions.	Analyze case studies, participate in mock IEPs and collaborative meetings, and justify decisions using data.	Facilitate portions of collaborative meetings and contribute to shared decision making.
Co-Planning	Observe co-teachers or departments planning lessons and accommodations together.	Co-plan lessons, accommodations, assessments, and behavior supports with peers.	Co-plan standards-based universally designed lessons with another educator.
Co-Instructing	Observe multiple co-teaching approaches in authentic classrooms.	Teach mini-lessons using different co-teaching approaches and reflect on instructional decisions.	Demonstrate effective co-planning, co-instruction, co-assessment, and co-reflection during clinical practice.
Interprofessional Collaboration	Examine how teachers, administrators, therapists, psychologists, and other specialists coordinate services either in-person or through interviews, videos, or document analysis.	Participate in interdisciplinary mixed-reality simulations and collaborative case conferences.	Collaborate effectively with professionals from multiple disciplines to develop coordinated supports around one student.
Family Partnerships	Observe family conferences and IEP meetings that demonstrate respectful partnerships.	Conduct simulated conferences, develop family communication plans, and analyze culturally responsive practices.	Demonstrate culturally responsive communication and collaborative goal setting with families.
Student-Centered Collaboration	Observe students participating in IEP meetings, goal setting, and transition planning.	Practice facilitating student voice through role-play, self-determination activities, and student-led conferences.	Engage students as active participants in planning, goal setting, and decision making.
Transition & Community Collaboration	Observe transition planning meetings involving community agencies.	Identify local agencies and develop transition resource guides or referral plans.	Collaborate with community organizations to support postsecondary transition planning.
Reflective Practice	Observe collaborative debriefing after instruction or meetings.	Use structured reflection protocols following simulations and field experiences.	Analyze collaborative practice, identify strengths and challenges, and develop improvement goals.
Professional Dispositions	Observe how experienced educators demonstrate parity, trust, flexibility, and shared responsibility.	Reflect on personal beliefs, implicit biases, and collaborative behaviors.	Demonstrate professionalism, shared responsibility, openness to feedback, and commitment to inclusive practice.

orate, implementation often becomes inconsistent or limited to compliance. Effective collaboration requires communication, shared planning, role clarity, joint decision making, and reflective problem solving (Jenkins & Murawski, 2024), applied across instruction, related services, family partnerships, and community agencies that support students across the lifespan. Over the past 5 decades, collaboration has evolved from a legal mandate into a complex professional competency. As a result, educator preparation should intentionally develop the knowledge, skills, and dispositions needed to collaborate across interconnected school, family, and community systems.

Preparation programs play a central role in developing these competencies. Rather than treating collaboration as a single course topic, effective programs intentionally weave collaborative competencies throughout coursework, clinical experiences, and supervised fieldwork. Teacher candidates benefit from authentic and simulated collaborative experiences, including IEP meetings, interdisciplinary teaming, co-teaching, family-professional interactions, and transition planning. Role-play, mixed-reality simulations, and supervised field experiences provide opportunities to

observe, practice, receive feedback, and refine collaborative skills (Qualls et al., 2025). Collaborative competencies are further strengthened when general and special education candidates learn together through shared coursework, interdisciplinary assignments, co-planning experiences, co-taught methods courses where professors model collaborative skills, and joint clinical experiences. Most importantly, collaborative competencies should be explicitly taught, practiced, and assessed rather than assumed to develop incidentally. Repeated opportunities to observe, practice, receive feedback, and reflect help candidates develop the knowledge, confidence, and professional judgment needed for effective collaboration.

One way teacher educators can intentionally develop collaborative competence is to scaffold learning across observation, guided practice, and independent demonstration. Introducing collaboration early in a teacher preparation program helps candidates recognize it as an essential component of professional practice rather than an optional skill. Table 1 illustrates examples of collaborative competencies that can be intentionally embedded throughout educator preparation.

For co-teaching specifically, the Co-Teaching Competency Framework (Murawski & Lochner, 2018) provides a structure for developing collaborative expertise. Its 22 core competencies offer a common language for preparing, observing, coaching, and evaluating co-teaching practice across preservice preparation, induction, and ongoing professional learning. Used alongside the broader collaboration competencies illustrated in Table 1, the framework helps ensure that co-teaching is intentionally developed rather than learned through trial and error.

Preparation programs should also model the collaborative practices they seek to develop by creating authentic opportunities for candidates to work with families, schools, related service providers, and community partners. Initiatives such as *Families as Faculty*, in which families serve as partners in educator preparation, allow candidates to learn directly from family experiences while strengthening collaborative knowledge, skills, and dispositions (Collier et al., 2015). Additional approaches include inviting family members and professionals as guest speakers, facilitating simulated IEP meetings and collaborative problem-solving activities with family and professional participants, and creating interdisciplinary coursework that brings together future teachers, administrators, school psychologists, and related service providers. Partnerships among universities, schools, related service providers, and community organizations further extend these opportunities by engaging candidates in authentic collaborative planning, problem solving, and service delivery. These experiences align with the CEC's (2020) Initial Practice-Based Professional Preparation Standards while preparing candidates for the collaborative partnerships that characterize today's schools.

While educator preparation lays the foundation for collaboration, schools ultimately determine whether collaborative practices are supported and sustained over time. Protected planning time, leadership that reinforces parity and inclusive practice, and systems that promote integrated service delivery are essential (Jenkins & Murawski, 2024). Ongoing professional learning, coaching, and collaborative inquiry help educators refine collaborative competencies throughout their careers. Meaningful collaboration also includes students, particularly during transition planning, so they can participate actively in decisions that affect their futures. Aligning educator preparation, school leadership, and organizational structures helps ensure that collaboration becomes an integral part of professional practice rather than remaining a procedural expectation.

FORWARD-LOOKING RECOMMENDATIONS TO INSPIRE THE NEXT 50 YEARS

As special education enters its next 50 years, collaboration remains both a defining strength and an ongoing priority. Decades of policy, research, and practice demonstrate that IDEA's guarantees of FAPE in the LRE cannot be realized through isolated expertise or parallel service delivery. Yet collaboration is still taught, implemented, and supported inconsistently across schools and educator preparation programs. Moving forward, collaboration must continue to evolve as a professional competency that is intentionally developed, refined, and sustained throughout educators' careers. In doing so, shared responsibility can become routine rather than aspirational. Building on the lessons of IDEA's first 50 years, five priorities can help shape the future of collaborative practice: teach collaboration intentionally, broaden collaborative service delivery, center belonging and equity, lead collaborative practice, and innovate through research and technology.

Teach Collaboration Intentionally

Collaboration should be treated as a professional skill set rather than an assumed disposition. Like effective instruction, it requires intentional design, explicit teaching, guided practice, feedback, and meaningful evaluation. Clear expectations for communication, shared planning, facilitation, and collaborative problem solving should be embedded

throughout educator preparation and ongoing professional learning (CEC & CEEDAR Center, 2024; Jenkins & Murawski, 2024). Candidates and practicing educators alike should have repeated opportunities to observe, practice, receive feedback, and demonstrate collaborative competence. Schools, in turn, should examine not only whether collaboration occurs, but also how it improves instruction, aligns supports, and enhances student outcomes and experiences.

Broaden Collaborative Service Delivery

Co-teaching remains one of the most powerful collaborative models but should be understood as one option within a broader continuum of collaborative services. Effective systems match the intensity of collaboration to student needs by drawing on consultation, coaching, interprofessional teaming, and co-teaching as appropriate (Jenkins & Murawski, 2024). Rather than relying on a single model, schools should normalize multiple collaborative structures that reduce professional silos and encourage shared responsibility across educators, families, related service providers, and community agencies. Sustained coaching, observation, and job-embedded professional learning can further strengthen implementation over time.

Center Belonging and Equity

The next phase of collaborative practice must prioritize belonging and equity. Students with ESN should be considered when collaborative planning and when designing instruction, rather than treated as exceptions. Equally important, culturally responsive collaboration should become standard practice by recognizing families as authentic partners and valuing linguistic, cultural, and community knowledge as assets (Grant & Ray, 2023). Grounding collaboration in equity moves IDEA beyond placement toward meaningful participation, belonging, and high expectations for every learner.

Lead Collaborative Practice

Future educators must be prepared not only to participate in collaboration but also to facilitate it. Although inclusive education is a shared responsibility, special educators are often called upon to coordinate collaborative efforts by serving as facilitators, instructional designers, coaches, and advocates. Developing these leadership capacities requires intentional instruction in communication, conflict resolution, facilitation, and collaborative problem solving, along with repeated opportunities to lead teams, navigate challenging conversations, and engage in authentic shared decision making. Preparation alone, however, is not sufficient. Teachers, administrators, and related service providers all benefit from ongoing professional learning that strengthens collaborative leadership, supports co-planning and co-teaching, and develops the organizational structures necessary to sustain inclusive practice (Murawski & Lochner, 2018).

Innovate Through Research and Technology

Continued progress depends on research that both informs practice and reflects the realities of today's schools. Educators need clear, actionable evidence regarding which collaborative practices improve outcomes, for whom, and under what conditions (Vembye et al., 2024). Research-practice partnerships among universities, schools, and community organizations offer one promising approach by addressing authentic challenges identified by practitioners while creating opportunities to implement, evaluate, and refine evidence in real-world settings (Coburn et al., 2021). Rather than viewing research and practice as separate endeavors, these partnerships position educators and researchers as co-constructors of knowledge, helping ensure that innovation remains both rigorous and relevant.

Emerging technologies will also shape the next era of collaboration. Digital tools increasingly support co-planning, progress monitoring, and family engagement, while artificial intelligence offers new opportunities for lesson design, data analysis, communication supports, and administrative efficiency (Karge & Rhoads, 2024). When used thoughtfully and ethically, these tools can reduce logistical barriers, strengthen collaborative decision making, and expand access to coordinated supports. Like collaboration itself, technology should enhance rather than replace professional judgment. Used intentionally, these innovations can help realize IDEA's promise through more connected, responsive, and collaborative systems.

CONCLUSION

Fifty years after the passage of IDEA, collaboration remains central to its enduring success. From team-based IEP decision making to today's instructional and interprofessional partnerships, IDEA has consistently affirmed that educating students with disabilities is a shared responsibility. Over time, collaboration has evolved from a procedural mandate into a defining professional practice that shapes instruction, service delivery, and meaningful participation. In doing so, it has transformed how schools organize supports, structure classrooms, and work together to provide FAPE in the least restrictive environment.

Co-teaching stands as one of the most visible and influential expressions of this evolution. It demonstrates how collaboration can be embedded within daily instruction rather than confined to meetings or compliance processes.

Alongside interprofessional teaming, family partnerships, student-centered planning, and collaboration with community agencies, co-teaching reflects the field's continued growth in both vision and practice. As research, educator preparation, and implementation continue to advance, collaborative models such as co-teaching remain essential for expanding access to rigorous, inclusive learning opportunities (Murawski & Jenkins, in press).

Looking ahead, the challenge is no longer determining whether collaboration matters but ensuring that every educator is prepared and supported to collaborate effectively throughout a professional career. This requires educator preparation programs, schools, and professional organizations to intentionally develop collaborative expertise through ongoing learning, coaching, reflection, and shared leadership. By continuing to strengthen collaborative systems, the field can move beyond compliance toward truly inclusive educational communities where students, families, educators, and community partners work together to support every learner.

Ultimately, IDEA's greatest legacy extends beyond its legal protections. Its lasting contribution is the recognition that meaningful inclusion depends on people working together. Collaboration remains the cornerstone that transforms the promise of FAPE in the LRE into everyday practice, ensuring that students with disabilities are not only present in schools, but valued, supported, and empowered to thrive.

REFERENCES

Board of Education of the Hendrick Hudson Central School District v. Rowley, 458 U.S. 176 (1982).

Brock, M. E., & Anderson, E. J. (2021). Training paraprofessionals who work with students with intellectual and developmental disabilities: What does the research say? *Psychology in the Schools*, *58*(4), 702–722. https://doi.org/10.1002/pits.22386

Brock, M. E., Carter, E. W., & Biggs, E. E. (2020). Supporting peer interactions, relationships, and belonging. In F. Brown, J. McDonnell, & M. E. Snell (Eds.), *Instruction of students with severe disabilities* (9th ed., pp. 384–417). Merrill.

Bross, L. A., & Craig, S. L. (2024). Universal design for learning: A viable framework to support student-led IEP meetings. *TEACHING Exceptional Children*, *56*(4), 218–228. https://doi.org/10.1177/00400599221074267

Brownell, M. T., Sindelar, P. T., Kiely, M. T., & Danielson, L. C. (2010). Special education teacher quality and preparation: Exposing foundations, constructing a new model. *Exceptional Children*, *76*(3), 357–377. https://doi.org/10.1177/001440291007600307

Bruder, M. B. (1994). Working with members of other disciplines: Collaboration for success. In M. Wolery & J. S. Wilbers (Eds.), *Including children with special needs in early childhood programs* (pp. 45–70). National Association for the Education of Young Children.

Caplan, G. (1970). *The theory and practice of mental health consultation.* Basic Books.

Cedar Rapids Community School District v. Garret F., 526 U.S. 66 (1999).

Coburn, C. E., Penuel, W. R., & Farrell, C. C. (2021). Fostering educational improvement with research-practice partnerships. *Phi Delta Kappan*, *102*(7), 14–19. https://doi.org/10.1177/00317217211007332

Collier, M., Keefe, E. B., & Hirrel, L. A. (2015). *Preparing special education teachers to collaborate with families. School Community Journal, 25*(1), 117–136.

Cook, L., & Friend, M. (1995). Co-teaching: Guidelines for creating effective practices. *Focus on Exceptional Children, 28*(3), 1–16. https://doi.org/10.17161/foec.v28i3.6852

Council for the Accreditation of Educator Preparation. (2022). *CAEP accreditation standards*. Author. https://caepnet.org/standards

Council of Chief State School Officers. (2013). *Interstate teacher assessment and support consortium (InTASC) model core teaching standards and learning progressions for teachers 1.0: A resource for ongoing teacher development*. Author.

Council for Exceptional Children. (2020). *Initial practice-based professional preparation standards for special educators*. Author.

Council for Exceptional Children & CEEDAR Center. (2024). *High-leverage practices for students with disabilities* (2nd ed.). Council for Exceptional Children.

Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142, 89 Stat. 773 (1975).

Fluijt, D., Bakker, C., & Struyf, E. (2016). Team-reflection: The missing link in co-teaching teams. *European Journal of Special Needs Education*, *31*(2), 187–201. https://doi.org/10.1080/08856257.2015.1125690

Friend, M., & Cook, L. (2020). *Interactions: Collaboration skills for school professionals* (9th ed.). Pearson.

Fogle, K. C., Pua, D., & Wilt, B. (2024). Paraprofessional to teacher: Attracting and preparing special educators for a critical shortage. *Teacher Education and Special Education, 47*(3), 242–256. https://doi.org/10.1177/08884064241238450

Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, *41*(1), 93–99. https://psycnet.apa.org/doi/10.1598/RRQ.41.1.4

Ghaemmaghami, M., Hanley, G. P., & Jessel, J. (2021). Functional communication training: From efficacy to effectiveness. *Journal of Applied Behavior Analysis*, *54*(1), 122–143. https://doi.org/10.1002/jaba.762

Grant, K. B., & Ray, J. A. (2023). *Home, school, and community collaboration: Culturally responsive family engagement* (5th ed.). SAGE.

Harry, B., & Klingner, J. (2022). *Why are so many students of color in special education? Understanding race & disability in schools* (3rd ed.). Teachers College Press.

Harvey, M. W., Rowe, D. A., Test, D. W., Imperatore, C., Lombardi, A., Conrad, M., Szymanski, A., & Barnett, K. (2020). *Partnering to improve career and technical education for students with disabilities: A position paper of the Division on Career Development and Transition. Career Development and Transition for Exceptional Individuals, 43*(2), 67–77. https://doi.org/10.1177/2165143419887839

Hepburn, S. J., Trompf, M., Hodges, J., MacLeod, L. M., Ma, T., Teng, J., Johnson, A., Boyle, C. & Sanders, M. (2025). Creating a positive home-school partnership through professional learning for teachers: A scoping review of the international literature. *Teaching and Teacher Education*, *165*, Article 105127. https://doi.org/10.1016/j.tate.2025.105127

Hudson, M. E., Wood, L., Root, J., & McConomy, A. (2021). Access to the general education curriculum. In J. M. Kauffman & D. P. Hallahan (Eds.), *Handbook of effective inclusive elementary schools* (pp. 269–285). Routledge.

Idol, L., Nevin, A., & Paolucci-Whitcomb, P. (1994). *Collaborative consultation.* Pro-ed.

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 118 Stat. 2647 (2004).

Jenkins, M. & Murawski, W. W. (2024). *Connecting high-leverage practices to student success: Collaboration in inclusive classrooms.* Corwin.

ABOUT THE AUTHORS

Wendy W. Murawski, Ph.D.

Wendy W. Murawski, Ph.D., is Chief Executive Officer of 2Teach Global and Professor Emerita of Special Education at California State University, Northridge. An accomplished author, researcher, and international consultant, her work focuses on co-teaching, inclusive education, collaboration, and strengthening the preparation and professional development of educators. She is President-Elect of the Council for Exceptional Children's Division for Leaders and Legacy and a Past President of its Teacher Education Division, roles that reflect her longstanding leadership and service to the field.

Bryan E. Thornton, Ph.D.

Dr. Bryan E. Thornton is an Assistant Professor of Special Education at California State University, Los Angeles, and a consultant with 2Teach Global. Prior to earning his doctorate, he served for more than 12 years as a special education teacher in the Los Angeles Unified School District, experiences that continue to inform his scholarship and professional learning work. His research focuses on inclusive education, disability stigma, and improving outcomes for students with disabilities, and he has published in leading special education and interdisciplinary journals.

Johnston, A. N., & Burke, M. M. (2024). Family-professional partnerships in low-resourced communities: A systematic literature review. *Exceptionality*, *32*(1), 1–20. https://doi.org/10.1080/09362835.2023.2263598

Karge, B. D., & Rhoads, M. (2024). *Co-teaching evolved: Partnership strategies for an equitable, inclusive, and tech-powered classroom*. Solution Tree Press.

Karten, T., & Murawski, W.W. (2020). *Co-Teaching do's, don'ts, and do betters.* ASCD.

King-Sears, M. E., Stefanidis, A., Berkeley, S., & Strogilos, V. (2021). Does co-teaching improve academic achievement for students with disabilities? A meta-analysis. *Educational Research Review*, *34,* Article 100405. https://doi.org/10.1016/j.edurev.2021.100405

Lochner, W. W., Murawski, W. W., & True-Daley, J. (2019). The effect of co-teaching on student cognitive engagement. *Theory and Practice in Rural Education*, *9*(2), 6–19. https://doi.org/10.3776/tpre.2019.v9n2p6-19

Mansouri, M. C., Kurth, J. A., Lockman Turner, E., Zimmerman, K. N., & Frick, T. A. (2022). Comparison of academic and social outcomes of students with extensive support needs across placements. *Research and Practice for Persons with Severe Disabilities*, *47*(2), 111–129. https://doi.org/10.1177/15407969221101792

McLeskey, J., Landers, E., Williamson, P., & Hoppey, D. (2012). Are we moving toward educating students with disabilities in less restrictive settings? *The Journal of Special Education, 46*(3), 131–140. https://doi.org/10.1177/0022466910376670

Murawski, W. W. (2006). Student outcomes in co-taught secondary English classes: How can we improve? *Reading and Writing Quarterly*, *22*(3), 227–247. https://doi.org/10.1080/10573560500455703

Murawski, W. W., & Jenkins, M. (in press). 3-2-1: Lift-off! Co-planning strategies when 'there's no time'. *Teaching Exceptional Children*.

Murawski, W. W., & Lochner, W. W. (2018). *Beyond basic co-teaching: A no-fail, data-driven continuous improvement model*. ASCD.

Murawski, W. W., & Swanson, H. L. (2001). A meta-analysis of co-teaching: Where are the data? *Remedial and Special Education*, *22*(5), 258–267. https://doi.org/10.1177/074193250102200501

National Joint Committee for the Communication Needs of Persons with Severe Disabilities. (2024). *Communication Bill of Rights* (3rd ed.).

No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107–110, 115 Stat. 1425 (2002).

Oberti v. Board of Education of the Borough of Clementon School District, 995 F.2d 1204 (3d Cir. 1993).

Olmstead v. L.C., 527 U.S. 581 (1999).

Qualls, L. W., Kelley, M., Hirsch, S. E., & Ura, S. (2025). Collaboration in action: A comparison of mixed reality simulation and live role-play. *Journal of Special Education Technology*, *40*(4), 431–442. https://doi.org/10.1177/01626434251314009

Rainforth, B., & York-Barr, J. (1997). *Collaborative teams for students with severe disabilities: Integrating therapy and educational services*. Brookes.

Ruppar, A., Kurth, J., Bubash, S., & Lockman Turner, E. (2023). A framework for preparing to teach students with extensive support needs in the 21st century. *Teacher Education and Special Education*, *46*(1), 26–43. https://doi.org/10.1177/08884064211059853

Scruggs, T. E., Mastropieri, M. A., & McDuffie, K. A. (2007). Co-teaching in inclusive classrooms: A metasynthesis of qualitative research. *Exceptional Children*, *73*(4), 392–416. https://doi.org/10.1177/001440290707300401

Shidler, L. (2024). Retaining teachers through building confidence in collaboration skills: Promoting 21st-century teaching skills in teacher education. *Journal of Education and Training Studies*, *12*(2), 1–10. https://doi.org/10.11114/jets.v12i2.6649

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Rifenbark, G. G., & Little, T. D. (2015). Relationships between self-determination and postschool outcomes for youth with disabilities. *The Journal of Special Education, 48*(4), 256–267. https://doi.org/10.1177/0022466913489733

Strogilos, V., King-Sears, M. E., Tragoulia, E., Voulagka, A., & Stefanidis, A. (2023). A meta-synthesis of co-teaching students with and without disabilities. *Educational Research Review*, *38*, Article 100504. https://doi.org/10.1016/j.edurev.2022.100504

Turnbull, H. R., Shogren, K. A., & Turnbull, A. P. (2011). Evolution of the parent movement:

Past, present, and future. In J. M. Kaufmann & D. P. Hallahan (Eds.), *Handbook of special education* (pp. 639-653). Routledge.

Vembye, M. H., Weiss, F., & Hamilton Bhat, B. (2024). The effects of co-teaching and related collaborative models of instruction on student achievement: A systematic review and meta-analysis. *Review of Educational Research*, *94*(3), 376–422. https://doi.org/10.3102/00346543231186588

Fifty Years of Progress in Meeting the Needs of Students with Extensive Support Needs

AUTHORS
Fred Spooner
Belva C. Collins
Martin Agran

Journal of Special Education Preparation
6(2), 91-104
© 2026 Spooner et al.
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/ 10.33043/tf7rc6h-g4m3

ABSTRACT

We start this commemorative piece on IDEA celebrating 50 years of progress for students with extensive support needs (ESN) who historically were categorically excluded from public school. Following, we briefly cover significant court cases, historical precedents, and paradigm shifts in the field that led to the passage of PL 94-142 in 1975. Next, we highlight some of the major advances and practice-changing innovations in designing appropriate educational programs for these students by answering questions about where and by whom these students should be taught, the content of their curriculum, and the instructional strategies used to teach them. In the third section of the article, we attempt to emphasize the philosophical underpinnings of the utilized practices and their implications for research and practice. We close in the fourth section offering some observations and recommendations that should be considered in efforts to provide students with ESN quality educational services and support. While the progress we have achieved is nothing less than extraordinary, there are still many questions to be resolved.

KEYWORDS

Extensive support needs, PL 94-142, special education history, special education progress

A good place to start this commemorative piece is with a discussion of the historical perspective and foundational milestones leading up to the passage of PL 94-142 in 1975 (Education for All Handicapped Children Act of 1975). At the time, the rule--not the exception--was that students with disabilities, particularly those with intellectual or developmental disabilities, were categorically excluded from public school experiences. An example of this practice is illustrated by the court case of *Beattie v. Board of Education of Antigo* (1919), in which Merritt Beattie, a young boy with physical disabilities who had issues with walking, speaking, and drooling, was excluded from public school in Antigo, WI. The court found that Beattie's physical condition negatively impacted the school environment, and the board's decision to exclude him was made in good faith and was appropriate. This is a significant case in the history of special education, demonstrating that before the Civil Rights Movement of the 1960s, schools could categorically exclude students with disabilities. It highlights a time when the focus was on the perceived disruption caused by students with disabilities, rather than providing them with appropriate educational opportunities. The practice of exclusion and segregation for students with disabilities lasted well into the 1970s.

There were at least three legal precedents (*Brown v. Board of Education, 1954*; *Mills v. Board of Education of DC, 1972*; *PARC v. Commonwealth of Pennsylvania, 1972*) that were instrumental in serving as the antecedent conditions for the passage of PL 94-142 in 1975 (EAHC Act of 1975) and in doing so changed special education practice in a significant way. A detailed explanation of these cases and others can be found in the excellent article on legal landmarks that shaped rights and services by Bateman and Yell (2026, this issue).

