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Characteristics of Individualized Education Programs for Students With Learning Disabilities: A Systematic Review

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Abstract

Students who receive special education services are entitled to receive an Individualized Education Program (IEP) that provides an appropriate level of benefit. Although IEP content is informed by policy mandates and practice recommendations, research has yet to investigate the degree to which school practice is in alignment. The purpose of this investigation was to perform a systematic review of peer-reviewed studies investigating the characteristics and/or quality of IEPs for students with learning disabilities (LDs). A multi-step article identification process revealed 13 studies meeting selection criteria, many of which did not report specific demographic characteristics and findings for students with LD. However, some concerns regarding IEP quality are documented within this pool of investigations. Study limitations and areas for future research are discussed.

Keywords

free appropriate public education, special education, Individualized Education Program, students with learning disabilities, IDEA

With the passing of the Education for All Handicapped Children's Act of 1975, the development and implementation of an Individualized Education Program (IEP) became a critical consideration for public education. An IEP is mandated when a student's disability or disabilities adversely affects school performance to such an extent that the student cannot sufficiently benefit from school in its absence (CFR §§300.320, 2006). According to this mandate, an IEP is developed through a collaborative process performed by a multi-disciplinary team consisting of parents/guardians and educational professionals, including teachers, administrators, and specialists, including a school psychologist. During this process, the IEP team reviews findings from a psychoeducational evaluation and input from other sources of pertinent information. This information helps school staff to identify, describe, and respond to student needs stemming from the nature of the disability and its impact on school performance. (Hartmann, 2016).

The IEP includes several components designed to work in concert to provide students with disabilities a free appropriate public education (FAPE; Yell, Collins, et al., 2020) including information on the manner in which a student's disability(s) adversely affects school performance. This description of how the disability impacts behavior and learning is important because it is used to select services and supports as well as to inform placement decisions (e.g., selection of a student's least restrictive environment [LRE]). Present levels of academic achievement and functional performance (PLAAFP) describe the strengths of the child and for each identified area of student need, annual goals are developed that are appropriately ambitious and focus on important school and life outcomes. PLAAFPs and their annual goals may focus on academic, social-emotional, behavioral, or functional performance, and depend on a student's individual needs. PLAAFPs and annual goals are also used to select methods for progress monitoring, which is essential because school teams must adjust services when there is evidence that a child is unlikely to achieve an annual goal (U.S. Department of Education, 2017). Progress monitoring data are essential to schools meeting the requirement of providing progress reports to parent/guardians. Finally, IEP teams consider the IEP in its entirety when selecting a student's educational placement. When making decisions

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regarding a student's LRE, the IEP team considers the impact of the disability on school performance, the supports and services the student requires to make appropriate progress in school, and the educational setting that has the optimum balance between access to the services and supports that are required for FAPE and peers who do not have a disability. This is an individualized determination, with LRE varying from student to student. In sum, IEPs contain elements that collectively document the operationalization of FAPE.

Increased Expectations for Public Education

The Supreme Court opinion in the work of Endrew F. (2017) affirmed the notion that the IEP is central to the provision of FAPE: ". . . to meet its substantive obligation under the IDEA, a school must offer an IEP that is reasonably calculated to enable a child to make progress appropriate in light of the child's circumstances" (p. 2). This notion of "reasonably calculated" emphasizes the role of the IEP team and the necessity of parent/guardian involvement. For an IEP to be "reasonably calculated," IEP team's must consider the expertise of educational professionals, parent/guardian concerns and input, the child's disability and its impact on school performance, and a student's progress in response to previously provided services and supports (U.S. Department of Education, 2017). Although the final IEP is not required to be "ideal" (137 S. Ct. at 999), the Supreme Court affirmed the notion that individualized decisions must be made during the IEP development process (U.S. Department of Education, 2017). Additional considerations must also be made when developing an IEP that is likely to confer appropriate benefit.