TABLE 1: Philosophical Underpinnings and Historical Outcomes for Students with ESN

Philosophical Advance (Seminal Reference)	Description	Historical Outcomes
Principle of Normalization (Wolfensberger, 1972)	Movement to support rights of all persons to live a normal, typical life	• Deinstitutionalization as persons with ESN move into supported community settings; • Movement toward free and appropriate public education for all
Criterion of Ultimate Functioning (L. Brown et al., 1976)	Belief that all persons have the right to reach their full potential and be socially integrated into their communities	• Public school services for all students with ESN ages 6-21 with goal of successful transition into community-based living and working programs
Educational Synthesizer (Bricker, 1976)	Educational approach in which professionals collaborate across disciplines to support persons with ESN	• Transdisciplinary approach for related services to be offered in natural settings where needed; • Role release with professionals sharing expertise and coaching others to provide support
Self-Regulation (Mithaug & Hanawalt, 1978)	Realization that individuals with ESN need to make their own decisions to control their lives	• Schools begin to systematically teach students choice making and other self-determination skills
Teaching of Chronological-age Content (L. Brown et al., 1979)	Transition from developmental approach to teaching age-appropriate skills	• Application of ABA in providing systematic instruction (e.g., response prompting procedures) to teach functional skills to students with ESN to facilitate independence across settings
Principle of Partial Participation (Baumgart et al., 1982)	Partial participation of students with ESN in age-appropriate activities is recognized as an achievement indicator	• Students with ESN begin to use adaptations and accommodations (e.g., assistive technology) to support participation in activities with peers in inclusive settings
Opportunity to Attend Neighborhood Schools (L. Brown, Ford, et al., 1983)	Right of students with ESN to attend the public school they would attend if they did not have a disability	• Students moved from clustered services in designated schools to attending classes in schools with neighborhood peers; • Opportunity for inclusion
Community-Based Instruction (L. Brown, Nisbet, et al., 1983)	Instruction on skills conducted in natural settings where skills are needed to facilitate generalization and maintenance	• Students with ESN begin receiving planned instruction in community settings or in realistic simulations that will facilitate successful transition
Least Dangerous Assumption (Donnellan, 1984)	Belief that, in the absence of data, educational decisions should be based on what will cause the least harm should the decision be wrong	• Assumption that students with ESN can learn age-appropriate academic content and profit from inclusion in general education classes with access to general education content specialists
Positive Behavior Interventions and Support (Horner et al., 1990)	Replacement of aversive strategies with positive behavioral interventions; Identification of support needed to function across settings	• Reinforcement of desired behaviors over punishment of undesired behaviors; • Identification of causes to prevent challenging behavior; Multitiered systems of support provided so all students can participate in inclusive settings
Access to the General Curriculum (IDEA, 1997)	Developing educational goals based on the general curriculum (standard curriculum used for all students); assessing student's involvement in and progress in the general curriculum	• Mandate that educational goals are based on general curriculum, contingent on student age, grade, and learning needs; • Increased expectations for learning goals; increased instruction academic content

The first historical precedent to opening public schools to students with disabilities was a debate between Goldberg and Cruickshank (1958), which focused on the responsibility of the public schools in serving students labeled as "trainable" (i.e., IQ 35-50; moderate to severe disabilities; extensive support needs [ESN]). Ignacy Goldberg defended the position that the public schools had a responsibility to serve this population, while William Cruickshank took the position that it was not the responsibility of the schools to serve these students. A second important foundational milestone, leading up to the passage of PL 94-142 (EAHC Act of 1975), was a critical documentation of the lack of

services in schools and other places for this group of children (Sontag et al., 1973). Sontag et al. commented that at this time there were no preservice and in-service teacher training programs, no doctoral level personnel preparation programs in place to lead these training efforts, and no training programs for parents. Additionally, special education organizations (e.g., The Council for Exceptional Children [CEC], American Association on Intellectual Disabilities [AAIDD, AAMR [… Mental Retardation at the time]) had little to no interest or were ambivalent about the benefits of educational programming for this population (Sontag & Haring, 1996).

In the early 1970s, there were significant paradigm shifts that were creating the foundation for a new philosophy and discipline to serve students with severe disabilities (extensive support needs; ESN). For example, deinstitutionalization (Wolfensberger, 1972) became the order of the day (see Table 1 for important philosophical advances). Successful applications of behavioral principles (i.e., applied behavior analysis [ABA]; Baer et al., 1968) were being demonstrated by researchers and implemented by practitioners validating that behavior change in important functional areas (e.g., eating, Azrin & Armstrong, 1973; toileting, Azrin et al., 1971; Azrin & Foxx, 1971; other self-help skills, Ball et al., 1971) could be achieved. By 1974, there were over 200 successful demonstrations of teaching self-help skills to this population (Kazdin, 1978; Sontag & Haring, 1996).

With the momentum generated by these court decisions and growing evidence that students with ESN could learn important self-care skills such as toileting, feeding, and dressing, a professional organization dedicated to this effort was established in 1974: the American Association for the Education of the Severely and Profoundly Handicapped (AAESPH), now known as TASH. In November 1974, coordinated with the First Annual Seminar of Research and Demonstration Programs for the Severely and Profoundly Handicapped Children and Youth funded by the Bureau of Education of the Handicapped (BEH), the idea was explored and supported for developing a new professional organization (Sontag & Haring, 1996). Dr. Norris G. Haring from the University of Washington became the founding President of the organization.

The purpose of this commemorative essay on IDEA is to highlight 50 years of progress in meeting the needs of students with ESN. In doing so, the second section of the article emphasizes the *where*, *who*, *what*, and *how*, while the third section covers how current practices have evolved within the scope of a move toward inclusive education for all. In the final section we offer some observations as recommendations as we move forward with the next decade of progress.

MAJOR ADVANCES AND PRACTICE-CHANGING INNOVATIONS

Students with ESN comprise a heterogenous group with multiple types of disability (e.g., autism, dual sensory impairments, intellectual disability, physical disability, significant communication disorders, complex healthcare needs) who require varying levels of supports. Although PL 94-142 paved the way for students with ESN to receive a free and appropriate public education, what that looked like was unclear. Prior to PL 94-142 (EAHC Act of 1975), students with ESN, for the most part, had been placed in institutional settings or remained at home in the care of family. Since many assumed they could not benefit from an education, prior emphasis had been on caregiving and meeting healthcare needs. While existing teacher education programs prepared special education teachers to work with students with mild to moderate intellectual disability, programs that focused on teaching students with ESN were rare.

In the 1970s there was little to no research on effective practices to teach students with ESN (Sontag et al., 1973). Pioneers in the field began to brainstorm and establish basic principles that would guide practices based on the "criterion of ultimate functioning" (L. Brown et al., 1976) – the belief that all students had the right to reach their full potential in life – and the "least dangerous assumption" (Donnellan, 1984) – the belief that, in the absence of conclusive data, consideration should be given to making educational decisions that will do the least harm should they prove to be wrong. Once these pioneers created a vision of desirable practices based on basic rights, democratic values, logic, and human dignity, school districts began to set up programs to serve students with ESN, and researchers in the field began to collect data on the effectiveness of various practices, refining them as indicated. This led to a continuum of practices across the last 50 years that, through systematic and longitudinal research, shaped special education services for students with ESN.

The following sections provide information on the progression of educational practices for students with ESN from implementing promising practices based on concepts to establishing the research-based and evidence-based practices that currently guide educational programs. Specifically, the sections address the where, who, what, and how when providing instruction, related services, and support to students with ESN. While the concepts that served as the foundation for best practices

are described, the subsequent supporting research is summarized since it is impossible to cite all the extensive list of research studies conducted over 50 years that has led to the evidence-based practices presently used.

Where Should Students with ESN Be Taught?

When school districts began providing services for students with ESN, they often placed students, K-12, in a separate school or in a segregated classroom within a school. There were several reasons for this, including (a) the paucity of certified special education teachers with the skills to provide services, (b) the convenience of a central location for related service personnel to provide services for a cluster of students, (c) the fear that students with ESN might disrupt the education of other students, and (d) the belief that all students, regardless of age needed to follow a similar developmental curriculum. In 1983, L. Brown, Ford, et al. pointed out the benefits of placing students with ESN in the neighborhood schools they would attend if they did not have a disability. For example, inclusion in neighborhood schools provides the opportunity for students with ESN to participate in activities and form friendships with peers without disabilities that can carry over to non-school settings, and to have peers without disabilities as partners in communication and role models for social skills. The move to age-appropriate neighborhood schools slowly evolved from placement in a segregated classroom within a school to participation within general education classrooms on a limited or fulltime basis. Although most research with students with ESN has been conducted in segregated classrooms, a sufficient (and growing) amount of research conducted in inclusive classrooms exists to support the model as appropriate for conducting systematic or embedded instruction; facilitating friendships with peers without disabilities; and providing exposure to experts who teach core content. In addition, some related services (e.g., occupational, physical, and speech/language therapies) can be delivered within inclusive settings during daily routines and activities without stigmatizing students.

Based on the difficulty that students with ESN may have in generalizing skills, L. Brown, Nisbet, et al. (1983) proposed teaching in non-school settings, a practice known as community-based instruction. Noting that this is not always practical or even possible, Nietupski et al. (1986) offered the option of teaching community skills in realistic simulations (e.g., authentic materials, natural cues and reinforcers) within the classroom setting. Community-based instruction is especially advantageous for students who are nearing the age of transition to adulthood when community skills will be needed to facilitate independence.

Who Should Teach Students with ESN?

In 1976, Bricker proposed a model in which the special education teacher serves as an "educational synthesizer" working across disciplines to coordinate services with the team members who support students with ESN. In this transdisciplinary approach, team members may practice "role release" by sharing their knowledge and teaching others how to perform the functions of their respective disciplines. In addition to increasing the amount of time a student receives instruction and services, generalization of skills may occur when skills are taught across multiple instructors in routines and settings where they are needed. Over the past 50 years, a large body of research has shown that a variety of individuals, when coached, including general education teachers, instructional assistants, peer tutors, related service delivery personnel, and family members or other caregivers, can deliver effective instruction with a high degree of reliability and precision.

What Should Students with ESN Be Taught?

School personnel initially believed it was necessary to teach a developmental curriculum to students with ESN based on the premise that prerequisite skills must be mastered before a student can be taught a higher-level skill. Recognizing that some students may never master basic skills, L. Brown et al. (1979) proposed a functional approach to identifying an age-appropriate curriculum, in which team members, including parents, would identify current and future critical skills individual students needed to achieve independence in community, domestic, educational, vocational, and recreation/leisure environments and the naturally occurring routines in which those skills could be taught. While research over time demonstrated that students with ESN could learn to perform a wide range of functional skills, Baumgart et al. (1982) proposed applying the "principle of partial participation" by brainstorming adaptations and accommodations (e.g., use a calculator, the next dollar strategy, or a credit card in making purchases; use picture symbols, a communication device, or manual signing to engage in a discussion) that would enable a student to participate in all activities whether or not they could perform each step in the same manner as peers.

As students with ESN demonstrated the ability to learn functional skills and to participate in inclusive settings, researchers (as well as teachers and parents) recognized that they also could benefit from learning selected

Procedure (Evidence Base)	Description of Procedure	Advantages
Simultaneous Prompting (Tekin-Iftar et al., 2018)	• Instructor conducts daily probe (i.e., test) trials to assess student performance • Following probe trials, instructor conducts daily training (i.e., teaching) trials by immediately providing controlling prompt[1] • Probe/training trials proceed in this sequence until student reaches criterion during daily probe trials	• Requires minimal effort, using only a single controlling prompt[1] and data collection during probe trials. • Can be flexibly embedded throughout the school day, with probe and training trials occurring at different times. • Effective for teaching both discrete[2] and chained[3] tasks while minimizing errors and reducing student wait time for assistance.
Time Delay (Browder et al., 2009)	• The instructor initially provides the controlling prompt immediately, then gradually increases the delay before prompting to encourage independent responding. • Instruction continues until the student consistently responds correctly before the prompt is delivered.	• Easy to implement in general education settings by a variety of personnel. • Uses a single controlling prompt with natural prompt fading and reinforcement regardless of assistance needed. • Effective for teaching discrete and chained tasks while promoting fluency through timed responding.
System of Least Prompts (Shepley et al., 2018)	• The instructor uses progressive time delay, waiting a set interval before providing increasing levels of assistance until the student responds correctly. • Prompts are systematically faded across sessions until the student performs all steps independently.	• Easy to implement in general education settings using a least-to-most prompting sequence ("tell, show, help") that provides only the assistance needed and systematically promotes independence. • Effective for teaching discrete and chained tasks, with reinforcement throughout and increased support as needed to minimize errors.
Most-to-Least Prompting (Kutlu, 2023)	• Begin with the most intrusive prompt needed to ensure correct responding and continue until performance is consistent. • Gradually fade prompts to less intrusive levels across sessions until the student responds independently and consistently.	• Easy to implement and embed in daily activities by a variety of personnel. • Uses a most-to-least prompting sequence that systematically fades support while promoting independence. • Well-suited for students requiring substantial assistance, with reinforcement provided throughout and additional support available to prevent errors.
Graduated Guidance (Tekin-Iftar et al., 2023)	• The instructor closely follows the student, providing only the level of physical assistance needed at each moment and gradually reducing support until the skill is performed independently.	• Easy to implement and embed in daily activities, using physical guidance, reinforcement, and prompt fading to promote independence. • Effective for teaching gross and fine motor skills to students requiring substantial support while maintaining a low error rate.

Note. [1]Controlling prompt – Amount of assistance likely to result in correct response (e.g., verbal direction, model of correct response, physical guidance); [2]Discrete task – Skill with a single step (e.g., math fact, vocabulary word); [3]Chained task – Skill consisting of multiple steps (e.g., math problem, paragraph composition)

content taught in the general curriculum (Browder et al., 2006, 2008, 2009; Spooner et al., 2011; see Access to the General Curriculum later in the article). This required researchers to survey the instructional methods used in general education and combine them in a systematic way with strategies shown to be effective in the field of special education. This did not mean ignoring the need to learn functional skills but, instead, indicated it was possible to teach core content based on the students' individual needs with applications that would be meaningful and relevant in a student's daily life and future settings.

How Should Students with ESN Be Taught?

ABA (Baer et al., 1968) has a long history of being an effective approach to teaching skills to students with ESN (Smith & Eikeseth, 2011; Spooner & Browder, 2015). In the beginning, this consisted of repetitive discrete trial instruction (e.g., basic sight words or math facts taught with flashcards). As functional skills became more important in the curriculum, researchers demonstrated that students with ESN could learn complex chained tasks by breaking them down into a series of discrete skills which could be taught step by step or in larger "chunks."

With ABA as a foundation, researchers found that inserting prompts (e.g.,

verbal direction, model, physical guidance) in instructional trials and then fading them over time as indicated was both an effective and efficient way to teach students with ESN (Ault et al., 1989; Collins, 2021). These response prompting procedures are nearly errorless, resulting in an increased delivery of reinforcing consequences (e.g., praise) for students and the likelihood students will consistently repeat the correct response. To date, by conducting meta-analyses of the research, investigators have identified the following five response prompting strategies as being evidence-based in teaching a wide range of skills (see Table 2): (a) simultaneous prompting (Tekin-Iftar et al., 2018) -- providing daily test trials to determine if a student can respond independently before providing training trials with immediate prompts if instruction is indicated; (b) time delay (Browder et al., 2009) - initially providing an immediate pre-identified prompt, then slowly fading that prompt by providing longer intervals of time for students to respond independently; (c) system of least prompts (Shepley et al., 2018) - initially providing the least amount of assistance needed to make a correct response prior to providing more intrusive assistance; (d) most-to-least prompting (Kutlu, 2023) - initially providing the most intrusive prompt needed and then fading to less intrusive prompts over time; and (e) graduated guidance (Tekin-Iftar et al., 2023) making a moment-to-moment decision on whether to provide physical assistance to a student.

There are several benefits to using systematic response prompting procedures. Research has shown that the procedures are easy to learn. Additionally, these procedures can be reliably used by a variety of instructors to teach skills across a variety of domains (e.g., academic, social, functional, and behavioral skills). Further, rather than remove a skill from a task or routine, the skill can be taught in a setting and at the time in which it naturally occurs. In addition, the procedures are simple to embed in natural routines or during academic instruction in general education classes. Crucial to systematic instruction, daily data are collected and analyzed, allowing instructors to make data-based decisions on whether a strategy is working or needs to be refined (e.g., use a different prompt, change a reinforcer, teach an easier version of the skill).

Where Do We Go from Here?

While we have learned much about the best way to provide a quality educational program for students with ESN over the past 50 years, the reality is that a continuum of practices (and placements) still exists due to a discrepancy between what the research indicates is effective and what actually occurs in educational settings. The following section provides an overview of implications and an explanation of various factors that drove educational programs for students with ESN.

IMPLICATIONS FOR RESEARCH AND PRACTICE

As mentioned above, we believe it is important to discuss several factors responsible for facilitating changes to our field. These factors include the historical basis for change, scientific findings, legal mandates, parental advocacy, and serving and supporting students.

Historical Basis for Change

As indicated previously, until the *PARC v. Penn* ruling (1972) and PL 94-142 (EAHC Act of 1975) were passed, most students with ESN were denied public education. Instead, these students were sent to state residential facilities (institutions) in which they often lived under horrendous conditions and received little or no education (Wehmeyer, 2014). Children with ESN who were not institutionalized received at best a piece-meal education delivered by church groups, volunteers, or social advocates. The belief at the time was that it was best to segregate them in special facilities or keep them unseen if they lived at home. That said, in the 1950s to the 1980s several events occurred that profoundly impacted how students with ESN were educated, supported, and understood. The following section examines the specific reasons for this change. These factors included: scientific findings, parent advocacy, legal mandates, and consumer advocacy.

Scientific Findings

An emerging realization in the 1970s was that students were more capable of learning than previously thought, but the instructional practices used had not been sufficient (Horner & Halle, 2018). Horner and Halle suggested that students with ESN can gain much when effective systematic and data-based instructional practices (e.g., response prompting procedures) were applied, and when instruction was individualized and supported. Further, they made a compelling point by observing that to produce reform in an educational system, it is critical to have a vision. For individuals with ESN, such a vision is to create opportunities for them to participate in and benefit from a variety of equitable and satisfying school and community experiences (L. Brown et al., 1976). To achieve this vision, it is critical that we employ proven effective practices as reported in the published research.

IDEA (1997) does not explicitly mandate that specific instructional practices are used, but it requires that the practices used are technically sound and will produce measurable gains in

student learning. We owe much to research for broadening our understanding of students' learning capacity and how we can facilitate this learning. One additional point of note is that although educational practices for students with ESN should be based on the use of research-based strategies, positive social and cultural values (e.g., movement toward non-aversive approaches to change behavior; Horner et al., 1990) also need to be considered when determining practices; in other words, what feels right, even if there is no research to validate the procedure.

> While we have learned much about the best way to provide a quality educational program for students with ESN over the past 50 years, the reality is that a continuum of practices (and placements) still exists due to a discrepancy between what the research indicates is effective and what actually occurs in educational settings.

Legal Mandates

As detailed earlier in this article, numerous legal rulings and court decisions have served, arguably, as the most important change agents affecting the delivery of quality educational services to students with ESN. No longer did school districts have the discretion to deny educational services in a public school to students with ESN. Now, a free public education must be provided to all students, including those with ESN, and these students must be placed in an appropriate classroom based on the least restrictive environment (LRE) model.

What is crucial to note is that laws guaranteeing that students with ESN are provided a free public education are part of the broader civil rights movement that have been advocated for the last 50 years—in short, all individuals, regardless of gender, color, or disability, are provided equal protection (Ferguson et al., 2013). Too often when legal protection for individuals with diverse backgrounds was considered, people with disabilities, particularly individuals with ESN, were not included. This of course is no longer the case.

Parental Advocacy

The impact of parents in both advocating for change and helping to drive legal action cannot be overemphasized. As Wehmeyer (2013) indicated, passage of the *PARC v. Penn* ruling (1972) and PL 94-142 (EAHC Act of 1975) were largely due to the concentrated efforts of parents to make change. The social changes that occurred in the 1940s-1970s and the advances in medicine and science empowered parents to challenge traditional opinions on how to treat and what to expect from their children with ESN. As Wehmeyer (2014) noted, parents of children with intellectual disability, especially children with severe intellectual disability (ESN), were frustrated with their children being thought of by society as objects of scorn, pity, or sin. Although *intellectual disability* was the accepted term at the time of the 2014 publication, scholars and advocates now prefer alternative terminology because they view the term as potentially stigmatizing. They wanted their children to be accepted and respected as were typical children without a disability.

Starting in the 1950s parents started parent education and support groups (e.g., National Association for Retarded Citizens [Arc] and TASH) to learn from each other, develop grassroots initiatives to change public opinions about and expectations for people with intellectual disability, and demand that their children should live, be educated, and work in their home communities. Parents and prominent individuals such as Roy Rogers and Dale Evans, Pearl Buck, and Eunice Kennedy Shriver challenged professional beliefs at that time that individuals with ESN need to reside in segregated institutions and that they have little or nothing to contribute to society. The fact that parents need to approve their child's IEP is a product of their advocacy.

Serving and Supporting Students with ESN

As mentioned previously, the use of systematic instruction has served as the primary instructional approach in teaching students with ESN. Systematic instruction includes five components: precise identification of students' instructional needs, delivery of task analytic instruction, the provision of an appropriate level of assistance, evaluation of students' progress, and modification of instruction as needed. As the field developed, additional instructional and behavior management initiatives were investigated. These have included access to the general curriculum, self-determination, positive behavior and intervention support, and peer support. In effect, these priorities serve as the curricular framework for students with ESN.

Access to the General Curriculum

Following the LRE model, inclusion has largely been thought of as a physical action that involves moving

a child from a more restrictive classroom placement (e.g., self-contained classroom) to one that is less restrictive (e.g., general education classroom). Although the number of students with ESN who have been included in general education classrooms has dramatically increased over the last 50 years, it is far below the desired placement level professionals wish (see Agran et al., 2020). One notable change though is an adjustment in our understanding of what to teach students with ESN. Rather than continuing to have a situation in which there are essentially two curricula—one for typical students and one for students with ESN—educational goals for all students must now be based on the general education curriculum (IDEA, 2004); specifically, the state-adopted general education standards (Gee et al., 2025). According to IDEA (2004), students need to be provided access to the general curriculum, and school districts need to demonstrate the students' progress in acquiring new skills. Such progress will be determined by their performance on a state approved "alternate assessment." The No Child Left Behind Act of 2001 (NCLB, 2002) required that assessment would apply to ALL students, including those with ESN, which was a novel idea. Although some states had alternate assessment procedures in place for students with ESN (Browder et al., 2005; Towles-Reeves et al., 2009), this required a shift in focus from functional skill instruction to standards-based instruction on core content as the scores of students with ESN contributed to the high-stakes consequences for assessing the academic progress of all students across school districts.

Inherent with this mandate and based on current research (see Gee et al., Olson et al., 2016), an increasing number of students with ESN should be placed in general education classrooms as those settings are the obvious and natural environments to teach the general curriculum. As numerous researchers have reported (see McDonnell & Hunt, 2014; Spooner et al., 2014), students can learn content aligned with grade level with the skillful and consistent application of evidence-based practices.

Self-Determination

Historically, special education has followed a teacher-controlled model in which teachers were given full responsibility for goal setting, instructional delivery, and program evaluation. In this respect, teachers served as the primary change agents with the students' roles essentially that of being the recipients of the services provided to them (Mithaug, 1996). Numerous studies in the last 50 years have strongly demonstrated that students with ESN can, with varying degrees of competence, set goals for themselves; apply self-directed instructional approaches; cue, observe, and reinforce their own behavior; and evaluate their progress (Alsaeed et al., 2024; Shogren et al., 2019).

Current understanding of self-determination bases itself on the *Causal Agency Theory* (Shogren & Raley, 2022). The Causal Agency Theory posits that self-determination is manifest when individuals serve as causal agents in their own lives. As Shogren and Raley noted, students will learn to grow and demonstrate self-determination if we provide them with support and opportunities to display these skills. Strategies associated with self-determination include choice making, goal setting, self-instruction (i.e., self-directed verbal prompts), self-monitoring, and self-reinforcement. Research has demonstrated that the above strategies have facilitated students' acquisition of a broad range of students' academic, functional, social, and behavioral skills (Agran & Hughes, 2014; Shogren, 2013). Most importantly, the widespread attention to promoting students' self-determination has enhanced overall social expectations about the capacity and capability of students with ESN. A student's display of self-determination provides a reliable and observable measure of their independence.

Positive Behavior and Intervention Supports

We have learned much in the last 50 years about managing students' display of severe challenging behavior. A common misunderstanding is that all or most students with ESN engage in such behavior. This is of course not the case; nevertheless, students with severe challenging behavior may display aggressive behavior that can cause physical harm to themselves or to others (e.g., paraprofessionals). Historically, behavior management practiced in schools followed an "eliminative" approach in which punitive or aversive practices (e.g., corporal punishment) were used to eliminate problem behaviors. Minimal effort was made to identify the cause of the behavior, and treatment was largely restricted to only a specific environment. Although this approach may decrease the behavior for a short time, there was increased opposition by teachers, psychologists, and parents to this aversive approach because it caused unjustifiable pain to the student, was often executed for relatively minor infractions by the student and was in violation of humanistic values espoused at the time by TASH and other professional organizations.

Advanced by Horner and colleagues (see Horner et al., 1990), a more positive, non-aversive approach was recommended (i.e., Positive Behavior Interventions and Support ([PBIS]). Such an approach was based on ABA principles, as mentioned earlier in this article, and positive behavior interven-

tions were promoted (e.g., differential reinforcement; F. Brown & Bambara, 2014). Furthermore, functional assessments were recommended to identify probable and consistent causes of the behavior (e.g., attention getting, escape). With these data setting events and antecedents can be identified, and appropriate environmental manipulations determined. A principal difference between positive behavior support and traditional approaches was that in the former particular attention was paid to the antecedents or setting events that may have provoked the behavior, whereas the latter focused on eliminating the behavior by punishing the student. With PBIS, once the behavior is identified, systematic efforts to support the students are provided to minimize the probability of the behavior from occurring. Most importantly, rather than blaming the student, efforts are made to understand what environmental factors may be controlling the behavior (Jackson, 2018).

PBIS represents a crucial and important awareness in our field, stressing that students with ESN who have challenging behavior can indeed behave appropriately if we, as professionals, are committed to using positive evidence-based practices that provide the student with a supportive, reinforcing, and humane environment. Discouraging students from engaging in challenging behaviors will prevent their occurrence in the first place. Ultimately, this is the specific aim of PBIS.

Peer Support

There is no question that the significant achievements of students with ESN would not have been possible if these students had not been supported by and received assistance from paraprofessionals. Paraprofessionals provide students with immediate and personal attention that would otherwise not be available; however, several issues have been raised regarding the ubiquitous use of paraprofessionals. First, paraprofessionals are often asked to make critical instructional decisions without having sufficient training or knowledge to make such decisions (Giangreco et al., 2011). Second, the presence of paraprofessionals may limit the student's opportunities to receive supervision from teachers, particularly general educators. Third, students may become too dependent on paraprofessionals. Fourth, reliance on paraprofessionals may decrease the general educator's motivation to teach and become more familiar with these students. Last, and most importantly, the continual presence of a paraprofessional may only serve to alienate and separate students with ESN from typical students. To ameliorate the possibly harmful effects of the overutilization of paraprofessionals, an alternative and always present resource that has received increased attention is to use peer tutors.

Research has suggested that peer tutors can be invaluable in implementing instruction formerly assigned to teachers, facilitate behavioral interventions, and provide support to and social interactions with students with ESN (Travers & Carter, 2022). Travers and Carter reported that using peer tutors to support students with ESN is mutually beneficial. For students with ESN, peer tutoring provides them with social contact, assistance with school tasks as needed, and allows them to feel they are valued members of the school body. For students who serve as peer tutors, it is of value in promoting their growth and development. It should be noted that the aim of using peer tutors is not to preclude the use of paraprofessionals as each represents a valuable resource but to prompt us on making sure each is utilized in the most effective and respectful way for students with ESN.

FUTURE DIRECTIONS AND RECOMMENDATIONS

The following are several observations and recommendations we encourage you to consider in your efforts in providing students with ESN quality educational services and support. These observations and recommendations are based on the variables discussed in the last section of this article (i.e., inclusion, access to the general curriculum, PBIS, and self-determination).

Promoting Inclusion

There are two major assumptions about the LRE model, which, as mentioned previously, serve as the principal decision-making tool to determine students' placement. The first assumption is that over time and across grade levels students will progressively be placed in less restrictive environments (classrooms). The second assumption is that ultimately all students, regardless of type or severity of disability, will be placed in general education classrooms. Placement in general education is on either a part-time or full-time basis. Full-time inclusion is understood to be 80% of the school day. The reality though is that fewer than 20% of students with ESN are placed in general education classrooms (Giangreco, 2020). In short, students with ESN spend minimal time in general education; indeed, only 5% of them are fully included (Kleinert et al., 2015). Unfortunately, there has been little or no movement of students with ESN to less restrictive settings. What is perhaps most distressing is that there is more than ample research to suggest that students with ESN do in fact learn faster in general education classrooms than in segregated ones (Gee et al., 2020; Ruppar et al., 2017). Despite the progress we have made in learning how best to teach students with ESN, our failure to provide them with appropriate

placements represents an abject failure in our placement system.

Numerous reasons have been suggested to explain this impasse. Such reasons include fixed opinions about the continued need for segregated classrooms, parent resistance, and resistance from teachers who claim they do not feel prepared to serve students with ESN in their classrooms (Krishnan, 2024). There are of course no easy solutions in correcting this situation. We believe, albeit hope, that with increased exposure to and interaction between students with ESN and general educators and administrators, there will be a positive change. Likewise, increasing both administrators' and parents' knowledge about students' success in general education will minimize their resistance and will help them recognize the benefits of inclusive education.

One approach beginning to receive increased attention is contextual analysis. Contextual analysis involves the consideration of the variables that may influence placement decisions (Jackson et al., 2022). These variables include school policy, teaching approaches, preparation of teachers, school climate, urbanicity, budget, and biased belief systems, among others. The effects of these variables may differ across school settings such that the settings themselves may produce differential responding; for example, students will perform at a lower level in a self-contained setting than in a less restrictive classroom, independent of the quality of instruction the student is receiving. As such, Jackson et al. suggest that students with ESN will have their education compromised when placed in more restrictive settings; in effect, the setting will disincentivize the students from learning. As reported in several research studies, students with ESN receive an inferior education in a self-contained classroom compared to general education (Kurth et al., 2014; Pennington & Courtade, 2015; Washington et al., 2012). They further indicate that these factors need to be considered and understood when making placement decisions so that the placement team has a complete and current body of knowledge to base their decisions.

Access to the General Curriculum

Although not explicitly stated in IDEA (1997), the assumption of this mandate is that the natural and appropriate place to teach the general education curriculum is the general education classroom (Olson et al., 2016). As such, segregated settings are not appropriate classrooms to provide access to the general educational curriculum. As Gee et al. (2025) noted, this is particularly perplexing as there are no published studies that have suggested segregated settings are superior to inclusive placements in promoting learning.

Although there may be some differences in how educators define access to the general curriculum, the consensus is that the general curriculum is based on state-adopted grade-level standards. Gee et al. (2025) indicated that oftentimes there is a disconnect between the IEP and the grade-level standards and teachers' continued reliance on prepackaged special education curricular materials serves as a barrier to facilitating access. Consequently, additional instruction should be provided to general educators on facilitating student access to general education, ensuring that IEP goals are reflective of parents' and students' wishes, congruent with the general curriculum, and adapted to students' learning styles. As Jackson et al. (2022) suggested, curriculum and context are extrinsically connected, and it is critical that teachers understand this relationship.

Last, in a comparison of the instructional outcomes relative to classroom setting (i.e., general education, self-contained setting), Lansey et al. (2024) reported that general education classrooms provide students with ESN more exposure to academic instruction, general rather than specialized curricular materials, and more time with peers and general educators. In this respect access is not just that of providing students with more instruction in academics but that of providing students with opportunities to become valued school body members—to learn with typical students, to be taught in the same classrooms where typical students are taught, and to be taught by the same teachers as those who teach typical students.

An argument from general educators may include a lack of preparation in evidence-based instructional strategies for students with ESN. Systematic evidence-based response prompting strategies, however, have decades of supporting research as to their effectiveness (i.e., how well a student learns content) and efficiency (i.e., how quickly a student learns content) in teaching skills to students with ESN (Collins, 2021), including core content (e.g., reading, writing, biology, health, geometry, civics), and can easily be embedded in classroom instruction by general education teachers. For example, Tekin-Iftar et al. (2017) demonstrated that general education teachers who received coaching in using an evidence-based response prompting procedure (i.e., simultaneous prompting) were successful in embedding the strategy to teach health core content to students with ESN during typical daily large group instruction across general education classrooms. The professional literature also has demonstrated the effectiveness of coaching paraprofessionals and classroom peers

Rather than designing behavior management plans that ostensibly only seek to eliminate the problem behavior, PBIS's goal is to identify the potential cause of the challenging behavior, replace it with a socially acceptable substitute behavior, and establish for the student a reinforcing and manageable environment.

to use systematic instruction in general education classrooms when students with ESN are included (e.g., Britton et al., 2017; Collins et al., 2021; Heinrich et al., 2016). Until teacher preparation programs change to models that provide training in evidence-based special education strategies to all educators, trained special educators can be valuable in facilitating both inclusion and instruction by sharing their expertise with others through coaching and support. General educators may have expertise in curriculum content, but they may lack knowledge about and expertise in addressing the unique learning needs of students with ESN.

PBIS

One of the major structural changes in special education is the adoption of a Multi-Tiered System of Supports (MTSS). Inherent in MTSS is the acknowledgment that all students need to be supported in varying degrees of intensity based on their instructional and behavioral needs. MTSS is typically structured as a three-tiered continuum of support, based on the intensity of support a student may require (e.g., intermittent *vs*. pervasive). MTSS has been used to provide instruction in academics (e.g., literacy, mathematics), as well as PBIS. As Horner and Halle (2020) indicated, there are several advantages of MTSS. First, it approaches a learning task based on a student's support needs (i.e., what assistance the student needs to achieve mastery) rather than their perceived disability. Secondly, since MTSS is designed to be a schoolwide system, teachers are encouraged to assume responsibility for all students, including those with ESN. Schools that utilize MTSS will employ best practices or evidence-based practices that can benefit all students. Third, rather than thinking of students with ESN as a distinct entity—a separate discrete population to serve—MTSS compels schools to consider itself a school for all children. To achieve this, all the elements needed to be successful must be considered (e.g., funding, staff allocations, teaming structures, placement policy). No doubt this has been a goal we have been working on achieving for the last 50 years and following a MTSS approach to education will help us achieve it.

There are some problems associated with MTSS that warrant consideration. First, there must be distinct differences across MTSS levels. Students may receive support that is either less or more intensive than a level previously provided. Second, students with ESN may be automatically placed in the most intensive level (Tier 3) despite their actual learning needs. In all, MTSS can be an ideal model to apply for students with ESN as it permits teachers to have insight about a student's true learning needs, but it is imperative that it is applied correctly and aligned with the student's instructional needs.

Self-Determination

There is no question that the PBIS initiative has provided teachers with an invaluable tool and resource to deal with their students' challenging behavior. Rather than designing behavior management plans that ostensibly only seek to eliminate the problem behavior, PBIS's goal is to identify the potential cause of the challenging behavior, replace it with a socially acceptable substitute behavior, and establish for the student a reinforcing and manageable environment. As Bambara and Kern (2005) noted, students may resort to displaying inappropriate behavior as their way of gaining control in what they experience is a stressful environment (e.g., literacy class). A potential problem is that invariably the individuals who serve as change agents are adults who are imposing external control. As Carr et al. (2002) recommended, the purpose of self-determination is to help students to learn that they should serve as causal agents, (i.e., change and manage their own behavior). If provided the opportunity, students can have a vital and active role in planning their own behavior change, implementing a self-directed strategy, and evaluating their progress. As Agran (2015) noted, behavior change is facilitated when a student is motivated to change the behavior (i.e., assume ownership). Such ownership is empowered when a student has an active role in manipulating the change. There is no question that preparing a student to have an active and meaningful role in a behavior change project will take considerable time and careful planning. The student will need to be taught to identify the problem behavior, discern

when it occurs, help determine and implement a behavior change strategy, and, last, evaluate progress in achieving the behavioral goal. On the other hand, we believe the benefits will far exceed the cost as it will enhance the student's self-awareness, competence, and, ultimately, acceptance by others.

Closing Comments

For much of Western history, individuals with ESN have been totally marginalized, separated, and considered uneducable. That said, in the last 50 years, we have discovered that students with ESN are far more capable and competent than previously thought. We have learned how to provide them with a diligent, systematic, and supportive education; how to encourage students to direct and manage their own behavior and learning; how to communicate with and respond to parents' concerns; and, lastly, but most importantly, how to create school environments in which students with ESN are accepted and supported as classmates and friends. Going beyond school, we are committed to ensuring that individuals with ESN are valued and respected as members of their communities.

REFERENCES

Agran, M. (2015). Strategies for self-management. In F. Brown, J. Anderson, & R. De Pry (Eds.), I*ndividual positive behavior supports* (pp. 333–346). Paul H. Brookes Publishing.

Agran, M., & Hughes, C. (2014). Promoting self-determination and self-directed learning. In M. Agran, F. Brown, C. Hughes, C. Quirk, & D. Ryndak (Eds.), *Equity & full participation for individuals with severe disabilities: A vision for the future* (pp. 75–97). Paul H. Brookes Publishing.

Agran, M., Jackson, L., Kurth, J. A., Ryndak, D. L., Burnette, K., Jameson, M., Zagona, A., Fitzpatrick, H., & Wehmeyer, M. (2020). Why aren't students with severe disabilities being placed in general education classrooms: Examining the relations among classroom placement, learner outcomes, and other factors. *Research and Practice for Persons with Severe Disabilities*, *45(1)*, 4–13. https://doi.org/10.1177/1540796919878134

Alsaeed, A., Mansouri, M. C., Shogren, K. A., Raley, S. K., Kurth, J. A., Leatherman, E. M., & Lockman Turner, E. (2024). A systematic review of interventions to promote self-determination for students with extensive support needs. *Research and Practice for Persons with Severe Disabilities*, *48*(1), 3–24. https://doi.org/10.1177/15407969231153397

Ault, M. J., Wolery, M., Doyle, P. M., & Gast, D. L. (1989). Review of comparative studies in instruction of students with moderate and severe handicaps. *Exceptional Children*, *55*(4), 346–356. https://doi.org/10.1177/001440298905500410

Azrin, N. H, & Armstrong, P. M. (1973). The "mini-meal"—A method for teaching eating skills to the profoundly retarded. *Mental Retardation*, *11*(1), 9–13.

Azrin, N. H., Bugle, C., & O'Brien, F. (1971). Behavior engineering: Two apparatuses for toilet training retarded children. *Journal of Applied Behavior Analysis*, *4*(3), 249–253. https://doi.org/10.1901/jaba.1971.4-249

Azrin, N. H., & Foxx, R. M. (1971). A rapid method of toilet training the institutionalized retarded. *Journal of Applied Behavior Analysis*, *4*(2), 88–89. https://doi.org/10.1901/jaba.1971.4-89

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, *1*(1), 91–97. https://doi.org/10.1901/jaba.1968.1-91

Bambara, L. M., & Kern, L. (2005). *Individualized supports for students with problem behaviors: Designing positive behavior plans.* The Guilford Press.

Ball, T. S., Seric, K., & Payne, L. E. (1971). Long-term retention of self-help skill training in the profoundly retarded. *American Journal of Mental Deficiency*, *76*(3), 378–382.

Bateman, D. F. & Yell, M. L. (2026). IDEA at 50: Legal landmarks that shaped rights and services. *Journal of Special Education Preparation*. https://doi.org/10.33043/2b55y979

Baumgart, D., Brown, L., Pumpian, I., Nisbet, J., Ford, A., Sweet, M., Messina, R., & Schroeder J. (1982). Principle of partial participation and individualized adaptations in educational programs for severely handicapped students. *Journal of the Association for Severe Handicaps*, *7*(2), 17–27. https://doi.org/10.1177/154079698200700211

Beattie v. Bd. of Educ. of Antigo, 169 Wis. 231, 172 N.W. 153 (Wis. 1919).

Bricker, D. (1976). The educational synthesizer. In M. A. Thomas (Ed.), *Hey, don't forget about me!* (pp. 84–97). The Council for Exceptional Children.

Britton, N. S., Collins, B. C., Ault, M. J., & Bausch, M. E. (2017). Using a constant time delay procedure to teach support personnel to use a simultaneous prompting procedure. *Focus on Autism and Other Developmental Disabilities*, *32*(2), 102–113. https://doi.org/10.1177/1088357615587505

Browder, D. M., Ahlgrim-Delzell, L., Flowers, C., Karvonen, M., Spooner, F., & Algozzine, R. (2005). How states implement alternate assessments for students with disabilities. *Journal of Disability Policy Studies*, *15(*4), 209–220. https://doi.org/10.1177/10442073050150040301

Browder, D. M., Ahlgrim-Delzell, L., Spooner, F., Mims, P. J., & Baker, J. N. (2009). Using time delay to teach literacy to students with severe developmental disabilities. *Exceptional Children*, *75*(3), 343–364. https://doi.org/10.1177/001440290907500305

Browder, D. M., Spooner, F., Ahlgrim-Delzell, L., Harris, A., & Wakeman, S. (2008). A meta-analysis on teaching mathematics to students with significant cognitive disabilities. *Exceptional Children*, *74*(4), 407–432. https://doi.org/10.1177/001440290807400401

Browder, D. M., Wakeman, S. Y., Spooner, F., Ahlgrim-Delzell, L., & Algozzine, B. (2006). Research on reading instruction for individuals with significant cognitive disabilities. *Exceptional Children*, *72*(4), 392–408. https://doi.org/10.1177/001440290607200401

Brown v. Board of Education, 347 U. S. 483 (1954).

Brown, F., & Bambara, L. (2014). Providing respectful behavior supports. In M. Agran, F. Brown, C. Hughes, C. Quirk, & D. Ryndak (Eds.), *Equity & full participation for individuals with severe disabilities: A vision for the future* (pp. 99–131). Paul H. Brookes Publishing.

Brown, L., Branston, M. B., Hamre-Nietupski, S., Pumpian, I., Certo, N., & Gruenwald, L. (1979). A strategy for developing chronological age-appropriate and functional curricular content for severely handicapped adolescents and young adults. *The Journal of Special Education*, *13*(1), 81–90. https://doi.org/10.1177/002246697901300113

Brown, L., Ford, A., Nisbet, J., Sweet, M., Donnellan, A., & Gruenwald, L. (1983). Opportunities available when severely handicapped student attend chronological age appropriate regular schools. *Journal of the Association of Persons with Severe Handicaps*, *8*(1), 16–24. https://doi.org/10.1177/154079698300800102

Brown, L., Nietupski, J., & Hamre-Nietupski, S. (1976). The criterion of ultimate functioning. In M. A. Thomas (Ed.), *Hey, don't forget about me!* (pp. 2–15). The Council for Exceptional Children.

Brown, L., Nisbet, J., Ford, A., Sweet, M., Shirago, B., York, J., & Loomis, R. (1983). The critical need for non-school instruction in education programs for severely handicapped students. *Journal of the Association for Persons with Severe*

Handicaps, *8*(1), 71–77. https://doi.org/10.1177/154079698300800102

Carr, E. G., Dunlap, G., Horner, R. H., Koegel, R. L., Turnbull, A. P., Sailor, W., Anderson, J. L., Albin, R. W., Koegel, L. K., & Fox, L. (2002). Positive behavior support: Evolution of an applied science. *Journal of Positive Behavior Interventions*, *4*(1), 4–16. https://doi.org/10.1177/109830070200400102

Collins, B. C. (2021). *Systematic instruction for students with moderate and severe disabilities*. (2nd ed.). Paul H. Brookes Publishing.

Collins, B. C., Lo, Y-y., Haughney, K., & Park, G. (2021). Using peer-delivered simultaneous prompting to teach health content to students with moderate intellectual disability. *Education and Training in Autism and Developmental Disabilities*, *56*(3), 293–305.

Donnellan, A. (1984). The criterion of least dangerous assumption. *Behavioral Disorders*, *9*(2), 141–150. https://doi.org/10.1177/019874298400900201

Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142, 89 Stat. 773 (1975).

Ferguson, D., Ferguson, P., & Wehmeyer, M. (2013). The self-advocacy movement: Late modern times (1980 to Present). In M. Wehmeyer (Ed.), *The story of intellectual disability: An evolution of meaning, understanding, and public perception* (pp. 233–278). Paul H. Brookes Publishing.

Gee, K., Burnette, K., Walker, V. L., Ryndak, D., Fisher, M., Baker, D., & Clausen, A. (2025). Access for students with extensive support needs to state-adopted grade-level standards and curriculum in general education classes: A content analysis of the literature. *Research and Practice for Persons with Severe Disabilities*, *50*(2), 121–138. https://doi.org/10.1177/15407969241281031

Gee, K., Gonzalez, M., & Cooper, C. (2020). Outcomes of inclusive versus separate placements: A matched pairs comparison study. *Research and Practice for Persons with Severe Disabilities*, *45*(4), 223–240. https://doi.org/10.1177/1540796920943469

Giangreco, M. F. (2020). "How can a student with severe disabilities be in a fifth-grade class when he can't do fifth-grade level work?" Misapplying the least restrictive environment. *Research and Practice for Persons with Severe Disabilities*, *45*(1), 23–27. https://doi.org/10.1177/1540796919892733

Giangreco, M. F., Broer, S. M., & Suter, J. C. (2011). Guidelines for selecting alternatives to overreliance on paraprofessionals: Field-testing in inclusion-oriented schools. *Remedial and Special Education*, *32*(1), 22–38. https://doi.org/10.1177/0741932509355951

Goldberg, J. I., & Cruickshank, W. M. (1958). *The trainable but noneducable: Whose responsibility? National Education Association Journal*, *47*, 622–623.

Heinrich, S., Collins, B. C., Knight, V., & Spriggs, A. D. (2016). Embedded simultaneous prompting procedure to teach STEM content to high school students with moderate disabilities in an inclusive setting. *Education and Training in Autism and Developmental Disabilities*, *51*(1), 41–54.

Horner, R. H., Dunlap, G., Koegel, R. L., Carr, E. G., Sailor, W., Anderson, J., Albin, R. W., & O'Neill, R. E. (1990). Toward a technology of "nonaversive" behavioral support. *Journal of the Association for Persons with Severe Handicaps*, *15*(3), 125–132. https://doi.org/10.1177/154079699001500301

Horner, R. H., & Halle, J. W. (2018). Commentary on "Perspectives on the state of the art (and Science) of selected life-span services." *Research and Practice for Persons with Severe Disabilities*, *43*(2), 90–93. https://doi.org/10.1177/1540796918759766

Horner, R. H., & Halle, J. W. (2020). Implications of emerging educational reforms for individuals with severe disabilities. *Research and Practice for Persons with Severe Disabilities*, *45*(2), 75–80. https://doi.org/10.1177/1540796919872210

Individuals with Disabilities Education Act Amendments of 1997, 20 U.S.C. § 1400 et seq. (1997).

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108446, 118 Stat. 2647 (2004).

Jackson, L. (2018). We have come so far, yet we have a ways to go: Commentary on Agran et al. (2018). *Research and Practice for Persons with Severe Disabilities*, *43*(2), 82-89. https://doi.org/10.1177/1540796918762493

Jackson, L., Agran, M., Lansey, K. R., Baker, D., Matthews, S., Fitzpatrick, H., Jameson, M., Ryndak D., Burnette, K., & Taub, D. (2022). Examination of contextual variables across and within different types of placement for elementary students with complex support needs. *Research and Practice for Persons with Severe Disabilities*, *47*(4), 191–208. https://doi.org/10.1177/15407969221132248

Kazdin, A. E. (1978). *History of behavior modification: Experimental foundations of contemporary research*. University Park Press.

Kleinert, H., Towles-Reeves, E., Quenemoen, R., Thurlow, M., Fluegge, L., Weseman, L., & Kerbel, A. (2015). Where students with the most significant cognitive disabilities are taught: Implications for general curriculum access. *Exceptional Children*, *81*(3), 312–328. https://doi.org/10.1177/0014402914563697

Kutlu, M. (2023). A meta-analysis of most to least prompting procedure for individuals with developmental disabilities. *Cumhuriyet International Journal of Education*, *12*(2), 477–487. https://doi.org/10.30703/cije.1221623

Krishnan, S. (2024). Reframing teacher candidates' views on disability through the writings of disabled authors. *Research and Practice for Persons with Severe Disabilities*, *49*(1), 20–35. https://doi.org/10.1177/15407969231223931

Kurth, J., Morningstar, M. E., & Kozleski, E. (2014). The persistence of highly restrictive special education placements for students with low-incidence disabilities. *Research and Practice for Students with Severe Disabilities*, *39*(3), 227–239. https://doi.org/10.1177/1540796914555580

Lansey, K. R., Jackson, L., Agran, M., Ryndak, D., & Jameson, J. M. (2024). A secondary analysis of Jackson et al. (2022): The impact of educational placement for students with complex support needs. *Research and Practice for Persons with Severe Disabilities*, *49*(3), 208–224. https://doi.org/10.1177/15407969241252360

McDonnell, J., & Hunt, P. (2014). Inclusive education and meaningful outcomes. In M. Agran, F. Brown, C. Hughes, C. Quirk, & D. Ryndak (Eds.), *Equity & full participation for individuals with severe disabilities: A vision for the future* (pp. 155–176). Paul H. Brookes Publishing.

Mills v. Board of Education of the District of Columbia, 348 F. Supp. 866 (D. D. C. 1972).

Mithaug, D. E. (1996). *Equal opportunity theory*. Sage Publications.

Mithaug, D. E., & Hanawalt, D. A. (1978). The validation of procedures to assess prevocational task preferences in retarded adults. *Journal of Applied Behavior Analysis*, *11*(1), 153–162. https://doi.org/10.1901/jaba.1978.11-153

Nietupski, J., Hamre-Nietupski, S., Clancy, P., & Veerhusen, K. (1986). Guidelines for making simulation an effective adjunct to in vivo community instruction. *Journal of the Associations for Persons with Severe Handicaps*, *11*(1), 12–18. https://doi.org/10.1177/154079698601100102

No Child Left Behind Act of 2001, Pub. L. No. 107-110, 115 Stat.1425 (2002).

PARC v. Commonwealth of Pennsylvania, 343 F. Supp. 279 (E. D. Pa. 1972).

Pennington, R. C., & Courtade, G. R. (2015). An examination of teacher and student behaviors in classrooms for students with moderate and severe intellectual disability. *Preventing School Failure: Alternative Education for Children and Youth*, *59*(1), 40–47. https://doi.org/10.1080/1045988x.2014.919141

ABOUT THE AUTHORS

Fred Spooner, Ph.D.

Fred Spooner, PhD, is Professor of Special Education at the University of North Carolina at Charlotte, where he has contributed more than 40 years of leadership in higher education. His scholarship focuses on students with extensive support needs, applied behavior analysis, alternate assessment, and access to the general education curriculum. He has authored more than 150 publications and books and directed over $10 million in research and personnel-preparation projects, leaving a substantial legacy in research, practice, and the preparation of future special education leaders.

Belva C. Collins, Ed.D.

Belva C. Collins, EdD, is Professor Emeritus at both the University of Kentucky and the University of North Carolina at Charlotte, where she also served as a department chair. Her scholarship focuses on systematic instruction and evidence-based approaches to improving academic, functional, and community outcomes for students with moderate and severe disabilities. A former special education teacher and influential teacher educator, she has shaped generations of researchers and practitioners through her scholarship, mentorship, and widely used texts on systematic instruction.

Martin Agran, Ph.D.

Dr. Martin Agran is Professor Emeritus of Special Education at the University of Wyoming and a nationally recognized scholar in the education of students with extensive support needs. His research has focused extensively on self-determination, inclusive education, transition services, and evidence-based practices for individuals with intellectual and developmental disabilities. Dr. Agran has authored or co-authored numerous books and scholarly publications and previously served as Editor-in-Chief of Research and Practice for Persons with Severe Disabilities. Throughout his distinguished career, he has made foundational contributions to advancing educational opportunities and outcomes for students with disabilities.