The Endrew F. opinion (2017) highlighted the importance of other characteristics of the IEP, both in terms of their standalone value and how they complement one another. For example, IEPs must include information on how the child's disability adversely affects "involvement and progress in the general education curriculum" (p.13). This information is important to the development of appropriately ambitious goals, which are needed to ensure that the IEP focuses on meaningful outcomes. Endrew F. (2017) also affirmed that "every child should have the chance to meet challenging objectives" (p. 14), which should focus on improving academic and functional performance (U.S. Department of Education, 2017). Thus, IEP teams must consider the full range of student needs to ensure FAPE. To this end, IEP teams must consider a student's present levels of performance (e.g., PLAAFPs), as this information serves as a baseline, or starting point, for developing criterions of achievement for annual goals (U.S. Department of Education, 2017). Services, or "specially designed" instruction, are selected to address a child's individual needs to support the achievement of annual goals (137 S. Ct. at 999). Furthermore, when a student's behavior adversely affects performance, a behavioral support plan must be included along with services that promote its attainment (U.S. Department of Education, 2017). In instances in which students are not making appropriate progress toward achieving their annual goals, IEPs must be reviewed and potential adjustments considered (U.S. Department of Education, 2017). Finally, educational placement is an individualized decision and districts are mandated to provide the full continuum of service options (U.S. Department of Education, 2017) rather than utilize full inclusion (Kauffman & Badar, 2016). Thus, decisions regarding a student's LRE cannot be made prior to the IEP meeting and must be based on a consideration of a student's individual needs, rather than the needs of school personnel or available district resources (Yell, Katsiyannis, et al., 2020).

Issues With IEP Development and Content

Issues with IEP development and content may adversely affect its quality and the provision of FAPE (Yell, Collins, et al., 2020; Yell et al., 2022). Examples of ***procedural errors*** (e.g., failure to follow required processes) include non-compliance with IEP timelines, omission of parental notification, absence of parental involvement in IEP development, and a failure to implement services as stated in the IEP. Examples of ***substantive errors*** (e.g., IEP content issues) include absence of information on PLAAFPs for each important area of student need, absence of goals that target each important area of student need, goals that lack specificity and/or are unmeasurable, and the absence of progress monitoring methods. When conflicts emerge between parents/guardians and schools regarding IEP development and implementation, parents have formalized rights outlined in IDEA, including the inclusion of community-based advocates, mediation, and due process hearings. In some instances, such as when parents/guardians are fully aware of their rights and have the means to pursue them, these procedural and content errors can cause conflicts that lead to litigation (Zirkel & Hetrick, 2017).

When contested, substantive violations tend to involve debates regarding whether an IEP is likely to confer appropriate benefit for a student (Zirkel, 2017). Procedural violations impede a student's right to FAPE, parent/guardian participation in decision-making, or cause loss of educational benefits (20 U.S.C § 1415[f][3][E][ii]). However, not all procedural errors that are litigated are eventually considered a FAPE violation. For example, a review of court cases focusing on procedural violations by Zirkel and Hetrick (2017) reported that only 25% were ruled in favor of parents/guardians. Although the researchers point to confusion in the field regarding what constitutes a likely FAPE violation and what is a deviation

from recommended practice, they also state that school practice should emphasize the provision of an IEP that is likely to be beneficial. Data on the school performance of students who receive special education services also suggest a need for this emphasis (see U.S. Department of Education, 2022). For example, students with disabilities continue to achieve lower levels of academic performance compared with their peers without a disability despite the provision of special education services (Arundel, 2022). Thus, it is important to consider the degree to which students with disabilities receive an IEP that complies with procedural and substantive requirements and/or align with recommendations for IEP content and development.

Study Purpose

The purpose of this investigation was to identify and describe the extant research on IEP characteristics and quality. An investigation of this nature can identify characteristics of IEP development and content, which could be used to estimate the degree to which students with disabilities are provided with an IEP that is compliant with mandated procedures and content, as well as informed by recommended practice in this area. Study findings could also potentially inform pre-service and in-service educator training and support, which is viewed as critical to improving the development, characteristics, and quality of IEPs (Hott et al., 2021; Strassfeld, 2019). For example, training and support could target areas of concern identified through a systematic literature review. Currently, we are unaware of any recent previous synthesis of IEP characteristics and quality. In this investigation, we focused on a subset of students with disabilities and their IEPs, as indicated by the peer-reviewed literature: students with learning disabilities (LDs). We focused specifically on students with LD because data suggest that this student population makes up the greatest proportion of students between the ages of 6 to 21 who have an IEP (e.g., 37.1%). Thus, investigating the characteristics and quality of IEPs for students with LD may provide insight into the provision of services for a significant number of students who receive special education services. This investigation was informed by the following research questions:

RQ1. What are the characteristics of students with LD included in peer-reviewed research focusing on IEP characteristics and quality?
RQ2. To what degree have researchers in this area investigated changes to IEPs over time?
RQ3. To what degree do IEPs of students with LD comply with procedural and substantive requirements and practice recommendations, as indicated by peer-reviewed literature?