Olson A., Leko M. M., & Roberts C. A. (2016). Providing students with severe disabilities access to the general education curriculum. *Research and Practice for Persons with Severe Disabilities*, *41*(3), 143–157. https://doi.org/10.1177/1540796916651975

Ruppar, A. L., Allcock, H., & Gonsier-Gerdin, J. (2017). Ecological factors affecting access to general education content and contexts for students with significant disabilities. *Remedial and Special Education*, *38(1*), 53–63. https://doi.org/10.1177/0741932516646856

Shepley, C., Lane, J. D., & Ault, M. J. (2018). A review and critical examination of the system of least prompts. *Remedial and Special Education*, *40*(5), 313–327. https://doi.org/10.1177/07419325177512

Shogren, K. A. (2013). A social-ecological analysis of the self-determination literature. *Intellectual and Developmental Disabilities*, *51*(6), 496–511. https://doi.org/10.1352/1934-9556-51.6.496

Shogren, K. A., Burke, K. M., Antosh, A., Wehmeyer, M. L., LaPlante, T., Shaw, L. A., & Raley, S. (2019). Impact of the self-determined learning model of instruction on self-determination and goal attainment in adolescents with intellectual disability. *Journal of Disability Policy Studies*, *30*(1), 22–34. https://doi.org/10.1177/1044207318792178

Shogren, K., & Raley, S. (2022). *Self-determination and causal agency theory*. Springer.

Smith T., & Eikeseth, S. O. (2011). Ivar Lovaas: Pioneer of applied behavior analysis and intervention for children with autism. *Journal of Autism and Developmental Disorders*, *41(3)*, 375–378. https://doi.org/10.1007/s10803-010-1162-0

Sontag, E., Burke, P. J., & York, R. (1973). Considerations for serving the severely handicapped in the public schools. *Education and Training of the Mentally Retarded*, *8*(2), 20–26. https://doi.org/10.1177/001312377300800205

Sontag, E., & Haring, N. G. (1996). The professionalism of teaching and learning for children with severe disabilities: The creation of TASH. *The Journal of The Association for Persons with Severe Handicaps*, *21*(1), 39–45. https://doi.org/10.1177/154079699602100107

Spooner, F., & Browder, D. M. (2015). Raising the bar: Significant advances and future needs for promoting learning for students with severe disabilities. *Remedial and Special Education*, *36*(1), 28–32. https://doi.org/10.1177/0741932514555022

Spooner, F., Knight, V., Browder, D. M., Jimenez, B., & DiBiase, W. (2011). Evaluating evidence-based practice in teaching science content to students with severe developmental disabilities. *Research and Practice for Persons with Severe Disabilities*, *36*(1–2), 62–75. https://doi.org/10.2511/rpsd.36.1-2.62

Spooner, F., McKissick, B., Hudson, M., & Browder, D. (2014). Access to the general education curriculum in general education classes. In M. Agran, F. Brown, C. Hughes, C. Quirk, & D. Ryndak D. (Eds.), *Equity and full participation for individuals with severe disabilities: A vision for the future (*pp. 217–234). Paul H. Brookes Publishing.

Tekin-Iftar, E., Ault, M. J., Collins, B. C., Olcay-Gul, S., Dagirmenci, D., & Aydin, O. (2023). A meta-analysis of the graduated guidance procedure. *The Journal of Special Education*, *58*(2), 76–87. https://doi.org/10.1177/00224669231200461

Tekin-Iftar, E., Collins, B. C., Spooner, F., & Olcay-Gul, S. (2017). Coaching teachers to use a simultaneous prompting procedure to teach core content to students with autism. *Teacher Education and Special Education*, *40*(3), 225-245. https://doi.org/10.1177/0888406417703751

Tekin-Iftar, E., Olcay-Gul, S., & Collins, B. C. (2018). Descriptive analysis and meta analysis of studies investigating the effectiveness of the simultaneous prompting procedure. *Exceptional Children*, *85*(3), 309–328. https://doi.org/10.1177/0014402918795702

Travers, H. E., & Carter, E. W. (2022). How do peers benefit from peer-mediated interventions? Examining impact within secondary and postsecondary programs. *Research and Practice for Persons with Severe Disabilities*, *47*(2), 72-89. https://doi.org/10.1177/15407969221093380

Towles-Reeves, E., Kleinert, H., & Muhomba, M. (2009). Alternate assessment: Have we learned anything new? *Exceptional Children*, *75*(2), 233–252. https://doi.org/10.1177/0014402909075002

Washington, B. H., Hughes, C., & Cosgriff, J. C. (2012). High-poverty youth: Self-determination and involvement in educational planning. *Career Development and Transition for Exceptional Individuals*, *35*(1), 14–28. https://doi.org/10.1177/0885728811420135

Wehmeyer, M. (2013). *The story of intellectual disability: An evolution of meaning, understanding, and public perception*. Paul H. Brookes Publishing.

Wehmeyer, M. (2014). Disability in the 21st century: Seeking a future of equity and full participation. In M. Agran, F. Brown, C. Hughes, C. Quirk, & D. Ryndak (Eds.), *Equity & full participation for individuals with severe disabilities: A vision for the future* (pp. 3–24). Paul H. Brookes Publishing.

Wolfensberger, W. (1972). *The principle of normalization in human services*. National Institute on Mental Retardation.

Building Quality and Accountability: A Historical Analysis of Innovation in Early Childhood Special Education and Early Intervention

AUTHORS
Christan R. Pankiewicz
Erin E. Barton

Journal of Special Education Preparation
6(2), 105-113
© 2026 Pankiewicz and Barton
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/86rrc79y

ABSTRACT

We examine major innovations that have shaped early childhood special education and early intervention over the past 50 years. Framed within a historical perspective of federal legislation, professional standards, and evolving preparation systems, we trace how the field has moved from access-focused mandates to an emphasis on quality, accountability, and child and family outcomes. Key innovations are highlighted, including family-centered practices, the integration of evidence-based practices, embedded instruction within natural routines, and the systematic use of data-based decision making. Attention is given to procedural fidelity and the role of fidelity measures as tools for educator reflection, professional growth, and continuous improvement rather than compliance alone. We also explore the influence of professional organizations, advances in personnel preparation, and the expansion of professional development systems that support high-quality implementation. Implications are discussed for teacher candidates, practitioners, and faculty committed to sustaining and advancing the field in ways that enhance outcomes for young children with disabilities and their families.

KEYWORDS

Early childhood special education, early intervention, evidence-based practices, IDEA, family-centered practice

In this article, we offer a 50-year reflection on the evolution of the field to illuminate how federal law, empirical research, professional organizations, and preparation systems have shaped contemporary practice. By tracing this trajectory, we position teacher candidates and practitioners working within early intervention (EI) and early childhood special education (ECSE) not only as learners of the field, but as active stewards of its ongoing advancement. Equally important is recognition of the diverse systems and children served within EI and ECSE. Services span multiple delivery systems and funding streams and address the needs of infants, toddlers, and young children with a wide range of developmental delays and disabilities. Practice is shaped by intersecting federal agencies, state infrastructures, accrediting bodies, and professional standards. Understanding this complex ecosystem is essential for professionals who must navigate policy, collaborate across disciplines, and implement evidence-based practices within dynamic and evolving systems.

Reflection on the field's evolution must begin with the federal legislation that fundamentally transformed access, accountability, and professional responsibility. The Individuals with Disabilities Education Act (IDEA) and its legislative predecessors established not only the right to services, but also the structural and ethical foundation upon which EI and ECSE systems continue to operate. Across five decades, IDEA has evolved through reauthorizations and amendments that reflect shifting national priorities, expanding definitions of equity, and increasing expectations for evidence-based practice and outcomes.

The following section traces these IDEA milestones from 1975 to the present, highlighting how each legislative shift reshaped systems, clarified professional roles, and deepened our collective responsibility to children and families.

TABLE 2: Innovations in ECSE and EI

Innovation	Why It Emerged	What It Looks Like in Practice	What It Changed
Family-centered practice	Family rights and meaningful participation	Family concerns, priorities, hopes, and routines guide IFSP and IEP planning and service delivery	Families became partners and primary decision-makers
Evidence-based practice	Need for effective intervention and improved outcomes	Professionals use research, standards, assessment data, family priorities, and professional judgment to select and adapt practices	Research increasingly guided instruction and intervention
Embedded intervention	Natural and inclusive environments	Systematic learning opportunities are embedded within everyday routines, activities, materials, and relationships	Learning moved from isolated sessions into meaningful routines
Coaching	Persistent research-to-practice and implementation gaps	Coaches use observation, modeling, reflection, and specific, affirmative, and suggestive performance feedback	Professional development shifted from one-time training toward ongoing, job-embedded support
Procedural fidelity	Need to understand whether practices are implemented as designed	Educators, practitioners, and families use fidelity tools to reflect on implementation and identify needed supports or adaptations	Fidelity became a tool for professional inquiry and continuous improvement rather than compliance alone
Data systems and accountability	Increased focus on measurable child and family outcomes	Teams review child outcome and implementation data to determine whether intervention is sufficient and effective	Systems shifted from procedural compliance toward results-driven accountability and data-based decision making

Key milestones in the evolution of the IDEA from 1975 to the present have progressively strengthened the rights of young children with disabilities and their families while shaping the systems that serve them. Beginning with Public Law 94-142 (1975), children gained the foundational right to a free appropriate public education (FAPE) in the least restrictive environment (LRE). A major expansion came with the 1986 amendments (PL 99-457), which established early intervention services for infants and toddlers with disabilities (birth–2) under what is now Part C and created incentives for states to serve preschoolers with disabilities (ages 3–5), emphasizing family-centered services and services in natural environments. The 1990 reauthorization formally named IDEA and reinforced transition planning from early intervention to preschool. Subsequent reauthorizations in 1997 and 2004 strengthened inclusion, accountability, access to the general curriculum, functional and developmental outcomes, and the use of evidence-based practices, while elevating the role of families as partners and decision-makers. Complementing these statutory advances, the joint U.S. Department of Education and U.S. Department of Health and Human Services (2023) policy statements on the inclusion of young children with disabilities reaffirmed inclusion as a civil right and a defining feature of high-quality early childhood systems, emphasizing access, participation, and supports within everyday early learning environments. Across these milestones, IDEA has increasingly centered early identification, inclusive participation, coordinated services, and smooth transitions—advancing a vision in which young children with disabilities and their families are supported early, holistically, and within their everyday routines and communities.

MAJOR ADVANCES AND PRACTICE-CHANGING INNOVATIONS

While federal legislation established rights and structures, it was the evolution of practice that translated policy into lived experiences for children and families. Several practice innovations have fundamentally altered how ECSE and EI professionals conceptualize their roles, relationships, and responsibilities (see Table 1). These include family-centered practice; evidence-based and embedded intervention approaches; fidelity and coaching infrastructures; data systems and accountability; and workforce preparation and professional leadership.

Family-Centered Practice

First, family-centered practice represents one of the most significant conceptual and practical shifts in ECSE over the last 50 years. The Individualized Family Service Plan (IFSP) codified families as partners in decision-making rather than passive recipients of services. Over time, the field moved from "parent training" models toward capacity-building approaches that recognize families and caregivers as primary intervention agents within children's everyday routines and as primary decision-makers. Additionally, best practice aligns with caregiver implementation and decision making, and family collaboration in ways that are responsive to the uniqueness of each family through models such as Family Guided Routines Based Intervention (FGRBI, n.d.). Family-centered

practice aligns with both developmental science and legal mandate (Dunst, 2002; IDEA, 2004). It reflects a recognition that outcomes for young children are inseparable from the contexts in which they live, learn, and play. For ECSE and EI professionals this means partnership is a professional stance, not an add-on.

Family partnership models draw upon IDEA's mandate for meaningful parent participation and collaborative decision making and should be evident in both IFSP and IEP program planning and service delivery. During program planning, it is imperative to incorporate family voice by asking questions such as (a) "What are your hopes and dreams for your child?" (b) "If your child could _____, it would change your life forever." And/or (c) "What are your concerns and priorities?" Family responses to these questions or other similar questions should guide program planning and be apparent within outcomes and goals identified to ensure family-centered practice. During service delivery it is important to revisit family concerns and priorities on an ongoing basis, and ensure families are active participants as they are the individuals spending the most time with their children and the individuals who know their children best. Revisiting family concerns might look like educators asking questions like, "I know one of your priorities has been for Julio to walk. Last time we met you said Julio is starting to navigate the environment by pulling to stand. How has that been going since we met last?" Active participation can look like providing families opportunities to share information and try strategies you have identified together to work toward goals or outcomes within the program plan. Checking in with them to see how they feel and determining whether any changes might be needed is also important. It is also important to identify a mode of communication (e.g., notes, phone, email, text) that works well for the family to ensure a communication system is identified hat supports ongoing, bidirectional communication.

Innovation in Action: Family Voice in Action

During an IFSP meeting, the early interventionist asks Julio's family, "What would make the biggest difference in your daily life?" Julio's family shares that their greatest priority is for him to walk to navigate his environment because he is becoming heavy to carry. Together, the family and team develop a functional outcome focused on Julio independently taking steps during everyday routines.

Evidence-Based Practice as a Legal and Ethical Imperative in ECSE

As educators partner with families in program planning and service delivery, it is important to remember the growing emphasis on evidence-based practice, ensuring that these partnerships are grounded in scientifically based practices designed to promote improved child and family outcomes. ECSE and EI, like the broader field of special education, carries both an ethical and legal responsibility to implement practices identified as evidence based. This obligation is not optional or aspirational; it is embedded within the structure of IDEA, which emphasizes scientifically based instructional practices and measurable outcomes. The urgency of this responsibility is amplified in early childhood. Earlier access to effective intervention improves developmental trajectories (Guralnick, 2011; Shonkoff et al., 2000). Children cannot benefit from practices they do not receive. Thus, timely access to effective, evidence-based intervention is not merely a matter of professional competence—it is a matter of equity.

It is important to note that in some contemporary discourse, social justice and evidence-based practice are framed as competing priorities. However, many scholars have argued persuasively that evidence-based practice itself is a form of social justice (Wahman et al., 2023). Ensuring that children with disabilities have access to the strongest available evidence for promoting developmental outcomes reflects a commitment to fairness, opportunity, and human dignity. From this perspective, withholding evidence-based practices—or failing to implement them with quality—constitutes an inequity. Some contemporary discourse suggests that evidence-based practice limits professional creativity and autonomy. Although evidence-based practices are supported by research, professional judgment remains essential for selecting, adapting, and implementing those practices in ways that respond to the unique needs of learners, families, and contexts.

With the best of intentions, educators often rely upon non-scientific sources to guide their practice. This can lead to further increasing the research to practice gap, and ultimately, children not receiving practices rooted in evidence. For this reason, identifying where evidence can be found, how it can be consumed, and how it can move from knowledge into practice is important in ensuring use of evidence-based practices (Coogle et al., 2025).

Innovation in Action: Choosing Evidence Over Convenience

In partnership with Julio's family, the early interventionist identifies evidence-based motor interventions that can support Julio's ability to take steps and navigate his environment. Rather than selecting strategies based on convenience or non-scientific sources, the interventionist uses the strongest available evidence, professional standards, assessment data, and the family's priorities to guide intervention planning.

Embedded Interventions: Aligning Law, Research, and Natural Environments

Of importance is not only *what* practices are effective, but *how* those practices can be delivered in ways that honor developmental science and federal mandates. Over the past fifty years, one of the clearest lessons in ECSE and EI has been that effective intervention aligns with both federal law and developmental science. IDEA emphasizes services delivered in natural and inclusive environments. Research has consistently demonstrated that practices embedded within everyday routines, materials, and relationships are particularly powerful (Pretti-Frontczak & Bricker, 2001; Snyder et al., 2015; Wolery & Hemmeter, 2011). For candidates, the key question becomes: where in daily routines can instruction happen frequently, naturally, and meaningfully?

Within ECSE and EI, these practices are often described as embedded interventions or activity-based instruction. Embedded interventions provide systematic practice opportunities aligned with individualized goals or outcomes within the child's everyday environment and with everyday partners. These interventions typically follow an antecedent–behavior–consequence (A-B-C) sequence or learning trial:

- An antecedent is a prompt or cue that creates a meaningful opportunity to practice a target skill within the goal or outcome.
- The behavior reflects the child's attempt or approximation of the outcome or a response.
- A consequence strengthens, weakens, or otherwise affects future behavior.

The strength of learning trials within embedded interventions lies in their ecological validity. They are designed to occur within natural routines and inclusive settings and can promote generalization and maintenance when implemented intentionally and systematically.

Given the demonstrated effectiveness of embedded interventions, it is essential that their implementation be intentional and systematically designed to support meaningful child learning. Effective embedded intervention begins with well-developed, developmentally appropriate goals or outcomes that are aligned with multiple sources and types of assessment data (e.g., family priorities, authentic, observation, formal). Goal (ECSE) or outcome (EI) selection should be conducted in partnership with families and focus on functional skills that enhance children's participation across settings and those that support lifelong social and academic outcomes. Families are primary experts regarding their children and are critical intervention agents.

Once goals (ECSE) or outcomes (EI) are identified, educators and practitioners—working in partnership with families and caregivers—should examine the child's everyday routines and the people with whom the child regularly interacts. Learning opportunities are then intentionally planned within and across naturally occurring activities and aligned with the identified goals or outcomes to increase the frequency of practice and support maintenance and generalization across environments and partners. Within these routines, learning trials are purposefully embedded and must be thoughtfully planned and designed to be both sufficient and effective. Antecedents should be directly connected to the targeted goals or outcomes and integrated into authentic interactions so that learning is meaningful rather than artificial. This approach differs from isolated discrete-trial instruction; instead, learning opportunities follow the child's lead and interests and occur within everyday routines and interactions with familiar people. This process is used across both EI and ECSE systems with the distinguishing factors including the setting and people with whom the child is interacting, and the processes used to support implementation.

Finally, progress monitoring is essential. Practitioners should collect and use data to determine whether learning opportunities are producing meaningful progress and make ongoing adaptations to instruction as needed. Progress monitoring involves regularly collecting and using data to evaluate child outcomes. Data will show how the child is responding to learning opportunities and if learning opportunities are sufficient and effective so that adaptations can be made as needed. Systematic progress monitoring allows teams to determine whether instructional adjustments are necessary to ensure continued growth.

Innovation in Action: Learning During Everyday Routines

During transitions between meals, bath time, and outdoor play, Julio's mother creates opportunities for him to take several supported steps toward a preferred person, toy, or activity. When Julio attempts to step, she provides the agreed-upon support and encouragement. Rather than scheduling isolated practice, the family embeds repeated learning opportunities within the routines and environments that are already meaningful to Julio.

Procedural Fidelity: From Access to Quality

Over the past five decades, it has become clear that identifying effective practices is insufficient without attention to implementation quality including data-based decision making. Fidelity—the extent to which an intervention is delivered as designed—has therefore emerged as a core construct in both research and practice. Child outcome data alone are inadequate to evaluate effectiveness. Without fidelity data, it is not possible to determine whether child progress (or lack

thereof) reflects the intervention itself or variability in its implementation. Fidelity data also serve as a foundation for coaching, guiding goal setting, performance feedback, and ongoing refinement of practitioner supports. Together, fidelity and child outcome data enable more accurate interpretation of progress monitoring and support data-based adjustments to instruction and intervention and guide coaching.

The growing emphasis on fidelity reflects an advancement of the field. We have moved beyond asking, *"Does this practice work?"* to also asking, *"Is this practice being delivered as designed?"* This shift mirrors IDEA's evolution from access-focused mandates toward accountability for results. At times, fidelity has been portrayed as a *pitfall*—suggested to constrain educator or practitioner autonomy or diminish their voice. We contend that such critiques often stem from misunderstandings of the purpose of fidelity measurement or from instances in which fidelity systems are imposed without collaboration. Fidelity was not designed to function as surveillance or compliance monitoring. Fidelity data are a mechanism for professional inquiry, continuous reflection, and improvement. When used as intended, fidelity data inform data-based decision making and support responsive adaptations, allowing implementation to remain flexible while guided by both quantitative and qualitative evidence.

When implemented as intended, fidelity tools are developed, adapted, and interpreted by educators or practitioners themselves. They provide educators and practitioners with actionable data to support data-based decision-making, refine instructional delivery, and interpret child progress more accurately. Fidelity measurement strengthens—rather than diminishes—professional agency by equipping educators and practitioners with information necessary to align their observations, intentions, and instructional practices. In this way, fidelity is not antithetical to educator or practitioner expertise; it is an extension of it. For example, fidelity tools might be used to determine whether behavioral and academic intervention plans are implemented as intended and, when they are not, to prompt reflection on barriers to implementation. This process helps educators and practitioners ensure that selected evidence-based interventions are both appropriate and feasible. When fidelity data indicate that implementation is as designed, focus shifts to child outcomes. If progress is limited, data guide reflection and inform adjustments to instructional strategies, intervention intensity, or supports to better align with the child's needs.

Innovation in Action: Using Fidelity to Improve Practice

Progress-monitoring data show that Julio is making limited progress toward independently taking steps. Before changing the intervention, the family and early interventionist review fidelity data and realize that practice opportunities are occurring only once or twice each day rather than across several routines as planned. Together, they identify routines in which additional opportunities can be embedded and continue monitoring both implementation and Julio's progress.

Coaching as Infrastructure for Implementation

Recognizing fidelity as essential has shifted the field from asking why practices are not used to examining what systems must provide to support sustained, high-quality implementation. Educators and practitioners often need ongoing supports to build and maintain implementation over time. Ensuring fidelity of implementation remains a persistent challenge in ECSE and EI. Workforce shortages, limited preparation in specific evidence-based practices, high turnover, and systemic capacity constraints all influence the consistency with which practices are delivered.

Professional development is a way in which systems have attempted to address issues surrounding fidelity. Professional development has often been implemented as a one-size-fits-all approach. Although one-day trainings may be effective for information sharing, they are generally ineffective in transforming practice. For this reason, ongoing, job-embedded coaching as part of the professional development system has been identified the most effective and efficient way to share information and support ongoing practice change. Consistent with IDEA's emphasis on effective implementation, the field acknowledges that educators and practitioners need differentiated supports to enact evidence-based practices with fidelity. The literature provides a menu of coaching and implementation models that systems can leverage and scale in ways that are responsive to their infrastructure and workforce capacity.

Ongoing, job-embedded coaching has demonstrated effectiveness in both preparation and induction contexts (Barton et al., 2020; Coogle et al., 2017; Snyder, Hemmeter, & Fox, 2015). While coaching models vary, a consistent feature across approaches is performance-based feedback. Feedback that is specific, affirmative, and suggestive has been shown to improve educator and practitioner implementation (Artman-Meeker et al., 2015; Scheeler et al., 2004).

Research has examined multiple delivery formats for coaching, including (Coogle et al., 2022, 2024):

- Face-to-face coaching
- Delayed technology-enhanced feedback
- Immediate technology-enhanced feedback

Studies have also explored diverse coaching agents, including researchers, supervisors, and peers (Coogle et al., 2024). This body of research provides the field with a flexible menu of options related to supporting implementation of practice across varied service contexts. The significance of coaching in a 50-year reflection is this: the law established the right to services; research identified effective practices; implementation science—and particularly coaching—provides the mechanism through which those rights and practices become lived realities for children and families.

Innovation in Action: Performance Feedback in Action

During a home visit, the early interventionist observes Julio's mother supporting him as he moves between play and mealtime. Together, they identify strengths, including following Julio's lead and using motivating activities, and identify one strategy to strengthen: pausing to allow Julio time to initiate a step before providing assistance. The early interventionist models the strategy, observes Julio's mother trying it, and provides specific, affirmative, and suggestive feedback.

Putting It All Together: A Practice Vignette in EI

This example illustrates how the major innovations that have transformed ECSE and EI over the past 50 years operate as an integrated system of practice: family-centered planning, evidence-based intervention, learning opportunities embedded within natural routines, caregiver coaching, fidelity of implementation, and ongoing data-based decision making to improve child and family outcomes.

During an IFSP meeting, Julio's family shares that their greatest priority is for Julio (24 months) to walk to navigate his environment because he is becoming heavy to carry. Together, the family and early interventionist develop a functional outcome centered on Julio independently taking steps to navigate his environment during everyday routines. Rather than scheduling isolated therapy, the early interventionist partners with Julio's mother and sister to identify naturally occurring opportunities during transitions between meals, bath time, and outdoor play where taking steps can be intentionally embedded. During each home visit, the early interventionist models embedded, evidence-based strategies, observes the caregiver implementing them, provides specific performance feedback, and collaborates on refinements based on Julio's responses. Data collected across routines show steady increases in motor development while fidelity data indicate the caregiver is consistently implementing the agreed-upon strategies. As Julio's skills improve, the team adapts the intervention by increasing expectations and expanding opportunities across home and community settings. This single example illustrates many of the innovations that have transformed ECSE and EI over the past 50 years: family-centered planning, evidence-based practice, intervention embedded within natural routines, caregiver coaching, fidelity of implementation, and ongoing data-based decision making to improve child and family outcomes.

Accountability, Data Systems, and Results-Driven Accountability

As practice matured, federal accountability systems simultaneously evolved to measure whether these efforts were producing meaningful results. The increased emphasis on accountability in IDEA reauthorizations introduced state performance planning, child outcomes measurement, and Results-Driven Accountability. These systems shifted the focus from procedural compliance to measurable results for children and families. Child Outcomes Summary (COS) processes and State Systemic Improvement Plans (SSIPs) reflect this evolution toward continuous improvement and data-informed decision-making.

Innovation in Action: Letting Data Guide Decisions

Data collected across routines show that Julio is increasingly taking steps inside the home but is not yet using the skill during outdoor or community activities. Rather than continuing the same intervention in the same routines, the family and early interventionist identify additional opportunities for Julio to practice on the porch, in the yard, and when moving toward family members in community settings.

Workforce and Preparation Innovation

Yet accountability systems alone cannot improve outcomes; they depend on a prepared and supported workforce capable of translating data into action. Workforce challenges represent one of the most pressing concerns in EI and ECSE. Indeed, EI and ECSE are among systems with the greatest national shortages. Traditional preparation pathways remain critical; however, alternative certification and licensure routes are growing to include competency-based models and micro credentialing in response to shortages and evolving service demands.

Professional Leadership and Organizational Milestones

Beyond federal law and preparation programs, professional organizations have played a key role in shaping the field's identity and direction. A major professional force shaping ECSE's identity and direction has been the Division for Early Childhood (DEC), established in 1973 as a division of the Council for Exceptional Children (CEC). DEC focuses on "advancing equity and supporting families, young

children with or at risk for developmental delays and disabilities, and those who care for and educate them" (DEC, 2023). One way in which DEC engages in its mission is through the development and dissemination of resources to support educators and practitioners serving children ages birth to eight and their families. These resources include recommended practices, personnel preparation standards, racial equity positions, and formal position statements.

DEC Recommended Practices

Among DEC's most influential contributions is the articulation of practices that translate principles into observable professional action. The Division for Early Childhood Recommended Practices (DEC RPs, 2014) provide an essential bridge between policy, research, and everyday professional practice by identifying evidence-based actions that support the learning, development, and inclusion of young children with or at risk for disabilities. First introduced in the 1990s and periodically revised to reflect advances in research, policy, and implementation science, the DEC RPs have evolved alongside the field's growing emphasis on inclusion, family partnership, cultural and linguistic responsiveness, and systems-level supports, with the most recent comprehensive update released in 2014. Organized across key topical areas—leadership, assessment, environment, family, instruction, interaction, teaming and collaboration, and transition—the DEC RPs translate foundational principles from IDEA and the EI/ECSE standards into observable, actionable practices that can be implemented across early intervention, preschool, and early elementary settings. Grounded in family partnership, inclusive participation, cultural and linguistic responsiveness, and data-informed decision making, the DEC RPs emphasize what professionals do in partnership with families and colleagues to create meaningful access, engagement, and learning within natural and inclusive environments. For teacher candidates, the RPs offer a practical and enduring framework for linking knowledge to action, reinforcing the field's commitment to equity, relationship-based practice, and improved developmental and social-emotional outcomes for young children and their families.

Racial Equity Point of View

As the field matured, attention expanded beyond practice quality alone to examine whose voices are centered and whose outcomes are prioritized. DEC has developed, disseminated, and embedded the Racial Equity Point of View (RE POV) to "dismantle disparities and advance racial equity within its culture and work" (DEC, 2023). DEC's RE POV identifies intentional practices to address policies, systems, and structures to ensure commitment to positive outcomes for people of color. This document provides a rationale along with actionable guidance for centering racial equity across organizational leadership, research, publications, conferences, and products.

Position Statements

In addition to equity commitments, DEC has provided formal guidance across emerging and complex areas of practice through a series of position statements. Position statements are designed to provide guidance for educators and practitioners across critical topics such as multi-tiered systems of support, personnel standards, and inclusive practices. These statements can be used to inform program policies, guide professional development and coaching efforts, support alignment with recommended practices, and anchor data-based decision making at the classroom, program, and systems levels.

Preparation and Professional Development

Reflecting on these milestones prompts a forward-looking question: How can this history inform the field of ECSE and EI, so it is positioned to continue to advance? One way to ensure advancement is through preparation and professional development. Preparation has traditionally occurred within higher education settings—whether face-to-face or virtual—while authentic application unfolds in community programs and schools. This separation can result in fragmented learning experiences and competing interpretations of best practice. Strengthening intentional, reciprocal partnerships between preparation programs and practice contexts offers a pathway toward greater coherence, fidelity of implementation, and improved outcomes for children and families.

Interdisciplinary Preparation

The evolution of ECSE and EI over the past fifty years suggests that sustainable impact requires alignment among law, research, preparation, and systems infrastructure. As professional learning evolved, so too did recognition that effective service delivery and attainment of child goals and outcomes depend on collaboration across disciplines (Murphy et al., 2025). IDEA emphasizes the need for teaming and collaboration across disciplines in partnership with families in developing service plans and implementing intervention (Yell & Bateman, 2025). Preparation programs must emphasize implementation competence, professional development should include job-embedded support and performance feedback, and interdisciplinary collaboration must be structured rather than incidental (Murphy et al., 2025). In many ways, EI and ECSE often operate in disciplinary silo and there is a need for more interpersonal collaboration to enhance child and family outcomes (Murphy et al., 2025).

ABOUT THE AUTHORS

Christan Pankiewicz, Ph.D.

Christan Pankiewicz (Coogle), PhD, BCBA, is Professor of Special Education at George Mason University and a former early interventionist and special educator. Her scholarship focuses on supporting the feasible, meaningful, and sustained implementation of evidence-based practices in early childhood special education and early intervention settings. She has authored more than 60 publications and book chapters, including a book on early childhood special education, and serves as Co-Editor of Young Exceptional Children and in editorial leadership roles for several journals.

Erin E. Barton, Ph.D.

Erin E. Barton, PhD, BCBA-D, is an international educational consultant and Faculty and Director of Research and Development for the Pyramid Model Consortium. Her scholarship focuses on evidence-based practices for young children, high-quality inclusion, and professional development and implementation systems that support children, families, and practitioners. The author of more than 120 peer-reviewed publications and several textbooks, she is Editor of Topics in Early Childhood Special Education and a Past President of the Council for Exceptional Children's Division for Early Childhood.

EI/ECSE Preparation Standards

Preparation standards serve as the connective tissue between policy expectations and professional competence. The DEC Early Intervention/Early Childhood Special Education (EI/ECSE) Personnel Preparation Standards (2020) articulate the foundational knowledge and skills expected of professionals serving young children (birth–8) with or at risk for developmental delays and disabilities. Organized across seven domains—child development and early learning, partnering with families, collaboration and teaming, assessment processes, application of curriculum frameworks, responsive and reciprocal interactions and instruction, and professionalism and ethical practice—the standards provide a coherent framework for preparing candidates to support positive developmental and learning outcomes. In writing for teacher candidates, these standards offer an opportunity not only to communicate expectations, but to celebrate the field's collective accomplishments in advancing inclusive, family-centered, and evidence-based practice. Faculty are encouraged to integrate this work within preparation programs, so candidates see themselves as part of an evolving professional community grounded in reflection, equity, and partnership. Importantly, this perspective is aspirational rather than predictive—highlighting enduring principles and commitments so the work remains relevant and generative for future educators and practitioners, rather than bound to momentary trends or at risk of becoming obsolete.

Preparation, however, does not end at graduation; it extends into sustained professional learning across the career span. The history of professional development in EI/ECSE reflects a shift from compliance-driven training toward sustained, practice-based, and systems-oriented capacity building. In the early years following the passage of the Education for All Handicapped Children Act (1975), professional learning largely focused on understanding legal requirements and discrete instructional strategies. With the expansion of EI under Part C of IDEA in 1986 and subsequent reauthorizations, professional development increasingly emphasized family-centered practice, service delivery in natural and inclusive environments, and interdisciplinary teaming. As previously described, the field has moved beyond one-time workshops toward ongoing coaching, reflective supervision, and data-informed improvement cycles, influenced by implementation science and frameworks such as practice-based coaching and competency-based personnel preparation. More recent approaches situate professional development within broader systems of support—linking leadership, fidelity, equity, and child and family outcomes—so that learning is embedded in daily practice rather than treated as an isolated event. This evolution underscores a central lesson for teacher candidates and faculty alike: high-quality services for young children depend not only on what professionals know, but on how systems invest in sustained, relational, and equity-driven professional growth.

A 50-Year Arc: From Entitlement to Implementation

Taken together, these developments reveal a clear trajectory in the field's evolution. Over the last five decades, ECSE has progressed along a discernible trajectory:

- Entitlement — securing the legal right to early intervention and preschool services.
- Inclusion and Natural Environments — ensuring participation in everyday settings.
- Evidence-Based Practice — identifying interventions that produce measurable outcomes.

- Fidelity and Coaching — building systems that ensure those interventions are delivered effectively.

The next era of ECSE and EI will likely hinge less on new statutory language and more on strengthening the infrastructure that supports high-quality implementation. Evidence-based practice, delivered with fidelity in natural and inclusive environments, represents not only best practice—but the realization of the law's original promise.

Forward-looking Recommendations to Inspire the Next Fifty Years

Understanding this trajectory allows us to look ahead—not to predict the future, but to articulate the commitments that should guide it. As ECSE enters its next era, the central question is not whether effective practices exist—but whether systems are equipped to ensure equitable access to high-quality implementation. Strengthening preparation pathways, embedding coaching infrastructures, advancing racial equity commitments, and aligning accountability systems with meaningful child outcomes will determine whether the promise of IDEA continues to be realized for future generations. For professionals entering the field, this history is not merely retrospective; it is an invitation to participate in the ongoing work of refining, strengthening, and advancing ECSE and EI in ways that remain grounded in evidence, partnership, and progress.

REFERENCES

Artman-Meeker, K., Fettig, A., Barton, E. E., Penney, A., & Zeng, S. (2015). Applying an evidence-based framework to the early childhood coaching literature. *Topics in Early Childhood Special Education*, *35*(3), 183–196. https://doi.org/10.1177/0271121415595550

Barton, E. E., Velez, M., Pokorski, E. A., & Domingo, M. (2020). The effects of email performance-based feedback delivered to teaching teams: A systematic replication. *Journal of Early Intervention*, *42*(2), 143–162. https://doi.org/10.1177/1053815119872451

Coogle, C. G., Nagro, S. A., Regan, K., O'Brien, K. M., & Ottley, J. R. (2022). The impact of real-time feedback and video analysis on early childhood teachers' practice. *Topics in Early Childhood Special Education, 41(4), 280–293.* https://doi.org/10.1177/0271121419857142

Coogle, C. G., Ottley, J. R., Storie, S., Rahn, N. L., & Burt, A. K. (2017). eCoaching to enhance special educator practice and child outcomes. *Infants & Young Children*, *30*(1), 58–75. https://doi.org/10.1097/IYC.0000000000000082

Coogle, C. G., Storie, S. O., Wade, C. B., Nagro, S. A., & Mitchem, K. (2024). The development of technology-enhanced performance-based peer feedback to support teacher candidate practice and child outcomes. *Journal of Special Education Technology, 39(1), 15–26.* https://doi.org/10.1177/01626434231172914

Coogle, C. G., Tuck, K. N., Lane, J. D., & Riggleman, S. (2025). Searching for gold: How to find good evidence and resources for your practice? *Young Exceptional Children*, *28*(2), 111–125. https://doi.org/10.1177/10962506251322131

Division for Early Childhood. (2014). *DEC recommended practices in early intervention/early childhood special education 2014*. https://www.dec-sped.org/dec-recommended-practices

Division for Early Childhood. (2020). *DEC early intervention/early childhood special education personnel preparation standards*. https://www.dec-sped.org/ei-ecse-standards

Division for Early Childhood (DEC). (2023). *Racial equity point of view*. https://divisionearlychildhood.egnyte.com/dl/GPVEY6LbYW

Education for All Handicapped Children Act of 1975, Pub. L. No. 94-142, 89 Stat. 773 (1975).

Education of the Handicapped Act Amendments of 1986, Pub. L. No. 99-457, 100 Stat. 1145 (1986).

Dunst, C. J. (2002). Family-centered practices: *Birth through high school. Journal of Special Education, 36*(3), 66–80. https://doi.org/10.1177/00224669020360030401

Family Guided Routines Based Intervention (FGRBI) & Caregiver Coaching. (n.d.). FGRBI. http://fgrbi.com

Guralnick, M. J. (2011). Why early intervention works: A systems perspective. *Infants & Young Children, 24*(1), 6–28. https://doi.org/10.1097/IYC.0b013e3182002cfe

Individuals with Disabilities Education Act of 1990, Pub. L. No. 101-476, 104 Stat. 1103 (1990).

Individuals with Disabilities Education Act Amendments of 1997, Pub. L. No. 105-17, 111 Stat. 37 (1997).

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 118 Stat. 2647 (2004).

Murphy, K., Kilgo, J., & Acar, S. (2025). Interdisciplinary insights: Innovative strategies for preparing future professionals. *Journal of Special Education Preparation*, *5*(2), 18–27. https://doi.org/10.33043/p7za7zr9xs3

Pretti-Frontczak, K., & Bricker, D. (2001). Use of the embedding strategy during daily Activities by early childhood education and early childhood special education teachers. *Infant-Toddler intervention: The Transdisciplinary Journal*, *11*(2), 111–128. https://eric.ed.gov/?id=EJ629406

Scheeler, M. C., Ruhl, K. L., & McAfee, J. K. (2004). Providing performance feedback to teachers: A review. *Teacher Education and Special Education, 27*(4), 396–407. https://doi.org/10.1177/088840640402700407

Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. National Academy Press.

Snyder, P. A., Hemmeter, M. L., & Fox, L. (2015). Supporting implementation of evidence-based practices through practice-based coaching. *Topics in Early Childhood Special Education*, *35*(3), 133–143. https://doi.org/10.1177/0271121415594925

Snyder, P., Rakap, S., Hemmeter, M. L., McLaughlin, T., Sandall, S., & McLean, M. (2015). Naturalistic instructional approaches in early childhood special education. *Journal of Early Intervention, 37*(1), 69–85. https://doi.org/10.1177/1053815115595461

U.S. Department of Education & U.S. Department of Health and Human Services. (2023). *Policy statement on inclusion of children with disabilities in early childhood programs (updated)*. https://sites.ed.gov/idea/idea-files/policy-statement-inclusion-of-children-with-disabilities-in-early-childhood-programs/

Wahman, C. L., Fettig, A., & Zimmerman, K. (2023). *Social and emotional intervention research as justice: A case for accountability. Remedial and Special Education, 44*(5), 423–438. https://doi.org/10.1177/07419325221143761

Wolery, M., & Hemmeter, M. L. (2011). Classwide embedded instruction in early childhood settings. *Topics in Early Childhood Special Education, 31*(1), 3–13. https://doi.org/10.1177/0271121410379292

Yell, M., & Bateman, D. (2025). The critical nature of collaboration in special education: An analysis of the IDEA. *Journal of Educational and Psychological Consultation*, *35*(2), 156–173. https://doi.org/10.1080/10474412.2024.2391329

IDEA 50 Years Later: Technology and Teacher Preparation in Special Education

AUTHORS
Lisa A. Dieker
Sarah K. Howorth
Eleazar Vasquez III
Matthew T. Marino
James D. Basham

Journal of Special Education Preparation
6(2), 114-123
© 2026 Dieker et al.
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/pax43nx-3gka

ABSTRACT

This article reflects on the 50-year anniversary of the passage of the Individuals with Disabilities Education Act (IDEA) and the evolution of technology in special education. We examine how early assistive tools, digital and networked resources, immersive simulations, and emerging artificial intelligence (AI) have progressively influenced access, instructional design, and teacher preparation. Decades of empirical work document a shift from sporadic, tool-by-tool adoption toward purposeful integration within evidence-based instructional frameworks. Universal Design for Learning (UDL), data-based decision-making, and explicit instruction now anchor many technology-supported practices. Recent scholarship on digital competence, immersive practice environments, and accessible instructional materials reveals both momentum and missed opportunities. Preparation programs often rely on uneven faculty expertise, fragmented coursework, and weak alignment between methods, practicum experiences, and technology expectations. Teacher education must intertwine technology through program structures rather than confining it to isolated modules. Candidates need preparation to critically analyze tool quality, proactively design accessible instruction, and deploy technologies to facilitate measurable skill development rather than novelty-driven engagement. The article concludes by identifying research priorities and system-level redesign targets to position educators for classrooms shaped by AI, immersive learning systems, and rising accessibility standards.

KEYWORDS

Artificial intelligence, assistive technology, instruction, special education, universal design for learning

The Individuals with Disabilities Education Act (IDEA) reshaped the United States' educational landscape by securing a Free Appropriate Public Education (FAPE) in the least restrictive environment (LRE) and driving sustained improvements in services and outcomes for students with disabilities. Technology has extended IDEA's reach across five decades, moving from low-tech accommodations to sophisticated assistive and instructional systems, expanding access, supporting individualized instruction, and strengthening inclusive participation. This article traces technology's evolution in special education teacher preparation, synthesizes evidence on contemporary innovations, and identifies future directions as IDEA reaches its 50th anniversary. Each section of this article frames teacher preparation through guiding questions that connect historical developments to present program design and to ethically grounded technology use.

Reflective Questions

The following questions operationalize the relationship between policy, technology, and instructional practice in special education. Together, they prompt analysis of how IDEA's evolution has shaped access, innovation, and the use of data to ensure technology integration leads to meaningful and equitable student outcomes.

1. How has IDEA's policy trajectory enabled the adoption of assistive and instructional technologies?

TABLE 1: Chronological Timeline of Legislative Actions and OSEP Initiatives

Year	Legislative / Initiative	Impact on AT Inclusion
1975	Education for All Handicapped Children Act (P.L. 94-142)	Established IEPs and FAPE; set foundation for technology inclusion
1990	IDEA renamed; AT defined	Introduced AT devices and services
1997	IDEA Reauthorization (P.L. 105-17)	Required IEP teams to consider AT needs
2004	Individuals with Disabilities Education Improvement Act	Maintained AT consideration; allowed home use of AT devices
2006	Technology and Media Services for Individuals with Disabilities (OSEP)	Provided funding for accessible instructional materials and technology
2010	National Center on Accessible Educational Materials (AEM Center)	Supported states and districts in providing accessible digital materials
2012	Bookshare Expansion (OSEP Initiative)	Provided free accessible e-books for students with print disabilities
2014	Stepping Up Technology Implementation Grants (OSEP)	Funded projects to scale evidence-based technology practices in schools
2020	CIDDL (Center for Innovation in Digital Learning)	OSEP-funded center supporting teacher preparation in technology integration
2024	USDOE AT Guidance	Clarified obligations for AT funding, inclusion, and training

2. What policies had the greatest impact on equitable access?
3. What technological eras (e.g., early augmentative and alternative communication devices (AAC), mobile accessibility, AI-supported personalization) shifted classroom practice and student participation, and why?
4. What data practices (e.g., progress monitoring, MTSS) best ensure technology adoption improves individual student learning outcomes rather than just engagement?

Historical Foundations

Early assistive technologies in the 1970s and 1980s included low-tech tools (e.g., Braille, communication boards) and emerging electronic AAC prototypes. The Education for All Handicapped Children Act (Public Law 94-142) in 1975 and subsequent IDEA reauthorizations established rights, services, and funding that progressively broadened access, including early intervention (Part C of IDEA) and inclusive placement in the LRE. These policy milestones set conditions for the integration of computing, screen readers, and voice output devices in schools, leading to growth in student participation and outcomes across decades. Table 1 summarizes key statutory milestones and selected Office of Special Education Programs (OSEP) investments that shaped expectations for technology consideration, provision, and training within Individualized Education Programs (IEPs) over the past 50 years.

Research on teacher preparation began to converge on a consistent conclusion: technology improves learning only when educators align tools with instructional design, accessibility expectations, and UDL principles. Edyburn (2021) emphasized structured instructional decision-making and continuous evaluation as prerequisites for meaningful benefit. Woodward and Rieth (1997) showed technology-supported gains when teachers embedded tools within explicit, evidence-based instruction rather than as an add-on. UDL scholarship similarly centered proactive design to reduce barriers and support learner variability (Meyer et al., 2014). Rose (2013) refined the core assertion through a design critique: instruction built for an "average" learner excludes most learners. Therefore, preparation programs must help future teachers identify technology that supports individual student progress and develop the skills to use data, design accessible instruction, and deliver evidence-based, specialized instruction.

Reflective Questions

The following questions operationalize programmatic expectations for preparing candidates to use technology within IDEA-aligned practice. Together, they prompt examination of how preparation programs build, reinforce, and assess competencies in accessible design, data-informed instruction, and meaningful technology-supported access across coursework and clinical experiences.

1. Where do candidates practice applying IDEA technology requirements within an IEP meeting?
2. What is your program's minimum competence for selecting and using accessible educational materials?

3. Where is the technology competence taught, rehearsed, and assessed across experiences?
4. How does your program ensure candidates understand the difference between technology access and technology-supported access with explicit teaching and progress monitoring?

With the emergence of technology came an equal emergence of new terms. Key terms aligned with this shift are provided. Assistive technology refers to any item, equipment, or product system used to increase, maintain, or improve the functional capabilities of individuals with disabilities, as defined in federal policy under the Individuals with Disabilities Education Act (IDEA, 2004). In contrast, instructional technology is conceptualized as the theory and practice of designing, developing, utilizing, managing, and evaluating processes and resources to support learning, emphasizing systematic instructional design rather than individualized access (Januszewski & Molenda, 2008). Distinguishing these constructs is important for teacher preparation, as assistive technology centers on access and participation for learners with disabilities, whereas instructional technology focuses more broadly on how educators design and deliver effective instruction. Similarly, digital literacy and digital competence represent related but distinct constructs. Digital literacy, originally articulated by Gilster (1997), emphasizes the ability to access, evaluate, and use information in digital environments. Digital competence extends beyond these foundational skills to include the confident, critical, and responsible use of digital technologies for learning, work, and participation in society, integrating knowledge, skills, and dispositions within complex, technology-rich contexts (Vuorikari et al., 2022).

As technology became increasingly embedded within special education classrooms and legislation, policy-driven access alone was no longer sufficient to ensure meaningful student learning outcomes. Instead, effective implementation required teachers to demonstrate specific professional competencies aligned with the Council for Exceptional Children (CEC, 2020) and Interstate Teacher Assessment and Support Consortium (InTASC) standards (2013), including the ability to select and implement evidence-based instructional strategies, use technology to support explicit skill instruction, and engage in ongoing data-based decision-making. These competencies emphasize teachers' responsibility to monitor progress, analyze instructional data, and adjust instruction to promote skill acquisition and generalization. As a result, scholars began focusing on how preparation programs build candidates' technological pedagogical knowledge and help them integrate technology into systematic, data-informed instruction rather than using it as an isolated accommodation.

Technology integration in special education teacher preparation has evolved since 1975 alongside broader technological, pedagogical, and policy shifts. Research in the 1980s and 1990s foregrounded computers as primary instructional tools, emphasizing computer-assisted instruction and technology's role in teaching, assessment, and administrative work. The literature also tracked a terminological transition from "handicapped" to "disability," mirroring shifting policy language and conceptual commitments (Woodward & Rieth, 1997). During this period, investigators focused on academic instruction and assessment applications, with comparatively limited attention to the design and evaluation of teacher preparation itself.

Researchers in the late 1990s and early 2000s broadened the technology landscape from discrete assistive devices to digital texts, interactive media, and networked learning resources. Internet diffusion shifted practice from standalone tools to connected ecosystems that scaled up curricular materials, professional learning, and family–school communication. Reviews of preparation for the digital era documented uneven candidate readiness and weak program coherence (Starkey, 2020). Systematic syntheses of teachers' digital competence similarly reported structural gaps in the integration of coursework and clinical experiences. Preparation programs increasingly adopted the technological pedagogical content knowledge (TPACK) as a framework for integrating technology within the curriculum (Mishra & Koehler, 2006), yet the field continued to debate core constructs and boundaries for "digital literacy," causing ambiguity in both research and program design (Voultsiou & Moussiades, 2025).

The OSEP launched Stepping Up Technology Implementation grants in 2012 to accelerate development and classroom uptake of evidence-based assistive, accessible, and instructional technologies. The grants aimed to close the research-to-practice gap by requiring iterative development cycles grounded in implementation science and by embedding collaboration with educators, families, and students. Project teams refined tools for accessibility, IDEA alignment, and feasibility across early childhood through K–12 settings. The program emphasized broad availability to support preparation efforts (Evmenova et al., 2024).

Stepping Up projects generated measurable national impact. The OSEP funded 50 projects across 12 cohorts by 2024, with implementation reaching more than 37 school districts and serving over 36,000 students, including more than 10,000 students with disabilities (Evmenova et al., 2024). The portfolio yielded widely used tools linked to

student performance, implementation fidelity, and access to high-quality technology. Many products remained free or low-cost, which supported sustainability and dissemination beyond the initial federal investment.

Recent Developments and Current Practices

The Stepping Up initiatives broadened access to evidence-based technologies; however, teacher preparation programs now function within an increasingly complex and rapidly evolving instructional technology landscape. Recent syntheses emphasize digital literacy, professional digital competence, and immersive technologies, including artificial intelligence (AI), virtual reality (VR), and large language models (LLMs), in preservice and in-service preparation (Voultsiou & Moussiades, 2025). Programs increasingly use VR, technology-mediated project-based learning, and online professional development to strengthen instructional practice and classroom management in special education contexts (Dieker et al., 2023). Persistent constraints continue to limit implementation, including inadequate access, time scarcity, and teacher dispositions toward technology use (Papavlasopoulou & Koutromanos, 2024).

Early decades after IDEA positioned technology in preparation programs as discrete tools, such as computer-assisted instruction and foundational assistive devices. These tools were often housed in standalone courses rather than being embedded across program sequences (Wallace & Georgina, 2014). Reviews of assistive technology adoption continued to document a mismatch between policy expectations and everyday practice, with professional knowledge and evidence bases advancing more slowly than innovation cycles (Özdamar & Odluyurt, 2025).

Online delivery altered service delivery pathways in K–12 special education, yet empirical guidance lagged behind adoption demands. In response, Vasquez and Straub (2012) called for stronger design and implementation guidance for online instruction. Howorth and colleagues (2024) identified barriers that impede effective integration of technology in online special education preparation and practice. An emerging theme in national standards (ISTE, n.d.) is that preparation programs require explicit competencies in accessibility auditing, online instructional design, and data-informed instructional decision-making. The ISTE standards are relevant to special education because they define essential competencies for using technology to support inclusive instruction, personalize learning, and ensure equitable access for diverse learners, including students with disabilities. Simulation and mixed-reality (MR) platforms also expanded opportunities for practice. Mixed-reality research in special education preparation demonstrated that candidates who practice key instructional moves, receive focused feedback, and refine decisions in controlled settings gain clear benefits (Dieker et al., 2008). Programs continue to use simulation to improve fidelity of practices while reducing risk during early clinical experiences (Dieker et al., 2023).

Preservice programs in the 2000s and 2010s often emphasized general educational technologies, interactive whiteboards, presentation tools, and video, rather than special education-specific design problems. Studies reported gains in candidate self-efficacy and improvements in learner engagement and achievement when candidates designed instruction deliberately around technology integration (Wallace & Georgina, 2014). Reviews of virtual technologies in field experiences also highlighted the benefits of case studies, videoconference supervision, and early VR applications that support practice-based learning and development.