Method

A multi-step procedure was followed to identify articles salient to this review. First, an electronic search of Education Research Complete, Academic Search Premier, ERIC, and PsychINFO spanning the years 2004 to 2022 was performed using the following Boolean phrase: "individualized education program" OR "IEP" OR "accommodations for students with disabilities" OR "modifications for students with disabilities," or "free appropriate public education." The year 2004 was chosen as the start date for the search procedure because this was the year that IDEA was reauthorized. The electronic search identified 7,660 articles, each of which had their title and abstract read independently by two researchers to screen for suitability based on the selection criteria described below. Upon conclusion of article screening, 31 articles were identified as potentially meeting selection criteria and were read in their entirety. Articles meeting all of the following criteria were selected for inclusion: (a) article was published in a peer-reviewed journal, (b) the article included an analysis of IEP documents, such as PLAAFP statements, goals and objectives, services provided, and persons in attendance; (c) data were collected as part of a description of typical school practice, an analysis of typical school practice (e.g., business as usual conditions), or correlational analysis involving IEP characteristics; (d) intervention and educator training studies were not included because we sought to identify and describe business as usual school practice rather than practice in response to researcher support or technical assistance; (e) the article was written in English; and (f) the study included at least one student with an LD educated in the United States in Grade K to the age of 21 (e.g., until the time when students with disabilities are no longer eligible for school-based services through the provision of an IEP). Nineteen articles that were read in their entirety did not meet selection criteria. Articles were commonly excluded for reporting findings from an intervention study, having a practitioner focus (e.g., reported and described recommendations for school practice), and not including at least one student with a LD. Reliability for the electronic database search was 100%.

Next, an electronic hand search of all articles in the following journals covering the same time period was performed independently by two researchers: *Behavioral Disorders, Exceptional Children, Journal of Learning Disabilities, Journal of Special Education, Learning Disability Quarterly*, and *Remedial and Special Education.* These journals were selected due to their standing in the field of special education and their tendency to publish studies utilizing a variety of research methods. These journals were also selected in consideration of their tendency to publish studies involving students with high-incidence disabilities, including LD. No articles meeting selection

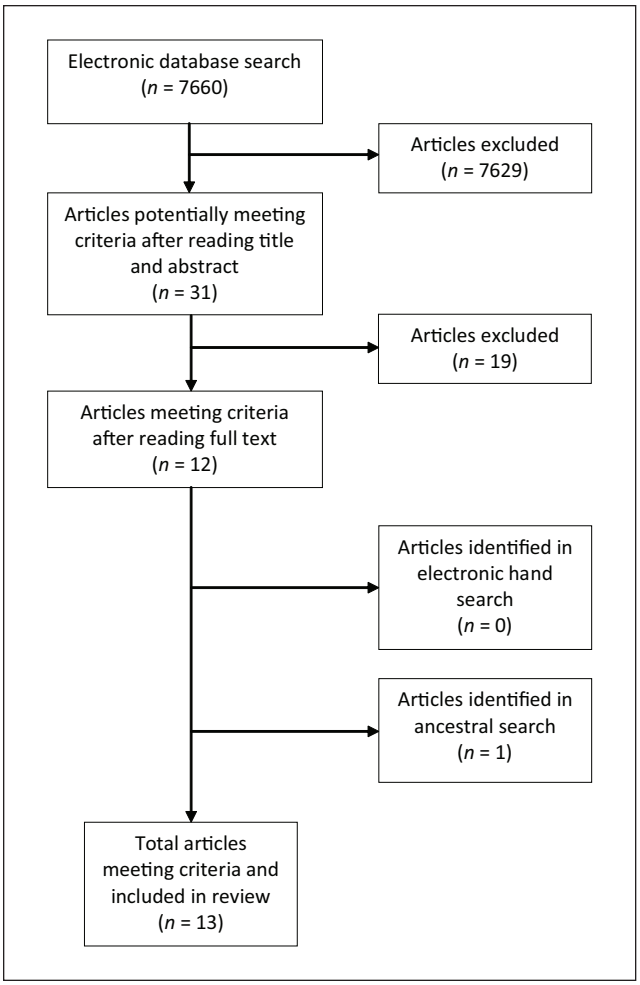

Figure 1. Study Search and Identification Procedure.

criteria were identified through this process. Reliability for the electronic hand search was 98.9%, with disagreements discussed by two authors until a consensus was obtained.