Mobile computing produced a second inflection point by embedding accessibility features in ubiquitous consumer devices rather than specialized hardware. Built-in speech and communication support on tablets and phones increased participation across contexts, elevating the importance of teaching feature selection, routine building, and progress monitoring in preparation programs (Apple, n.d.). Meta-analytic evidence linked text-to-speech and related read-aloud tools to improved reading comprehension for learners with reading disabilities, with study design moderating observed effects (Wood et al., 2017). Mobile diffusion also intensified equity challenges involving connectivity, device management, and capacity for home use. For example, in an upper elementary classroom, a teacher might use a tablet's built-in text-to-speech feature during reading instruction so a student with autism and a learning disability can independently access grade-level text while the teacher monitors comprehension through weekly progress monitoring data and adjusts supports accordingly (Howorth & Raimondi, 2019).

Immersive approaches, including VR, AR, MR, extended reality (XR), simulation, and UDL-aligned design, now blend physical and virtual environments to broaden practice opportunities in preparation. Technology is also increasingly intertwined with systemic instructional frameworks, particularly Multi-Tiered System of Supports (MTSS) and UDL. Educators use digital assessment platforms and curriculum-based measurement software to collect performance data efficiently, visualize growth, and adjust instruction based on responsiveness to intervention, core features of MTSS models that emphasize continuous data use, instructional intensity, and movement across tiers based on demon-

strated skill acquisition.

Within MTSS, technology-supported progress monitoring strengthens measurement of foundational academic skills such as reading fluency, decoding, computation, and written expression. Studies report improved fidelity and efficiency for data-based decision-making when teachers use technology-enhanced progress monitoring rather than paper-based systems (Fuchs & Fuchs, 2007; Stecker, 2006). These tools also support instructional precision by enabling educators to identify skill deficits, evaluate intervention effects, and adjust dosage, prompting, and feedback, competencies emphasized in special education professional standards. For example, a teacher might use a digital progress monitoring platform embedded with an AI-driven agent that automatically analyzes weekly one-minute CBM reading probes, flags students whose growth trajectories fall below expected benchmarks, and generates instructional recommendations. The teacher then reviews the agent's suggestions, adjusts grouping, intensity, or scaffolds, and monitors whether subsequent data indicate improved responsiveness within the MTSS tiered framework.

The UDL framework expanded technology's role by prioritizing proactive design over retrofitted accommodation. Digital tools now support multiple means of representation, engagement, and expression while maintaining commitments to explicit instruction. Empirical work cautions, however, that technology aligned with UDL principles produces the strongest effects when it operates inside systematic, evidence-based instruction rather than serving as a substitute for explicit teaching (Rao et al., 2014). Preparation programs, therefore, need to teach technology as an instructional method component through the concept of design, not merely as an access or engagement enhancement (Basham & Lowrey, 2025).

Extending the principles of UDL, video games emerged as a technology that integrates multiple means of engagement, representation, and expression within interactive learning environments, offering new opportunities to individualize instruction and support learner variability. The emergence of video games as learning technologies also contributed to the changing landscape of instructional design and assessment. Empirical scholarship demonstrated that video games can function as rigorous, content-specific instructional tools for students with disabilities when grounded in disciplinary standards and evidence-based pedagogy. Early work conceptualizing video games within a Response to Intervention framework illustrated how embedded scaffolds, real-time progress monitoring, and adaptive feedback provide tiered academic supports in secondary classrooms serving students with learning disabilities (Marino et al., 2010). Subsequent classroom-based investigations revealed that game-enhanced units, aligned with UDL principles, improved understanding and engagement compared with traditional text-based materials, particularly for students with disabilities in inclusive settings (Marino et al., 2014). Analyses of whole-class math interventions for students with learning disabilities showed that structured, technology-supported learning paths can accelerate conceptual growth when instruction includes explicit modeling, guided practice, and formative assessment (Hunt et al., 2025). Collectively, this work shows that well-designed video games can strengthen content instruction by improving attention, reducing executive-function demands, and increasing opportunities for practice, underscoring the need for video games in teacher preparation.

AI-enabled tools emerged in the late 2010s through adaptive platforms, automated progress monitoring, and predictive analytics. AI represents a paradigm shift because it moves technology beyond static tools toward systems that can generate content, adapt instruction in real time, and augment teacher decision-making through continuous data analysis. AI systems began to provide instruction through real-time adjustment of difficulty, pacing, and feedback, yet they still require teacher expertise to interpret outputs, verify validity, and integrate technology-generated information into instructional planning. AI, therefore, increases, rather than reduces, the need for strong competencies in instructional analysis, data-based decision making, and evidence-based practice.

In 2020, OSEP funded the National Center for Innovation, Design, and Digital Learning (CIDDL) to provide research-informed technical assistance and professional learning to strengthen faculty capacity to integrate educational technology, assistive technology, and AI into special education preparation (Marino et al., 2025). In 2024 the U.S. Department of Justice published an accessibility policy to raise expectations for preparation by requiring educators to evaluate web-based and mobile tools against web content accessibility guidelines standards in public education systems. The Department of Justice accessibility rule extended IDEA's focus on access by requiring that all digital materials used in public education meet established accessibility standards, thereby increasing expectations for teacher preparation programs. Specifically, candidates must be prepared not only to select technologies but also to evaluate and implement digital tools that are legally compliant, accessible, and usable for students with disabilities across instructional contexts.

AI marks another pivot in the field by coupling personalization and automation with heightened demands for professional judgment. Special education technology scholarship frames AI as disruptive

yet potentially beneficial when educators supervise outputs, interrogate bias, and protect student privacy (Marino et al., 2023). Personalized learning research similarly positions educators as designers and monitors of learning rather than delegates of instructional responsibility to software (Basham et al., 2016a). Work on UDL alignment in online and blended materials also reinforced a parallel obligation to evaluate accessibility and learning supports systematically (Basham et al., 2016b). Meta-analytic evidence reports promising effects of AI-based interventions for students with disabilities, elevating evaluation competence as a preparation priority (Zhang et al., 2024).

Across the 2000s and into the AI era, the literature consistently attributes technology's impact to teacher decision-making rather than to tools alone. The evidence base also continues to flag preparation gaps, especially in candidates' ability to evaluate technologies, align them with MTSS and UDL, and use data to support skill acquisition and generalization. These findings call for competency-based, data-driven preparation aligned with CEC and InTASC standards.

Reflective Questions

The following questions operationalize the role of technology within IEP development and broader systems of teacher preparation. Together, they prompt an examination of how tools and national initiatives support the effective implementation, integration, and monitoring of technology in special education practice.

1. How does technology support the development, implementation, and monitoring of IEPs?
2. What role do national initiatives play in integrating technology preparation effectively?
3. What has changed?

Schools initially used computer-assisted instruction to deliver practice, immediate feedback, and error correction (Woodward & Rieth, 1997). Research syntheses reported that educators achieved stronger outcomes when they aligned technology with explicit instruction and progress monitoring; researchers reported null or mixed results when alignment was weak, teacher expertise was limited, or implementation fidelity was low (Seo & Bryant, 2009). Internet diffusion broadened access to digital curricula, improved communication, and strengthened interagency coordination, enabling faster sharing of practices and deeper family–school collaboration. At the same time, growing reliance on the Internet heightened challenges related to device access, broadband gaps, privacy risks, and accessibility across platforms (Woodward & Rieth, 1997).

Teacher preparation programs adopted video cases to strengthen systematic observation, instructional decision-making, and reflective practice. Video cases supported literacy-focused learning for preservice special educators; evidence also showed outcomes comparable to lecture under some conditions, which underscores the need for structured prompts, targeted feedback, and explicit links between video analysis and instructional enactment (Yadav et al., 2009). Professional development research reported benefits from systematic video analysis for improving instructional practice, while moderator patterns indicated variation tied to educator characteristics and preparation (Morin et al., 2019). Accessible text systems, including Bookshare, expanded access to grade-level materials through flexible formats, text-to-speech, and navigation supports, yet effective use required coordinated eligibility procedures, preparation, and planning to prevent "access without instruction" (Newton & Dell, 2009). COVID-19 disrupted service delivery and exposed vulnerabilities in remote instruction for children with disabilities. Schools expanded teletherapy, learning management systems, and home–school communication; many families nevertheless reported accommodation gaps, service interruptions, and intensified caregiving demands during remote learning (Averett, 2021).

Mobile devices shifted accessibility from specialized hardware to built-in features embedded in platforms, which reduced stigma and supported independence. Evidence links text-to-speech, speech-to-text, and self-monitoring applications to improved access and targeted academic or behavioral outcomes when educators pair these tools with explicit instruction, strategy coaching, and progress monitoring (Wood et al., 2017; Wills & Mason, 2014).

Reflective Questions

To strengthen preparation in assistive technology and accessibility, the following questions focus on how programs build candidates' capacity for systematic decision-making and critical evaluation. Together, they prompt examination of how candidates learn to select, apply, and assess digital tools for accessibility and effective instructional use.

1. How will candidates learn a consistent assistive technology decision process (e.g., SETT: student, environments, tasks, tools)?
2. How will candidates learn to audit whether a digital curriculum, LMS, or app meets accessibility expectations?

IMPLICATIONS FOR RESEARCH AND PRACTICE

Technology-Enhanced Coursework and Content Preparation

Recent scholarship documents a shift from isolated "technology courses" toward programmatic infused designs across curricula and intentionally

integrates TPACK. Multimedia interventions, including Content Acquisition Podcasts, video vignettes, and related modules, produce statistically significant improvements in preservice special educators' knowledge and skill for delivering reading instruction to learners with disabilities compared with lecture- and reading-based formats (Kennedy & Thomas, 2012, 2016). Programs that embed technology across course sequences also report sustained gains in candidates' perceived proficiency and enacted use of tools during student teaching (Wallace & Georgina, 2014).

Emerging work increasingly connects technology integration to UDL and inclusive design. A University of Maine case study, developed in partnership with the CIDDL Tech Alliance, identified 10 barriers that constrain effective integration (Howorth et al., 2024). These barriers included inadequate access and infrastructure, limited professional development, the absence of a shared program vision, and inconsistent UDL integration in course design, particularly among faculty outside special education.

Faculty reported strong overall digital literacy but limited expertise in using emerging technologies to support learners with disabilities through UDL-aligned design. They also described challenges supervising clinical experiences at a distance. These findings align with broader recommendations for educator preparation programs (EPPs). Programs should integrate technology across coursework rather than isolate it in a single class. Faculty should model technology-supported, UDL-aligned pedagogy. Programs should also provide repeated cycles of practice paired with reflection. Finally, programs should cultivate candidate self-efficacy alongside equity-centered stances (Howorth et al., 2024).

OSEP-funded centers can mitigate systemic barriers by providing research, technical assistance, and professional development aligned with UDL and accessibility expectations. CIDDL and the National Center on Accessible Digital Educational Materials & Instruction (NCADEMI) support programs with embedding accessibility across coursework and clinical practice, moving beyond general digital literacy toward the purposeful use of assistive technologies, immersive tools, and AI-supported personalization. OSEP also supports Bookshare, which expands access to accessible digital texts for students with print disabilities.

The NCADEMI offers guidance for adopting accessible formats and digital materials, strengthening compliance with accessibility standards, and supporting faculty course design. CIDDL strengthens educator capacity through research-based frameworks, professional learning, webinars, and communities of practice that connect faculty with emerging technologies and evidence-based integration strategies. These centers support system-level adoption aligned with accessibility and learning science rather than episodic implementation.

Technology-supported research in special education continues to widen across disability categories, settings, and instructional aims. Much of the evidence base still concentrates on elementary and resource-room contexts, with less sustained attention to life skills, employment preparation, and social development outcomes (Olakanmi et al., 2020). These gaps matter because they limit the field's ability to prepare educators to support postsecondary, functional, and social outcomes, potentially narrowing the long-term impact of technology integration on students' independence and quality of life. Participatory design research helps address these limitations by centering teacher involvement in tool development, thereby increasing ecological validity through co-design approaches grounded in classroom realities (Tuhkala, 2021).

RECOMMENDATIONS FOR FUTURE USE AND VALIDATION OF TECHNOLOGY

The following recommendations translate these findings into actionable steps that programs can implement to strengthen coherent, sustained technology integration across preparation experiences. Technology often enters preparation as a discrete innovation or stand-alone course, which contributes to uneven implementation even when studies document benefits under systematic conditions (Wallace & Georgina, 2014). Preparation programs can reduce "pilot-only" cycles by adopting continuous, theory-driven evaluation and by planning for long-term integration from initial adoption through sustained implementation.

Researcher evidence identifies several high-yield directions for strengthening technology-rich preparation. Multimedia instruction and content-specific modules consistently improve preservice knowledge and skill (Wallace & Georgina, 2014). Mixed-reality and XR simulations support complex practice opportunities (e.g., classroom management, family communication, and IEP meetings), especially when programs pair simulation with coaching and structured reflection (Budin, 2024; Dieker et al., 2023; Qualls et al., 2024). Programs are increasingly adopting technology-infused curricula that build TPACK and embed UDL across coursework, rather than simple integration in special education methods courses (Howorth et al., 2024; Wallace & Georgina, 2014). Programs also need to embed UDL and digital equity principles to ensure accessibility and reduce barriers across populations (Howorth et al., 2024).

A rapidly expanding body of literature positions AI as both promising and

TABLE 2: Summary Recommendations Table

Priority Area	Recommended Actions for Special Education Teacher Preparation	Citations
Program design & culture	Develop a shared vision for technology and UDL across the college; integrate throughout coursework rather than isolating it in single courses.	(Howorth et al., 2024; Marino et al., 2025; Zepp et al., 2024)
Practice-based learning	Expand validated multimedia modules and XR/mixed-reality simulations for high-leverage practices; pair with coaching and reflection.	(Budin, 2024; Wang & Li, 2024; Zepp et al., 2024; Qualls et al., 2024)
Assistive & inclusive tech	Systematically teach AT, digital tools, and UDL; ensure practice with diverse devices, software, and accessibility.	(Howorth et al., 2024; Kurt & Erden, 2023)
Faculty & PD	Provide digital and pedagogical PD; build networked, digital communities.	(Howorth et al., 2024)
Candidate perceptions & self-efficacy	Use surveys and reflection to monitor candidate technology beliefs, competencies, and self-efficacy.	(Vellonen et al., 2025; Kurt & Erden, 2023)
AI integration	Integrate AI literacy, ethics, and classroom applications	(CIDDL, 2024; Marino et al., 2023)

disruptive. AI tools increasingly shape instructional design, feedback processes, and material adaptation (Howorth et al., 2024). Generative AI can reduce educator workload and support access by assisting with tasks such as lesson planning, feedback generation, and differentiated materials (Goldman et al., 2024). Research with college students with disabilities further illustrates this potential, showing that AI can ease writing challenges and expand access to academic tasks (Zhao et al., 2025). Practice-oriented studies also describe early adopters integrating AI into preparation by aligning objectives, generating assignments and rubrics, designing cases, supporting IEP goal development, and facilitating chatbot-mediated reflection (Howorth et al., 2024).

At the same time, AI introduces significant risks and unresolved challenges. Effectiveness depends on verification routines, instructional coherence, and robust ethical safeguards (Goldman et al., 2024). Concerns related to accuracy, bias, privacy, cost, and academic integrity remain substantial (CIDDL, 2024a; Marino et al., 2023). Evidence on AI in teacher preparation remains early-stage, with limited intervention research and ongoing questions about how to prepare candidates for the ethical and responsible use of AI in AI-rich schools. Preparation programs, therefore, must balance innovation with safeguards while strengthening the evidence base for AI preparation (Marino et al., 2025). Three priorities can guide near-term work:

1. **Intentional integration with safeguards:** Use AI for design support, data-informed reflection, differentiated planning, and simulated practice while ensuring human oversight and attention to bias, privacy, and transparency (CIDDL, 2024b).
2. **Develop AI literacy as a core competence:** Teach candidates to prompt, critique, and adapt AI outputs for IEP development, progress monitoring, and UDL-aligned planning (McMahon & Firestone, 2024), and to use AI ethically and accessibly (CIDDL, 2024b). For example, candidates might analyze an AI-generated IEP goal, identify inaccuracies or biases, and revise the goal using progress-monitoring data and evidence-based practices.
3. **Build an evidence base:** Prioritize rigorous interventions that examine AI's impact on preservice teacher learning and student outcomes, using mixed methods and pedagogical documentation beyond standardized tests (Marino et al., 2023).

Table 2 synthesizes recommendations for strengthening technology integration in special education teacher preparation. The priorities emphasize coherent program design, authentic practice, sustained faculty learning, and deliberate support for competence and confidence. Taken together, these findings suggest that effective program design requires intentional, sustained integration of technology across coursework and clinical experiences to ensure candidates develop applied, transferable competencies rather than isolated skills.

This article contributes a coherent framework for integrating technology across policy, practice, and preparation, emphasizing the need for systematic, data-informed, and equity-centered approaches to preparing educators in an evolving technological landscape. Fifty years after IDEA, technology has moved from a peripheral tool to a central, though unevenly applied, element of special education teacher preparation. The field now needs intentional scaling of evidence-based multimedia instruction,

ABOUT THE AUTHORS

Lisa A. Dieker, Ph.D.

Dr. Dieker is the Williamson Family Distinguished Professor of Special Education in the School of Education and Human Sciences at the University of Kansas and director of the Flexible Learning Through Innovations in Technology and Education Center. Her research focuses on teacher education, special education, inclusive STEM instruction, and the use of emerging technologies to improve teacher performance and student learning.

Sarah K. Howorth, Ph.D.

Dr. Howorth is an Associate Professor of Special Education at the University of Maine's College of Education and Human Development. She leads the PEERS® Lab at UMaine and is an associated faculty member of the Center for Community Inclusion and Disability Studies (CCIDS), Maine's only University Center for Excellence in Developmental Disabilities (UCED).

Eleazar Vasquez III, Ph.D.

Dr. Vasquez is a professor of special education at the University of Kansas. His research explores how technology can enhance academic and behavioral outcomes for students with disabilities, particularly within rural and underserved communities, while his leadership work includes AI policy, technology modernization, workforce development, and interdisciplinary collaboration.

Matthew T. Marino, Ph.D.

Dr. Marino is a Pegasus Professor of Exceptional Student Education and Director of the Toni Jennings Exceptional Education Institute at the University of Central Florida. His research focuses on Universal Design for Learning, AI-enhanced learning, executive functioning, and the design and implementation of technology-based STEM interventions for individuals with disabilities.

James D. Basham, Ph.D.

Dr. Basham is a professor in the Department of Special Education at the University of Kansas. His research focuses on Universal Design for Learning, artificial intelligence, STEM education, learner-centered design, innovation, and the development of equitable and meaningful future-ready learning environments.

XR-supported practice, program-wide integration of UDL, and a stronger empirical base for AI-supported preparation. Technology use has progressed from basic computing to immersive, practice-centered, and participatory design approaches. Yet gaps remain in digital competence, coherent integration across coursework and clinical experiences, and evidence that extends beyond narrow academic outcomes. Preparation programs need to pursue ongoing innovation paired with targeted evaluation to realize technology's full instructional potential. To close, consider two questions. 1) Which emerging technology will redefine special education preparation over the next 50 years? 2) How can programs stay ahead of technological change to best support students with disabilities? Addressing these questions requires not only anticipating innovation, but also building systems that prioritize adaptability, critical evaluation, and sustained alignment with evidence-based practice. Ultimately, the future of teacher preparation will depend on how effectively programs translate technological advances into meaningful learning opportunities.

REFERENCES

Apple. (n.d.). *Accessibility features for speech on iPad*. Apple Support.

Averett, K. H. (2021). *Remote learning, COVID-19, and children with disabilities*. *AERA Open, 7*(4). https://doi.org/10.1177/23328584211058471

Basham, J. D., Hall, T. E., Carter, R. A., Jr., & Stahl, W. M. (2016a). An operationalized understanding of personalized learning. *Journal of Special Education Technology, 31*(3), 126–136. https://doi.org/10.1177/0162643416660835

Basham, J. D., & Lowrey, K. A. (2025). (Re)Considering Universal Design for Learning. Journal of Special Education Technology, https://doi.org/10.1177/01626434251361443.

Basham, J. D., Smith, S. J., & Satter, A. L. (2016b). Universal Design for Learning: Scanning for alignment in K–12 blended and fully online learning materials. *Journal of Special Education Technology, 31*(3), 147–155. https://doi.org/10.1177/0162643416660836

Budin, S. (2024). Three approaches to using mixed reality simulations for teacher preparation and recruitment of future teachers. *Education Sciences, 14*(1), 75. https://doi.org/10.3390/educsci14010075

Center for Innovation, Design, and Digital Learning (2024a). About the Center for Innovation, Design, and Digital Learning. https://ciddl.org/about-ciddl-center-for-innovation-design-and-digital-learning/

Center for Innovation, Design, and Digital Learning (2024b). *Artificial Intelligence: The Impact of AI on Education for All Learners.* Author. https://ciddl.org/inclusive-intelligence-the-impact-of-ai-on-education-for-all-learners/

Council for Exceptional Children. (2020). *Initial practice-based professional preparation standards for special educators.* https://exceptionalchildren.org/standards/initial-special-education-preparation-standards

Council of Chief State School Officers. (2013). *InTASC model core teaching standards and learning progressions for teachers 1.0.* Interstate Teacher Assessment and Support Consortium.

Dieker, L., Hughes, C., & Hynes, M. (2023). The past, the present, and the future of the evolution of mixed reality in teacher education. *Education Sciences*, *13*(11), 1070. https://doi.org/10.3390/educsci13111070

Dieker, L., Hynes, M., Hughes, C., & Smith, E. (2008). Implications of mixed reality and simulation technologies on special education and teacher preparation. *Focus on Exceptional Children, 40*(6), 1–20. https://doi.org/10.17161/foec.v40i6.6877

Edyburn, D. (2021). Transforming student engagement in COVID-19 remote instruction: A research perspective. *Educational Technology Research and Development*, *69*(1), 113–116. https://doi.org/10.1007/s11423-020-09919-6

Evmenova, A. S., Vermeer, A., Cooney, L., Washburn, J., Jackson, T., & Sulaimon, T. (2024). Evidence-based technology tools to support diverse learners, educators, and service providers across instructional settings. *Focus on Exceptional Children*, *48*(2), 1–25. https://doi.org/10.17161/foec.v48i2.22951

Fuchs, L. S., & Fuchs, D. (2007). *What is scientifically-based research on progress monitoring?* National Center on Student Progress Monitoring.

Gilster, P. (1997, February). *Digital literacy*. Wiley Publications.

Goldman, S. R., Taylor, J., Carreon, A., & Smith, S. J. (2024). Using AI to support special education teacher workload. *Journal of Special Education Technology*, *39*(3), 434–447. https://doi.org/10.1177/01626434241257240

Howorth, S. K., & Raimondi, S. (2019). Effects of TWA-supported digitally on comprehension of students with autism spectrum disorder, level 1. *Journal of Special Education Technology*, *34*(3), 162–175. https://doi.

org/10.1177/0162643418801808
Howorth, S. K., Marino, M. T., Flanagan, S., Cuba, M. J., & Lemke, C. (2024). Integrating emerging technologies to enhance special education teacher preparation. *Journal of Research in Innovative Teaching & Learning*. https://doi.org/10.1108/JRIT-08-2024-0208
Hunt, J. H., Taub, M., Marino, M., & Holman, K. (2025). Examining fraction performance and learning trajectories in students with learning disabilities: Effects of whole-class intervention. *Education Sciences, 15*(9), 1234. https://doi.org/10.3390/educsci15091234
Individuals with Disabilities Education Act, 20 U.S.C. § 1401 (2004).
International Society for Technology in Education. (n.d.). *ISTE standards*. https://iste.org/standards
Januszewski, A., & Molenda, M. (2008). *Educational technology: A definition with commentary*. Routledge. https://doi.org/10.4324/9780203054000
Kennedy, M. J., Hirsch, S. E., Dillon, S. E., Rabideaux, L., Alves, K. D., and Driver, M. K. (2016). Using content acquisition podcasts to increase student knowledge and to reduce perceived cognitive load. *Teaching of Psychology, 43*(2), 153–158. https://doi.org/10.1177/0098628316636295
Kennedy, M. J., & Thomas, C. N. (2012). Effects of content acquisition podcasts to develop preservice teachers' knowledge of positive behavioral interventions and supports. *Exceptionality*, *20*(1), 1-19. https://doi.org/10.1080/09362835.2011.611088
Marino, M. T., Basham, J. D., & Beecher, C. C. (2010). Conceptualizing RTI in 21st-century secondary science classrooms: Video games' potential to provide tiered support and progress monitoring for students with learning disabilities. *Learning Disability Quarterly, 33*(4), 257–268. https://doi.org/10.1177/073194871003300407
Marino, M. T., Gotch, C. M., Israel, M., Vasquez, E., Basham, J. D., & Becht, K. (2014). UDL in the middle school science classroom: Can video games and alternative text heighten engagement and learning for students with learning disabilities? *Learning Disability Quarterly, 37*(2), 87–99. https://journals.sagepub.com/doi/10.1177/0731948713503963
Marino, M. T., Vasquez, E. III, Dieker, L. A., Basham, J. D., & Blackorby, J. (2023). The future of artificial intelligence (AI) in special education technology. *Journal of Special Education Technology, 38(3)*. https://journals.sagepub.com/doi/10.1177/01626434231165977
Marino, M. T., Vasquez, E., Wilder, T., & Basham, J. D. (2025). Unions as change agents: Washington Education Association's pioneering approach to special education teacher preparation. *School Community Journal*, 35(1), 109–136. https://www.adi.org/journal/SS2025/MarinoEtAl.pdf
McMahon, D., & Firestone, J. (2024). Remixing special education practices with artificial intelligence: UDL, EBP, and HLPs. *Journal of Special Education Preparation*, *4*(2), 66–76. https://doi.org/10.33043/3dq2d32d
Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal design for learning: Theory and practice.* CAST.
Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x
Morin, K. L., Ganz, J. B., Vannest, K. J., Haas, A. N., Nagro, S. A., Peltier, C. J., Fuller, M. C., & Ura, S. K. (2019). A systematic review of single-case research on video analysis as professional development for special educators. *The Journal of Special Education, 53*(1), 3–14. https://doi.org/10.1177/0022466918798361
Newton, D. A., & Dell, A. G. (2009). Bookshare.org: Accessible texts for students with print disabilities. *Journal of Special Education Technology, 24*(2), 38–41. https://doi.org/10.1177/016264340902400204
Olakanmi, O. A., Akcayir, G., Ishola, O. M., & Demmans Epp, C. (2020). Using technology in special education: Current practices and trends. *Educational Technology Research and Development*, *68*, 1711–1738. https://doi.org/10.1007/s11423-020-09795-0
Özdamar, O., & Odluyurt, S**.** (2025). Determination of teachers' views on the use of assistive technology in special education classrooms. *Journal of Educational Research, 12*(1), 146–160. https://doi.org/10.30900/kafkasegt.1585399
Papavlasopoulou, S., & Koutromanos, G**.** (2024). Enhancing mathematics education for students with special educational needs through generative AI: A case study in Greece. *Contemporary Educational Technology, 16*(4), ep535. https://doi.org/10.30935/cedtech/15487
Qualls, L. R., Dawson, M. R., & Scott, S. (2024). Special education teachers' preservice experiences with mixed-reality simulation: A systematic review. *Teacher Education and Special Education, 47*(4), 124-141. https://doi.org/10.1177/08884064231226255
Rao, K., Ok, M. W., & Bryant, B. R. (2014). A review of research on universal design educational models. *Remedial and Special Education, 35*(3), 153–166. https://doi.org/10.1177/0741932513518980
Rose, T. (2013). *The myth of average.* TEDx Sonoma County.
Seo, Y.-J., & Bryant, D. P. (2009). Analysis of studies of the effects of computer-assisted instruction on the mathematics performance of students with learning disabilities. *Computers & Education, 53*, 913–928. https://doi.org/10.1016/j.compedu.2009.05.002
Starkey, L. (2020). A review of research exploring teacher preparation for the digital age. *Cambridge Journal of Education, 50*(1), 37–56. https://doi.org/10.1080/0305764X.2019.1625867
Stecker, P. M. (2006). Using curriculum-based measurement to monitor reading progress in inclusive elementary settings. *Reading & Writing Quarterly*, *22*(1), 91–97. https://doi.org/10.1080/10573560500203574
Tuhkala, A. (2021). *Participatory design in education: Involving teachers and students in the design of learning technologies.* [Doctoral dissertation, University of Jyväskylä]. JYX Digital Repository.
Vasquez, E., III, & Straub, C. (2012). Online instruction for K–12 special education: A review of the empirical literature. *Journal of Special Education Technology, 27*(3), 31–40. https://doi.org/10.1177/016264341202700303
Voultsiou, E., & Moussiades, L. (2025). A systematic review of AI, VR, and LLM applications in special education: Opportunities, challenges, and future directions. *Education and Information Technologies*. https://doi.org/10.1007/s10639-025-13550-4
Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The digital competence framework for citizens*. Publications Office of the European Union. https://doi.org/10.2760/115376
U.S. Department of Justice. (2024). *Nondiscrimination on the basis of disability: Accessibility of web information and services of state and local government entities (Final rule).* Federal Register, 89 FR 31320.
Wallace, T., & Georgina, D. (2014). Preparing special education teachers to use educational technology to enhance student learning. In *Proceedings of the 11th International Conference on Cognition and Exploratory Learning in Digital Age.* https://eric.ed.gov/?id=ED557381
Wills, H. P., & Mason, B. A. (2014). Implementation of a self-monitoring application to improve on-task behavior: A high-school pilot study. *Journal of Behavioral Education, 23*(4), 421–434. https://doi.org/10.1007/s10864-014-9204-x
Wood, S. G., Moxley, J. H., Tighe, E. L., & Wagner, R. K. (2017). Does use of text-to-speech and related read-aloud tools improve reading comprehension for students with reading disabilities? A meta-analysis. *Journal of Learning Disabilities, 51*(1), 73–84. https://doi.org/10.1177/0022219416688170
Woodward, J., & Rieth, H. (1997). A historical review of technology research in special education. *Review of Educational Research*, *67*, 503–536. https://doi.org/10.3102/00346543067004503
Yadav, A., Bouck, E., Da Fonte, A., & Patton, S. (2009). Instructing special education preservice teachers through literacy video cases. *Teaching Education, 20*(2), 149–162. https://doi.org/10.1080/10476210902878510
Zhang, L., Carter, R. A., Jr., Liu, Y., & Peng, P. (2024). Let's CHAT about artificial intelligence for students with disabilities: A systematic literature review and meta-analysis. *Review of Educational Research*, 96(1), 215–257. https://doi.org/10.3102/00346543241293424
Zhao, X., Cox, A., & Chen, X. (2025). The use of generative AI by students with disabilities in higher education. *The Internet and Higher Education*, *66*, 101014. https://doi.org/10.1016/j.iheduc.2025.101014

Learning in Practice: Fifty Years of Advancing Clinical Preparation

AUTHORS
Melinda M. Leko
Mary T. Brownell
Lisa E. Morin
Maggie Bethea

Journal of Special Education Preparation
6(2), 124-134
© 2026 Leko et al.
Licensed with CC-BY-NC-ND 4.0 License
DOI: https://doi.org/10.33043/8t-v39xs728e

ABSTRACT

High-quality clinical preparation is essential for developing effective special educators who can improve outcomes for students with disabilities. This article traces the evolution of clinical preparation over the past 50 years, from categorical field-based experiences to contemporary practice-based models that emphasize deliberate practice, coaching, and authentic application of instructional skills. We examine key historical milestones, the influence of policy and workforce demands, and research supporting innovations such as video analysis, simulation, structured tutoring, and performance feedback. The article concludes with recommendations for strengthening school-university partnerships and expanding technology-enabled, practice-based learning opportunities to prepare and sustain the next generation of special education professionals.

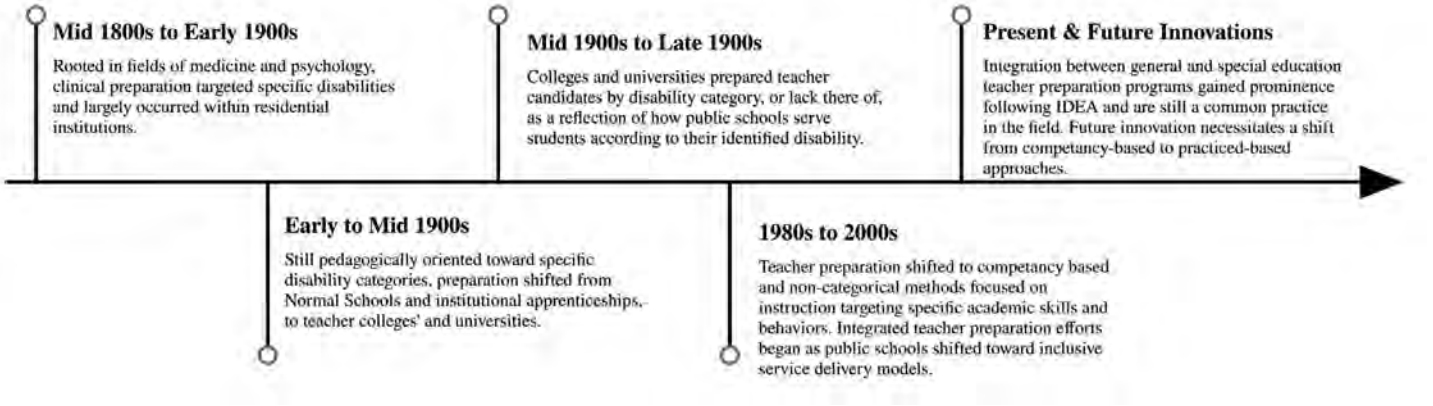
KEYWORDS

Clinical preparation, field experiences, practice-based learning, special education, teacher education

As the field of special education celebrates the 50th anniversary of the Individuals with Disabilities Education Act (IDEA), it is important to acknowledge the critical role special educators play in providing students with disabilities with effective, equitable educational opportunities. Developing a well-prepared, effective special education teacher workforce does not happen by chance; rather, it results when teacher candidates are provided opportunities to develop their expertise over time, with multiple opportunities to practice coupled with expert feedback (Brownell et al., 2019; Ericsson, 2014).

Clinical preparation, or "the application of academic knowledge to practice in classrooms, schools, and communities where candidates learn to contextualize the curriculum, learning experiences, and other teaching practices for specific individuals and groups of students" (Hollins & Warner, 2021, p. 2), has long been considered a cornerstone of effective educator preparation for both students with and without disabilities (O'Brien et al., 2024). Over time, clinical preparation has been described by different terms and provided in different formats (e.g., field experiences, practicum placements, student teaching, teacher residencies, apprenticeships). Aligned with Ericsson's (2014) and Brownell and colleagues (2010) assertions, well-designed, high-quality clinical preparation should allow teacher candidates to apply their developing knowledge in practice over an extended period of time under the supervision of a mentor or supervisor who provides ongoing feedback. Although clinical preparation has long been considered important to the development of special education teachers, it has changed considerably throughout history. This article presents (a) the history of special educator preparation and its role in shaping the characteristics of clinical preparation, (b) contemporary approaches to improving candidates' opportunities to practice, including field placements, that are research-based and have proven effective, (c) implications for enacting these approaches in practice and continued research about them, and (d) our aspirational vision for improving teacher candidates' practice-based learning opportunities as the field of special education enters its next 50 years.

FIGURE 1: History of Teacher Preparation for Special Education



Historical Perspective and Foundational Milestones

Throughout the history of formal special education teacher preparation, clinical preparation of special education teachers has been considered integral to developing effective special educators and undoubtedly affected by: (a) research on effective assessment and methods for educating students with disabilities, (b) changing perspectives on how services to students with disabilities and teacher preparation should be provided, (c) trends in general education teacher preparation, and (d) teacher shortages. Figure 1 illustrates a timeline of major eras in the history of special education teacher preparation, and these eras are presented in the next sections.

The Early Years and Categorical Preparation

In the mid 1800s to early 1900s, students with disabilities were largely excluded from society and schools. Teacher preparation occurred primarily in residential settings, led by prominent clinicians, such as Itard and Gallaudet and driven by conceptions of disability that had their roots in medicine and psychology (Brownell et al., 2010). Disabilities were thought to be the result of specific disorders and required instructional responses targeting those disorders. By the mid-1900s, demands to ensure quality public education for all students resulted in teacher preparation programs moving from Normal Schools, apprenticeship models of preparation affiliated with high schools, to teachers' colleges and universities (Whitford & Villaume, 2014). By 1952, 122 special education teacher preparation programs were being offered at colleges and universities (Mackie & Dunn, 1954), reflecting the realization that providing students with disabilities depended on having specially trained teachers.

In 1975, P.L. 94-142, the Education for All Handicapped Children Act (EAHCA), which eventually became IDEA, required the education of students with disabilities in schools. This resulted in the need for large numbers of teachers to serve these students and created the need for preparation programs to address competencies introduced in the legislation (e.g., evaluation, Individual Education Program development) in addition to the development of an instructional knowledge base. Preparation was largely categorical in nature, based on (a) medical and psychological perspectives on disability persisting from special education's beginning, (b) the EAHCA's requirement for schools to identify students according to specific disability categories, and (c) federal funding provided to universities and colleges based on such categories (Brownell et al., 2010). Students with disabilities were often served in classrooms organized by disability category (e.g., learning disabilities and emotional and behavioral disorders), and teacher preparation was designed to support this approach. Following state interpretations of federal legislation, and state-level decisions regarding educator certification, preparation coursework and clinical preparation in the form of field experiences focused on the characteristics of students within a specific category and methods for instructing and assessing those students. Candidates often practiced these methods in university-based clinics, centers, and public schools serving students according to their identified disability (e.g., Connor, 1976; Laster, 2013), being prepared like clinicians who could assess students' needs and design interventions to support them. Demand for categorically prepared teachers, however, outstripped the number of categorically certified teachers available to teach.

Noncategorical Preparation

The need for special education teachers prompted by the passage of the EAHCA resulted in dramatic shortages of categorically certified teachers. These shortages combined with research on student interventions and assessments led public schools and teacher preparation programs to shift away from

categorical to noncategorical approaches (Brownell et al., 2010). In the late 1960s, continuing into the 1970s, researchers showed that assessing students on specific academic and behavioral skills and then intervening in identified areas could help teachers assess the efficacy of their interventions regardless of disability type (e.g., Deno et al., 1986). Further, researchers demonstrated that many students with disabilities benefitted from direct systematic instruction (e.g., Bereiter & Engelmann, 1966).

In response to shortages and possibly research findings that failed to show a connection between disability type and instructional support, public schools began educating students with different disabilities together, for example, varying exceptionalities resource rooms that might serve students with both specific learning disabilities and mild intellectual disabilities. This move allowed teachers with certification in different areas of disability to teach in those classrooms. As such, states began shifting licensure requirements from categorical to noncategorical designations, a change that persists to this day (Sindelar et al., 2019). Programs followed suit and began educating special education teacher candidates in noncategorical programs (e.g., mild disabilities, severe disabilities), focusing less on characteristics of individual disabilities and more on assessment of academic and behavioral skills and research-based methods for intervening in those skills. This perspective on research-based assessment and intervention persists in preparation program coursework and clinical experiences to this day.

During the period of transition from categorical to noncategorical approaches to teacher preparation, special and general teacher education scholars also pushed for preparation programs to demonstrate their efficacy in preparing competent teachers and strengthening field experiences. Researchers interested in effective teaching and what comprised it were conducting observational studies of classroom teaching. These studies, often referred to as *process product studies*, established relationships among specific teaching behaviors (e.g., teacher directed, opportunities for students to respond), student engagement in academic learning, and student achievement (e.g., Brophy, 1979). Findings from this research combined with pressure on preparation programs to demonstrate the efficacy of their graduates led to the competency-based teacher education (CBTE) movement (Berdine et al., 1978). Teacher educators also recognized that for CBTE to be effective then quality clinical preparation experiences, characterized by well-trained mentor teachers, and close supervision and evaluation of teacher candidates were paramount (Oseroff et al., 1978).

> Practice-based approaches, based on HLPs, might also provide more uniform expectations and learning opportunities for special education teachers entering through different preparation routes.

In general education, public dissatisfaction with the quality of public schooling, caliber of teacher candidates, and rigor of teacher education programs led to calls for school and teacher preparation reform (National Commission on Excellence in Education, 1983). In response, colleges and schools of education engaged in a variety of reforms, including the formation of partnerships with public schools with the intention of improving teacher preparation, including clinical preparation, and professional development opportunities for practicing teachers (Buck et al., 1992). While pressure mounted to improve traditional teacher preparation in general and special education, shortages of special education teachers created tensions between efforts to improve teacher preparation (and associated clinical preparation) and efforts to ensure adequate numbers of special education teachers were available. Many teachers were working while preparing to be special education teachers through postbaccalaureate and alternative route programs; controlling the quality of their field experiences would be difficult.

Integrated Teacher Preparation

In the 1980s to 2000s, concerns about the efficacy of special education provided in resource and self-contained classrooms, along with ethical concerns about educating students with disabilities separately from their non-disabled peers, spurred a movement to integrate or mainstream these students in general education (Will, 1986). Simultaneously, questions were raised about the preparation of general and special education teachers for inclusive education. Scholars argued general education teachers were not prepared to adapt or modify instruction to the needs of students with disabilities and special education teachers' knowledge of the general education curriculum was insufficient to support access to it. By the early to mid 1990s, teacher educators were rethinking how they provided preparation to teacher candidates in general and special edu-

cation, as well as improving efforts to address the racial and linguistic differences in students with disabilities. Thus, calls for collaborative teacher education programs began to emerge (Brownell et al., 2010).

A recent study found that there are 272 of these programs across the U.S. (Gomez-Najarro et al., 2025). Seventy-four percent of these programs involve little integration of the two disciplines. That is, there is little or no evidence of collaboration across general and special education in coursework or clinical preparation in these programs. Only 13% of programs address how the education of students with disabilities might be influenced by race, language, and poverty, which seems problematic given the demographic characteristics of students with disabilities. Twenty-six percent of programs have been collaboratively planned and involve more fully integrated coursework and field experiences; exactly what field experiences in these programs look like, however, was not described. More concerning is that researchers have had difficulty establishing that dual preparation has an impact on the effectiveness of their graduates (see for review, Gilmour & Lam, 2025).

The effective adoption of collaborative teacher education programs was and continues to be challenged by different factors. One, chronic shortages of special education teachers make it difficult to argue for the sort of deliberate, more intensive preparation that integrated teacher education programs require. Two, these programs often lack clear theories of, and supporting research for, how collaborative teacher programs should be structured to prepare general and special education teachers who have distinct but complementary knowledge and skill sets. Three, there is little research supporting the efficacy of this approach to teacher education.

The Present: Major Advances and Practice-changing Innovations

By the 21st Century, the preparation of special education teachers differed considerably in program structure and content. This program diversity is likely the consequence of: (a) a need to prepare special education teachers broadly and expeditiously, to address shortages, for different age groups, settings, content, and disability as well as requirements outlined in the Individuals with Disabilities Education Act (Sindelar et al., 2019); (b) the lack of consensus about exactly what special education teachers should know and be able to do; (c) the existence of multiple options for becoming a special education teacher; and (d) an insufficient research base informing how to effectively prepare special education teachers likely contributed to this program diversity. At the same time, teacher education scholars were voicing concerns that the well-documented disconnect that existed between instructional approaches advocated for in preparation programs and those implemented in schools interfered with candidates' opportunities to practice effectively (Grossman & McDonald, 2008).

It is within this context that scholars argued for a practice-based approach to teacher learning that extends well beyond field experiences. This approach is premised on the fact that specific practices can be identified that define effective teaching; thus, an approach to preparing teachers can be crafted that would enable them to acquire these practices without relying solely on field experience. Prominent scholars assert that these effective teaching practices, or high-leverage practices (HLPs), cut across different academic disciplines and age groups and are research-based (e.g., Grossman & McDonald, 2008; McLeskey et al., 2019). From their perspective, these HLPs are important for defining the professional practice of teachers and focus efforts to improve it in preparation. Further, once identified, HLPs can be dissected and deliberately taught to novice teachers using a variety of practice-based activities, such as video analysis and simulations, across different content-specific methods courses. Practice-based opportunities can then be scaffolded to move from coursework-based learning experiences into carefully structured clinical preparation experiences (e.g., structured tutoring with individual or small groups of K-12 students), comprising a practice-based approach to teacher education (Leko et al., 2024). Moreover, Grossman and McDonald (2008) believe that implementing such a practice-based approach to teacher education would help solve long-standing problems about the well-documented disconnect between what is learned in teacher preparation and school-based clinical experiences. Practice-based approaches, based on HLPs, might also provide more uniform expectations and learning opportunities for special education teachers entering through different preparation routes. Inherent in a practice-based approach is a shift from didactic and passive learning within courses and professional development to immersive, feedback-rich, and technology-enhanced experiences that better prepare and retain special education teachers.

Implementing a Practice-Based Approach to Teacher Preparation

A practice-based approach to special education teacher preparation depends on focused learning opportunities that begin in coursework and extend into authentic settings (e.g., tutoring, small group instruction with K-12 students, student teaching). The focus in practice-based approaches should be defined by the critical content and HLPs known to support positive outcomes for stu-

TABLE 2: Practice-Based Learning Opportunities for Teacher Preparation

Evidence-Based Practice	Definition	Stage Use			Examples of Supporting Research
		Early	Mid	End	
Video Modeling & Analysis	Use of video models to demonstrate effective instruction and engage in analysis of own instruction	x	x	x	Meline et al., 2023; Nagro & Cornelius, 2013
Simulation					
Microteaching/ Role play	Discrete, short, simple instructional practices	x			Dunst et al., 2019
Rehearsal	Role play in more complex scenarios with repeated instructional cycles		x	x	Kang & Windschitl, 2018
Mixed Reality	Simulation with virtual avatar students Can be paired with video analysis		x	x	Cohen et al., 2020; 2025; Qualls et al., 2024
Performance Feedback	Specific, positive, corrective, and immediate feedback implemented by a peer (non-evaluative) or teacher educator (may be evaluative)	x	x	x	Brock & Carter, 2017; Kraft et al., 2018; Loman et al., 2020
Structured Tutoring	Teacher candidates apply evidence-based practices during instruction with a student		x	x	Al Otaiba et al., 2012; Englert et al., 2020; Hughes & Braun, 2019

dents with disabilities. For example, teaching students a decoding strategy (critical content) using explicit instruction (HLP) is an instructional skill that most special education teachers should be able to implement proficiently in practice. First, teacher candidates should learn the main components of the skill and develop knowledge of what the skill looks like in practice. This is often accomplished through modeling of the HLP (Grossman et al., 2009). Second, teacher candidates need opportunities to practice the skill in different contexts that become increasingly complex. Finally, teacher candidates must receive feedback (Brock & Carter, 2017) and be able to analyze their performance (Nagro et al., 2017). Next, we describe practice-based approaches (see Table 1) and specific characteristics of mentor teachers that support this serial approach to teacher learning.

Video Modeling and Analysis. Video modeling and analysis provides teacher candidates with opportunities to observe, analyze, and reflect upon their instruction, other candidates' instruction, or that of expert teachers by watching video-recorded lessons. Teacher educators can use video models to demonstrate the components of effective instruction without the need for teacher candidates to be present in PK-12 classrooms. In another application, teacher candidates can be asked to record and analyze their own instruction in various clinical placements.

Research on the use of video modeling and analysis has pointed to its effectiveness as a practice-based learning opportunity for teacher candidates (Nagro & Cornelius, 2013). For example, teacher candidates who engaged in video analysis had better outcomes than candidates who did not engage in video analysis in terms of teacher-student interactions (Fukkink & Tavecchio, 2010), student engagement (Moore, 1976), and specific and general praise (Wright et al., 2012).

Video modeling and analysis is a

versatile practice and can be used at the initial stages of special education teacher preparation when teacher candidates need good models of instructional practices or in conjunction with culminating clinical placements when teacher candidates are teaching themselves and need opportunities to reflect upon their performance. Several software programs (e.g., Edthena, COACHED) support time-stamped annotations whereby the viewer can pause the video and add a note or reflection. The most effective applications of video modeling and analysis include guided protocols that scaffold teacher candidates' analysis (Nagro et al., 2017) or provide candidates with specific prompts and questions for reflection.

Simulation. Simulations provide teacher candidates with the opportunity to practice teaching in ways that mirror authentic PK-12 classrooms. Benefits of simulations are that teacher candidates can practice in low-stakes, controlled, supportive environments without any potential risk to PK-12 students. There are three common simulations: microteaching, rehearsal, and mixed reality simulations (MRS). Cohen et al. (2025) provide helpful definitions that differentiate the three practices. Microteaching or "role-plays" are when a teacher candidate assumes the role of a teacher and practices a particular skill often with peers who are acting in the roles of PK-12 students. In these instances, discrete, simple, and short instructional practices are ideal. Rehearsal is like role-play, but teacher educators take an active role in scaffolding the interaction by providing feedback and prompts for reflection so that teacher candidates engage in repeated cycles of planning, teaching, and reflecting. Rehearsal is a practice that supports teacher candidates in practicing more complex instructional routines and lessons. Finally, in MRS teacher candidates interact with virtual avatar students that can be programmed to respond in specific ways and represent a variety of student characteristics such as varying disabilities and English proficiency. A benefit of MRS is that teacher candidates can practice a skill under the same conditions multiple times or change aspects of their instruction to see how students might react differently. Each of the simulation strategies can be paired with video analysis so teacher candidates can record their instruction for later analysis and reflection.

In a large meta-analysis, microteaching had positive effects on a variety of different outcomes for teacher candidates and beginning teachers (Dunst et al., 2019). Similarly, rehearsal has been shown to improve science teacher candidates' implementation of HLPs compared to candidates in a comparison condition (Kang & Windschitl, 2018). In a literature review of 26 studies on the simulation strategies, Cohen et al. (2025) found 23 reported positive outcomes for teacher candidates, though MRS showed more promise for increasing candidate learning than other simulations. Other studies have also shown the effectiveness of MRS in improving teacher candidates' pedagogy, communication, and self-efficacy (Qualls et al., 2024), and it should be noted that MRS is more effective when combined with performance feedback, as discussed in the next section, than when it is not (Cohen et al., 2020).

When selecting from among the different simulation strategies, teacher educators must often consider time and resources. Microteaching and rehearsal are low/no cost and can be implemented at any time within any course or professional development session. MRS, on the other hand, is high cost as it requires the purchase of platforms such as Mursion, as well as an hourly charge for the time candidates spend interacting with the student avatars. The use of MRS often requires advance scheduling to ensure the virtual avatars and instructional scenarios are created and the MRS platform is available. The three types of simulations do allow for repeated practice over time in increasingly complex ways. Teacher educators might start with microteaching, then move to rehearsal, and end with MRS, if it is available at the educator preparation program.

Performance Feedback. Performance feedback is when a teacher candidate receives feedback on their instruction, often through various coaching models. The feedback can come from peers or experts and be provided in simulated or authentic situations. The most effective performance feedback is specific, positive, corrective, and immediate (Cornelius & Nagro, 2014). In peer coaching, two teacher candidates observe each other's teaching and provide feedback, usually feedback that is not evaluative (Lu, 2010). For example, a peer might tally the number of times the teacher candidate asks open-ended vs closed-ended questions within a lesson. The purpose here is to simply provide data on the number of occurrences a particular instructional practice occurs; not whether the teacher candidate's instruction is good or bad. It is important that teacher candidates be adequately prepared to provide feedback, so it is positive and supportive. Specific observation rubrics or checklists can be helpful tools when implementing peer coaching. A benefit of peer coaching is that it is a method for teacher candidates to receive ongoing feedback when teacher educators might not otherwise have enough time to conduct individual observations of every teacher candidate.

Expert-based coaching is often delivered by a teacher educator, supervisor, mentor, or cooperating teacher, and their feedback may include an evaluation of teacher candidates' instructional quality. The coach can observe instruction (a)

in-person, in real time, (b) remotely, in real time such as in Bug-in-Ear (BIE) coaching, or (c) after instruction has been completed, usually via video recording. With BIE coaching, the teacher candidate receives immediate feedback via a wireless Bluetooth earpiece from a coach who is observing the classroom synchronously via a web-based video platform (e.g., Zoom). Benefits of this model are that (a) teacher candidates can make on-the-spot changes to their practice, (b) the feedback is delivered discreetly to just the teacher candidate, and (c) coaches can provide feedback remotely without having to travel to clinical preparation sites.