Finally, an ancestral search of all articles meeting selection criteria was performed independently by two authors to identify any additional studies relevant to this investigation. One article meeting selection criteria were identified in this process. Reliability for the ancestral search was 100%. Upon conclusion of all search procedures, 13 articles were identified for descriptive coding. Figure 1 provides an overview of study identification procedures.

An Excel coding sheet was utilized to extract and organize information from studies meeting selection criteria. Articles were coded for the following information: area of focus, study purpose, research questions, district characteristics (e.g., district type, geographic location, socioeconomic status [SES], ethnicity), school characteristics (e.g., number of schools, number of students, ethnicity, percentage of students with an IEP, number or percentage of English Language Learner (ELL) students, SES, student grades), number of IEPs reviewed, student demographic information (e.g., gender, ethnicity, SES, grade, age), measures and/or coding procedure used to obtain information from IEPs, parts of the IEP analyzed, whether the analysis provided a "snapshot" of IEP quality or occurred over time, reliability procedures and data for IEP coding, study results, and major findings. Studies included in this review reported information on IEP quality in various ways, depending on the area of focus and coding protocol/measure employed. For this systematic review, IEP quality was coded by identifying researcher statements regarding IEP quality and study results used to support these statements. For example, one study focused on the alignment of the IEP with identified student needs (Catone & Brady, 2005). The researchers made statements regarding the tendency of IEPs in this sample to be misaligned, and reported quantitative and qualitative information in the results that supported this contention. Each article was independently double coded by two researchers. Prior to coding, the first author reviewed this study's purpose and research questions and utilization of the Excel sheet. Next, the first and second authors independently double coded two articles for the purpose of establishing initial reliability. When disagreements occurred, discussion was utilized to obtain a consensus (e.g., 100% agreement). Upon completing this procedure, two researchers independently double coded the remaining 11 articles. Intercoder agreement was 96.8%. All disagreements were discussed by two researchers until a consensus was achieved (e.g., 100% agreement). Areas of disagreement focused on student demographics and study area of focus.

Results

Results of peer-reviewed studies reporting IEP characteristics and/or quality for students with LD are synthesized in the following manner. First, we report the corpus of studies and an overview of participant characteristics. The timeframe of the IEP analysis (e.g., did studies investigate changes in IEP characteristics changed over time in response to changes in student needs and strengths?) is then reported. Finally, we report study findings, using IEP procedures, characteristics, and requirements discussed by Yell, Collins, and colleagues (2020) and Zirkel and Hetrick (2017) as a framework. In their respective articles, the author teams report and describe specific procedures, characteristics, and requirements associated with IEP development and content. In this current investigation, we categorized results and findings for studies meeting our selection criteria according to the substantive and procedural requirements reported by the author teams in their primary studies.

Corpus of Studies

Thirteen studies published between the years 2005 and 2021 met article selection criteria. Table 1 reports information on study focus, district and school characteristics, and student participant characteristics. Table 2 reports information on study analysis methods and findings for students with LD included in participant samples.

Research Question 1: Participant Characteristics

A total 1,530 students with LD had their IEP reviewed in the 11 studies, with a mean of 117.7 students included per study (range: 4–1,044). Of these students, 455 students (33%) had a secondary disability that was not specified (Crim et al., 2008). Three studies (27.2%) did not report specific demographic information for students with LD included in participant samples (Borders et al., 2015; La Salle et al., 2013; Spiel et al., 2014).

Four studies reported the gender of students with LD (Bray & Russell, 2018; Crim et al., 2008; Hott et al., 2020, 2021): 775 participants were male and 429 female. Gender was not reported for 21.3% of students with LD included in the 13 studies meeting selection criteria.

Student grade was reported in seven studies (53.8% of all studies; Bray & Russell, 2018; Catone & Brady, 2005; Crim et al., 2008; Hoover et al., 2018; Hott et al., 2020, 2021; Lo, 2014). Three studies (23.1%) focused on secondary grade students (Bray & Russell, 2018; Catone & Brady, 2005; Hott et al., 2020), three studies (23.1%) focused on elementary and secondary grade students (Hoover et al., 2018; Hott et al., 2021; Lo, 2014) and one study (7.7%) focused on elementary grade students (Crim et al., 2008).