Multiple literature reviews point to performance feedback and coaching as an evidence-based approach that improves teacher candidates' instruction and PK-12 students' achievement (Brock & Carter, 2017; Kraft et al., 2018). For peer coaching specifically, studies indicate teacher candidates can be taught to provide effective performance feedback that leads to improvements in instructional outcomes (e.g., Loman et al., 2020). Studies of BIE coaching provide evidence that the approach leads to increases in teacher candidates' use of HLPs (Sinclair et al., 2020). In one longitudinal study, researchers found that the positive effects of BIE coaching were still present one and two years later (Rock et al., 2014).

Structured Tutoring. Structured tutoring is a practice-based approach that enables teacher candidates to practice providing instruction to an individual student. Most often, the structured tutoring experience is connected to an educator preparation program course such that teacher candidates can apply what they are learning about content and pedagogy with a PK-12 student. A benefit of structured tutoring is that it is a more authentic practice opportunity given the ability to work with a student but in a way that is not too complex or requiring advanced behavior or classroom management. Tutoring sessions often center around a structured curriculum or lesson that includes built-in scaffolds, prompts, and explicit directions for implementation. Structured tutoring can also take place in a variety of settings from PK-12 schools to after-school programs or community-based organizations.

Research has shown several benefits of structured tutoring for teacher candidates and the PK-12 students they tutor. For example, candidates who completed structured tutoring experiences had higher levels of content knowledge compared to candidates who only completed coursework without paired tutoring (Englert et al., 2020; Spear-Swerling, 2009). Teacher candidates also increased their effectiveness in planning instruction that incorporates evidence-based practices (Al Otaiba et al., 2012) and responding to students' instructional needs (Hughes & Braun, 2019). Finally, the PK-12 students who were tutored had higher levels of reading achievement in several studies (Al Otaiba et al., 2012; Englert et al., 2020).

The Role of Mentor Teachers and Effective Schools in Field Experiences. In general education, research has failed to demonstrate a relationship between structural aspects of clinical preparation, such as hours spent in field placements, and teacher candidate effectiveness (NCTQ, 2024). Instead, findings from a small number of rigorous quantitative studies suggest that quality of practice opportunities is more important for improving candidate learning than hours spent. Specifically, the individual effectiveness of mentor teachers plays a role in the effectiveness of teacher candidates and beginning teachers. Teacher candidates assigned to mentor teachers with higher observation and student value-added scores demonstrate more effective instruction than teacher candidates assigned to mentor teachers with lower scores on one or both outcomes (Bastian et al., 2020; Goldhaber et al., 2020; Ronfeldt et al., 2020). Although the mechanism that causes candidates with more effective mentors to demonstrate stronger instructional skills than those candidates with less effective mentors has not been identified, it is likely that more effective mentors provide more modeling and feedback. In fact, Ronfeldt and colleagues found that mentors identified as more effective reported providing more coaching than other mentors. Additionally, three experimental studies of coaching showed that teacher candidates assigned to mentors trained in coaching, compared to those assigned to untrained mentors, were rated higher on observations of instructional skill or classroom management (Ronfeldt et al., 2020). Although special education does not have a similar complement of research, the research from general education is instructive for teacher educators in special education, particularly when one considers the strong evidence that exists for coaching.

IMPLICATIONS FOR PRACTICE

Research indicates practice-based learning opportunities should be carefully scaffolded, allowing teacher candidates to have multiple opportunities to practice over time, moving from simple to more complex contexts (Leko et al., 2024). Researchers present models founded upon the notion of *approximations of teaching* wherein practice begins in tightly controlled settings (e.g., coursework) then moves to less controlled, but more authentic clinical teaching experiences such as tutoring, structured field and practicum experiences, and finally student teaching (Brownell et al., 2019; Cohen et al., 2025; Grossman et al., 2009; Leko et al., 2024). This approach also applies to teacher

candidates completing other models of educator preparation programs such as residencies and apprenticeships. In these instances, teacher candidates might learn to implement HLPs and critical content through practice opportunities provided in preparation coursework or district-provided professional development and then continue to practice those skills in increasingly complex environments (e.g., tutoring situations, as behavior support teachers, as paraprofessionals, as teacher of record while working under the supervision of a mentor). In each of these settings, teacher educators, peers, or mentor teachers would provide performance feedback.

Enacting such a scaffolded approach requires teacher educators to work collaboratively to identify the HLPs and critical content (e.g., teaching decoding using explicit instruction) that are most important to practice throughout the preparation program. Without program cohesion, there is the risk that candidates will practice skills in siloed ways. Further, relying on culminating student teaching experiences to be the sole opportunity for practice will not lead to the profession-ready graduates our field needs.

For teacher candidates, it is important that they understand that proficiency develops through repeated practice with feedback. Becoming a skilled practitioner will not occur in one course or one field experience. It also will not occur without being open to performance feedback and continual self-reflection. Success incorporating a practice-based approach to teacher education is also contingent upon strong educator preparation program/school district partnerships. Such partnerships would include a shared vision and language for special educator preparation so there is alignment across the two organizations. The adoption of HLPs and the universally available resources designed to support their implementation (see CEEDAR Center: https://ceedar.education.ufl.edu) is one way to strengthen such alignment. Educator preparation programs and school districts can also rely on the use of Institute for Education Sciences Practice Guides (https://ies.ed.gov/ncee/wwc/practiceguides) and Toolkits produced by the Regional Education Labs (https://ies.ed.gov/regional-education-al-laboratories-toolkits) to identify critical content and develop practice-based opportunities that integrate critical content and HLPs.

> As a field, teacher educators and school districts need a consensus about what defines effective special education teaching, as this is fundamental to defining what makes special education teaching a profession and to designing educative efforts keyed to the most important competencies.

FORWARD-LOOKING RECOMMENDATIONS TO INSPIRE THE NEXT 50 YEARS

As the field of special education teacher preparation looks to the next 50 years in terms of clinical preparation, there is much to warrant inspiration, hope, and most importantly, innovation. At the core, we believe the field will be best served by holding steadfast to the tenets known to result in expertise: scaffolded opportunities to practice with ample access to performance feedback. We recommend the identification of critical content and the implementation of HLPs be a continued shared priority across educator preparation programs and school districts as that will provide necessary focus in our field. As a field, teacher educators and school districts need a consensus about what defines effective special education teaching, as this is fundamental to defining what makes special education teaching a profession and to designing educative efforts keyed to the most important competencies. Too often, what special educators should know and be able to do can seem expansive and without clear definition. This scenario undermines the ability to create uniformity in expectations for effective teaching and programmatically coherent educational experiences for teachers.

One example of a strong educator preparation/LEA partnership is between Little Lake City School District and California State University Long Beach (CSULB). In this partnership, teacher candidates complete a dual elementary and special education credential during a 2-year clinically based program at CSULB. Little Lake City School District provided clinical experiences and mentor teachers for the candidates and was committed to hiring them upon graduation. CSULB faculty and district leaders agreed upon key competencies and instructional high-leverage practices teacher candidates would need to learn to be successful in the district. The emphasis was on academic instruction and interventions within a Muti-Tiered System of Support (MTSS) framework which was being implemented in the district. The

CSULB teacher candidates took a series of literacy courses on tiered instruction that included aligned field experiences within the school district. Candidates implemented the focal HLPs starting within their coursework and then progressed to more authentic practice with students within the district. Faculty and district mentor teachers had common systems of evaluation so that candidates were provided with ample performance feedback. The established partnership with a shared vision and goals resulted in stronger teacher candidate-mentor teacher relationships with the added benefit that mentor teachers were learning about best practices and HLPs when they hosted CSULB teacher candidates. For more comprehensive descriptions of this partnership see Richards-Tutor et al. (2021) and Brownell et al. (2019).

The example of the CSULB/Little Lake City School District exemplifies many of the research supported educator preparation approaches identified in the literature (i.e., scaffolded learning, performance feedback), but continued research on practice-based approaches is needed to develop a true science of teacher learning. It is only within the last decade that researchers in general and special education have begun to amass enough studies to guide teacher educators' decisions about what practice-based approaches can be included in preparation programs and how they might be structured. Yet, there is still much to learn about how practice-based approaches can be leveraged to develop more complex teaching practice for students with disabilities.

Approaches to practice-based preparation will also evolve based on technological advances and adoption of new models of special educator preparation that include iterations of job-embedded preparation. Common examples include teacher residencies and registered teacher apprenticeship programs (RTAPs). Residencies and RTAPs share similar features of preparation, differing mostly in how they are funded, with a key feature being that teacher candidates are employed by a school district and receive a salary while they are completing teacher preparation experiences (Holdheide et al., 2023; Kimmel et al., 2024). This means teacher candidates in residencies and RTAPs do not need to leave the workforce in order to pursue their licensure which opens the door to the teaching profession to a wider array of individuals, especially those who cannot afford to stop working and become a full-time student in an educator preparation program. Another benefit is that these teacher candidates receive preparation that is tailored to the LEA contexts in which they are already working.

Artificial Intelligence (AI) and further developments of simulation platforms like Mursion when used ethically and responsibly, will undoubtedly play a pivotal role in further expanding the world of possibilities for practice-based approaches. We recommend a careful look at what AI can offer in terms of student support. Are there instructional and administrative tasks that could be delegated to AI such that special educators' time and effort is preserved for the most critical task: providing specialized instruction to students with disabilities? Could AI-based language processing models provide some level of performance feedback to novice special educators and support coaches and mentors in providing teachers with more timely feedback? Furthermore, in terms of clinical preparation, simulations might provide practice opportunities for special education teacher candidates to serve a broader array of students based on their race, ethnicity, language, disability label, etc. so teacher candidates are afforded a world of preparation opportunities that move beyond what is available within their own local clinical preparation sites.

We recommend continued efforts to disband silos between educator preparation programs and local school districts as well as increased communication between districts and state education agencies to inform state initiatives aligned with high -quality clinical preparation. Such efforts will require greater flexibility and novel responses to bureaucratic processes that currently make the creation of nimble partnerships and models difficult within higher education-based preparation programs. Further, leaders in teacher preparation programs and school districts will need to prioritize resources and time for the collaborative efforts required to develop consensus about those HLPs and critical content that should be the focus of practice-based opportunities and to construct and implement practice-based opportunities similar to the partnership between CSULB and Little Lake City School District. As the field improves and expands upon practice-based clinical preparation, we have no doubt students with disabilities and their families will be well-served now and for the next 50 years.

REFERENCES

Al Otaiba, S. A., Lake, V. E., Greulich, L., Folsom, J. S., & Guidry, L. (2012). Preparing beginning reading teachers: An experimental comparison of initial early literacy field experiences. *Reading and Writing, 25*(1), 109–129. https://doi.org/10.1007/s11145-010-9250-2

Bastian, K. C., Patterson, K. M., & Carpenter, D. (2020). Placed for success: Which teachers benefit from high-quality student teaching placements? *Educational Policy*, 36(7), 1583–1611. https://doi.org/10.1177/0895904820951126.

Berdine, W. H., Cegelka, P. T., & Kelly, D. (1977). Practica evaluation: A competency-based teacher education system. *Education and Training of the Mentally Retarded, 12*(4), 381–386. https://www.jstor.org/stable/23881355

Bereiter, C., & Engelmann, S. (1966). *Teaching disadvantaged children in the preschool.* Prentice Hall.

Brock, M. E., & Carter, E. W. (2017). A

meta-analysis of educator training to improve implementation of interventions for students with disabilities. *Remedial and Special Education, 38*(3), 131–144. https://doi.org/10.1177/0741932516653477

Brophy, J. E. (1979). Teacher behavior and its effects. *Journal of Educational Psychology, 71*(6), 733–750. https://doi.org/10.1037/0022-0663.71.6.733

Brownell, M. T., Benedict, A. E., Leko, M. M., Peyton, D., Pua, D., & Richards-Tutor, C. (2019). A continuum of pedagogies for preparing teachers to use high-leverage practices. *Remedial and Special Education*, *40*(6), 338–355.

Brownell, M. T., Sindelar, P. T., Kiely, M. T., & Danielson, L. (2010). Special education teacher quality and preparation: Exposing foundations, constructing a new model. *Exceptional Children, 76*(3), 357–377.

Buck, G., Morsink, C., Griffin, C., Hines, T., & Lenk, L. (1992). Preservice training: The role of field-based experiences in the preparation of effective special educators. *Teacher Education and Special Education, 15*(2), 108–123. Doi:10.1177/088840649201500206

Cohen, J., Wong, V., Krishnamachari, A., & Berlin, R. (2020). Teacher coaching in a simulated environment. *Educational Evaluation and Policy Analysis, 42*(2), 208–231. https://doi.org/10.3102/0162373720906217

Cohen, J., Marisa Yonas, A., & Elizabeth Wilson, K. (2025). Approximating Teaching: A Systematic Review of the Research. *Review of Educational Research*, *0*(0). https://doi.org/10.3102/00346543251368383

Connor, F. P. (1976). The past is prologue: Teacher preparation in special education. *Exceptional Children, 42*(7), 366–378. https://doi.org/10.1177/001440297604200702

Cornelius, K. E., & Nagro, S. A. (2014). Evaluating the evidence base of performance feedback in preservice special education teacher training. *Teacher Education and Special Education*, *37*(2), 133–146. https://doi.org/10.1177/0888406414521837

Deno, S. L., Marston, D., & Tindal, G. (1986). Direct and frequent curriculum-based measurement: An alternative for educational decision making. *Special Services in the Schools, 2*(2-3)*, 5–27.* https://doi.org/10.1300/J008v02n02_02

Dunst, C. J., Hamby, D. W., Howse, R. B., Wilkie, H., & Annas, K. (2019). Meta-synthesis of preservice professional preparation and teacher education research studies. *Education Sciences*, *9*(1), 50. https://doi.org/10.3390/educsci9010050

Education for All Handicapped Children Act, Pub. L. No. 94-142 (1975)

Englert, C. S., Mariage, T. V., Truckenmiller, A. J., Brehmer, J., Hicks, K., & Chamberlain, C. (2020). Preparing special education preservice teachers to teach phonics to struggling readers: Reducing the gap between expert and novice performance. *Teacher Education and Special Education, 43*(3), 235–256. https://doi.org/10.1177/0888406419863365

Ericsson, K. A. (2014). *The road to excellence: The acquisition of expert performance in the arts and sciences, sports, and games.* Psychology Press.

Fukkink, R. G., & Tavecchio, L. W. (2010). Effects of video interaction guidance on early childhood teachers. *Teaching and Teacher Education, 26*(8), 1652–1659. https://doi.org/10.1016/j.tate.2010.06.016

Gilmour, A., & Lam, T. (2025). A systematic review and meta-analysis of dual certification in special education and general education. *The Journal of Special Education*, *0*(0), 1–11. https://doi.org/10.1177/00224669251365233

Goldhaber, D., Krieg, J., & Theobald, R. (2020). Effective like me? Does having a more productive mentor improve the productivity of mentees? *Labour Economics*, *63*, 101792. https://doi.org/10.1016/j.labeco.2019.101792

Gomez-Najarro, J., Pugach, M. C., & Blanton, L. P. (2025). Advancing Teacher Education for Inclusion: Using a Multidimensional Framework to Analyze the Discourse of Dual Certification. *Teacher Education and Special Education*, *48*(3), 192–211. https://doi.org/10.1177/08884064251349849

Grossman, P., Hammerness, K., McDonald, M. (2009). Redefining teaching, re-imagining teacher education. *Teachers and Teaching: Theory and Practice, 15*(2), 273–289. https://doi.org/10.1080/13540600902875340

Grossman, P., & McDonald, M. (2008). Back to the Future: Directions for Research in Teaching and Teacher Education. *American Educational Research Journal*, *45*(1), 184–205. https://doi.org/10.3102/0002831207312906

Holdheide, L., Kimmel, L., Jirous-Rapp, J., & James, W. (2023). *Take a seat at the table.* American Institutes for Research. https://www.air.org/sites/default/files/2023-04/EPP-Role-in-Apprenticeship-Brief-AACTE-GTL-Center-CEEDAR-April-2023.pdf

Hollins, E. R., & Warner, C. K. (2021). *Rethinking teacher preparation program design*. Routledge.

Hughes, M. T., & Braun, G. (2019). Experiential learning experiences to enhance preservice special educators' literacy instruction. *International Electronic Journal of Elementary Education, 12*(1), 93–101. https://doi.org/10.26822/iejee.2019155341

Kang, H., & Windschitl, M. (2018). How does practice-based teacher preparation influence novices' first-year instruction? *Teachers College Record*, *120*(8), 1–44. https://doi.org/10.1177/016146811812000803

Kimmel, L., Krohn, C., Herring, C., & Alvarez McHatton, P. (2024). *Creating pathways into the profession while building diversity with registered teacher apprenticeship programs*. American Institutes for Research. https://www.air.org/sites/default/files/2024-01/RTAP_Diveristy_BranchED_GTL.pdf

Kraft, M. A., Blazar, D., & Hogan, D. (2018). The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence. *Review of Educational Research*, *88*(4), 547–588. https://doi.org/10.3102/0034654318759268

Laster, B. P. (2013). A historical view of student learning and teacher development in reading clinics. In E. Ortlieb & E. H. Cheek, Jr. (Eds.), *Advanced Literacy Practices: From the Clinic to the Classroom*. Emerald Group Publishing: Bingley, United Kingdom.

Leko, M. M., Brownell, M. T., O'Brien, K., & Nagro, S. A. (2024). Capitalizing on the potential of practice-based preparation in special education teacher preparation. In E. D. McCray, E. A. Bettini, P.T. Sindelar, J. McLeskey, & M. T. Brownell (Eds.), *Handbook of Research on Special Education Teacher Preparation* (2nd ed, pp. 106–125). Routledge.

Loman, K., Nickens, N., Tye, N., Danley, A., Snider, K., McCoy, A., ... & Gilbert, A. (2020). Peer coach during field experiences: Cultivating teacher candidates' peer feedback and reflective practices. *Journal of Early Childhood Teacher Education*, *41*(1), 85–99. https://doi.org/10.1080/10901027.2019.1569183

Mackie, R. P., & Dunn, L. M. (1954). *College and university programs for the preparation of teachers of exceptional children*. Washington, DC: U.S. Department of Health, Education, and Welfare, Office of Education. https://babel.hathitrust.org/cgi/pt?id=mdp.39015031804381&seq=17

Meline, M., Harn, B., Jamgochian, E., Stickland-Cohen, M. K., Linan-Thompson, S., & Lucero, A. (2023). Examining the use of video analysis on teacher instruction and teacher outcomes. *The Journal of Special Education*, *57*(2), 83–93. https://doi.org/10.1177/00224669221133773

McLeskey, J., Maheady, L., Billingsley, B., Brownell, M., & Lewis, T. (2019). *High-leverage practices for inclusive classrooms.* Routledge.

Moore, R. S. (1976). The effects of videotaped feedback and self-evaluation forms on teaching skills, musicianship and creativity of prospective elementary teachers. *Bulletin of the Council for Research in Music Education, 47*, 1–7.

Nagro, S. A., & Cornelius, K. E. (2013). Evaluating the evidence base of video analysis: A special education teacher development tool. *Teacher Education and Special Education*, *36*(4), 312–329. https://doi.

ABOUT THE AUTHORS

Melinda Leko, Ph.D.

Melinda Leko, PhD, is Professor of Special Education in the School of Special Education, School Psychology, and Early Childhood Studies at the University of Florida and Co-Director of the CEEDAR Center. Her research focuses on educator preparation that promotes inclusive and equitable practices, reading instruction for adolescents with disabilities, and educators' implementation of evidence-based and high-leverage practices. Through her scholarship, national leadership, and mentorship of emerging researchers and teacher educators, she has helped shape how the field prepares and supports educators to deliver effective instruction for students with disabilities.

Mary T. Brownell, Ph.D.

Mary T. Brownell, PhD, is Distinguished Professor Emerita of Special Education at the University of Florida. Her scholarship has advanced the field's understanding of special education teacher preparation, teacher quality and assessment, professional development, reading instruction, and the special educator workforce. As founder and former director of the CEEDAR Center, she helped transform educator preparation systems nationally, an enduring legacy recognized through numerous honors, including the Council for Exceptional Children's 2026 Special Education Lifetime Achievement Award.

Lisa Morin

Lisa is a doctoral candidate in Special Education at the University of Florida. Her research agenda broadly focuses on improving outcomes for students with moderate to extensive support needs by increasing access to inclusive educational contexts and standards-based instruction through capacity building and professional collaboration.

Maggie Bethea

Maggie Bethea is a 4th year doctoral student at the University of Florida pursuing her PhD in special education. Her research focuses on disrupting racial inequities perpetuated by special education through three distinct levers across ecological systems: policy, school leaders, and teachers. Maggie embraces a DisCrit theoretical lens in her work.

org/10.1177/0888406413501090

Nagro, S. A., DeBettencourt, L. U., Rosenberg, M. S., Carran, D. T., & Weiss, M. P. (2017). The effects of guided video analysis on teacher candidates' reflective ability and instructional skills. *Teacher Education and Special Education, 40*(1), 7–25. https://doi.org/10.1177/0888406416680469

National Center on Teacher Quality. (2024). *Clinical practice framework research rationale*. Authors. https://www.nctq.org/research-insights/clinical-practice-framework-research-rationale/

National Commission on Excellence in Education (1983). *A nation at risk: The imperative for education reform.* Washington, DC: U.S. Department of Education. https://eric.ed.gov/?id=ED226006

O'Brien, K. M., Nagro, S. A., Binkert, G. D., Szocik, K., & Gerry, M. (2024). Field experiences in special education teacher preparation: A review of the literature. *Teacher Education and Special Education*, *47*(1), 5–25. https://doi.org/10.1177/08884064231177662

Oseroff, A., Souder, B., & Conners, R. (1978). Field-based instruction: Outcomes, placement, and evaluation. *Teacher Education and Special Education, 1*(2), 8–13. https://doi.org/10.1177/088840647800100203

Qualls, L. W., Carlson, A., Scott, S. N., Cunningham, J. E., & Hirsch, S. E. (2024). Special education teachers' preservice experiences with mixed-reality simulation: A systematic review. *Teacher Education and Special Education*, *47*(2), 124–141. https://doi.org/10.1177/08884064231226255

Richards-Tutor, C., Barber, B., Benedict, A., Brownell, M., Martinez-Vargas, L., & Gates, J. (2021). Using high-leverage practices to organize practice-based opportunities. In P. T. Chandler & L. Barron (Eds.), *Rethinking School-University Partnerships*. Information Age Publishing. https://www.emerald.com/books/edited-volume/18567/chapter/102174339/Using-High-Leverage-Practices-to-Organize-Practice

Rock, M. L., Schumacker, R. E., Gregg, M., Howard, P. W., Gable, R. A., & Zigmond, N. (2014). How are they now? Longer term effects of e coaching through online bug-in-ear technology. *Teacher Education and Special Education*, *37*(2), 161–181. https://doi.org/10.1177/0888406414525048

Ronfeldt, M., Matsko, K. K., Greene Nolan, H., & Reininger, M. (2020). Three different measures of graduates' instructional readiness and the features of preservice preparation that predict them. *Journal of Teacher Education*, *72*(1), 56–71. https://doi.org/10.1177/0022487120919753

Sinclair, A. C., Gesel, S. A., LeJeune, L. M., & Lemons, C. J. (2020). A review of the evidence for real-time performance feedback to improve instructional practice. *The Journal of Special Education*, *54*(2), 90–100. https://doi.org/10.1177/0022466919878470

Sindelar, P. T., Fisher, T. L., & Myers, J. A. (2019). The landscape of Special Education licensure, 2016. *Teacher Education and Special Education*, *42*(2), 101–116. https://doi.org/10.1177/0888406418761533

Spear-Swerling, L. (2009). A literacy tutoring experience for prospective special educators and struggling second graders. *Journal of Learning Disabilities*, *42*(5), 431–443. https://doi.org/10.1177/0022219409338738

Whitford, B. L., & Villaume, S. K. (2014). Clinical teacher preparation: A retrospective. *Peabody Journal of Education, 89*(4), 423–435. https://www.jstor.org/stable/43909786

Will, M. C. (1986). Educating children with learning problems: A shared responsibility. *Exceptional Children*, *52*(2), 411–415. https://doi.org/10.1177/001440298605200502

Wright, M. R., Ellis, D. N., & Baxter, A. (2012). The effect of immediate or delayed video-based teacher self-evaluation on Head Start teachers' use of praise. *Journal of Research in Childhood Education, 26*(2), 187–198. https://doi.org/10.1080/02568543.2012.657745



OPEN ACCESS
SPECIAL EDUCATION ALLIANCE

Greater Access. Broader Impact.
A Stronger Special Education Community.

Advancing Special Education Through Open Access

The Open Access Special Education Alliance serves as a collaborative network of journals, scholars, and practitioners dedicated to advancing special education through open, equitable, and innovative scholarship.

By removing paywalls and expanding access to research, this alliance ensures that the knowledge and resources needed to support learners with disabilities are available to everyone — from educators and families to researchers and policymakers.

Free to Publish. Free to Read.

REMOVES BARRIERS FOR READERS

Free, immediate access to valuable research and resources.

REMOVES BARRIERS FOR AUTHORS

No subscriptions. No article processing fees.

INCREASES EQUITY

Ensures all learners, educators, and communities can benefit.

SUPPORTS BROADER DISSEMINATION

Expands the reach and real-world impact of special education research.

ALIGNS SCHOLARSHIP WITH PUBLIC SERVICE

Connects evidence to practice and policy for stronger learning outcomes.

LEARN MORE AT
www.openSEAjournals.com

Expanding Access. Strengthening Special Education.



JOSEP

Journal of Special Education Preparation

BALL STATE UNIVERSITY & TEACHER EDUCATION DIVISION
VOLUME 6, ISSUE 2 | FALL 2026 | ISSN: 2768-1432