Information on the ethnicity and race of students with LD was reported in three studies (23.1% of all studies; Crim et al., 2008; Hott et al., 2020, 2021). In these studies, 547 students with LD were Caucasian, 434 Hispanic, 152 Asian, 48 African American, four American Indian, and three other ethnicity/race. Overall, information on ethnicity was not reported for 342 participants (22.4% of total sample). Information on participant primary language was reported in one study (9.2% of all studies; Hoover et al., 2018), with all 29 participants classified as an ELLs. Information on student SES was provided in one study (Hott et al., 2020). In this investigation, 79 of 89 students with LD received free or reduced-price lunch.

Research Question 2: Time Frame of Analysis

Of the 13 studies meeting selection criteria, two (15.4%) investigated a sample of IEPs over time (Borders et al., 2015; Catone & Brady, 2005). The remaining 11 studies provided a snapshot of IEP characteristics and quality (e.g., at one point in time). Findings for all studies including the two longitudinal investigations are reported in the following section.

Research Question 3: IEP Characteristics

We report results and findings from studies meeting selection criteria using the substantive and procedural requirements reported by Yell, Collins, and colleagues (2020) and Zirkel and Hetrick (2017) as a framework. Of the 13 studies meeting selection criteria, six (46.2%) did not report specific findings for students with LD included in the participant sample (Geenen & Powers, 2006; Harrison et al., 2017; Hott et al., 2021; La Salle et al., 2013; Lo, 2014; Spiel et al., 2014).

Develop PLAAFP Statements for All Areas of Student Need. Two studies reported findings relevant to this IEP mandate (Hoover et al., 2018; Hott et al., 2020). In a descriptive study of 30 IEPs obtained from students who attended a large suburban school district located in a Mid-Atlantic state or a rural district from a Western state, Hoover et al. (2018) reported that information on student performance in areas critical to the success of culturally and linguistically diverse students were rarely included in PLAAFPs. For example, information on academic English language skills and English vocabulary performance was often absent from IEPs. In a study investigating the characteristics of 89 IEPs obtained from 15 rural school districts in the Southeast, Hott and colleagues (2020) reported that the majority of IEPs in the sample of secondary grade students with mathematics LD included PLAAFP statements focusing on mathematics performance. This finding is encouraging, as PLAAFP statements must be included for each skill area that is adversely affected by a student's disability.

Goals Account for All Academic and Behavioral Needs. Five studies reported findings relevant to this IEP characteristic (Borders et al., 2015; Bray & Russell, 2018; Catone & Brady, 2005; Hoover et al., 2018). Using a 5-year sample of IEPs for students with a hearing impairment that attended an urban district in the Midwest, Borders and colleagues (2015) reported that 70% of benchmarks for students with LD focused on written language, reading, or mathematics. This finding suggests that the IEPs for this sample of students with LD focused on improving academic performance. However, the degree to which benchmarks targeted identified areas of student need and were measurable could not be determined based on the information provided.

In their case investigation of secondary grade students with LD who were educated in high school inclusive classrooms from two suburban districts in Pennsylvania, Bray and Russell (2018) reported that goals for eight of 12 students focused on state standards. This finding suggests that concepts and skills associated with state standards were

Table 1. Study Focus and Participant Characteristics.

Reference	Focus	District and school characteristics	Student demographics
Borders et al. (2015)	Educational labels and services provided to students with hearing loss	Large urban midwestern district	Three students receiving services for LD on first IEP Four students receiving services for LD on last IEP
Bray & Russell (2018)	Inclusion of secondary grade students with LD	Two suburban districts, Pennsylvania Two high schools: #1: 1,500 students; 50% economically disadvantaged; 57% C, 41% AA; 95% of sped students education in gen ed #2: 555 students; 41% economically disadvantaged; 86% C, 13% AA Both schools with strong inclusion model	School #1: 1 M, 2 F; 2 10th, 1 11th School #2: 1 M, 1 F; 2 10th grade
Catone & Brady (2005)	Alignment of IEP with needs of students with LD with word reading difficulties	Suburban district in Rhode Island; two high schools	54 students in grades 9 to 12 with LD in basic reading skills Some students also had LD in reading comprehension, written expression, and mathematics
Crim et al. (2008)	IEP characteristics of twice exceptional elementary grade students	Two suburban districts in Texas	1,044 students receiving services for LD 225 low ability: 137 M, 88 F; 71 C, 56 A, 86 H, 5 AA, 2 AI; 51 3rd, 68 4th, 106 5th; 118 with secondary disability 707 average ability: 470 M, 237 F; 152 3rd, 250 4th, 306 5th; 288 C, 88 A, 315 H, 10 AA, 2 AI; 302 with secondary disability 112 high ability: 79 M, 33 F; 82 C, 8 A, 17 H, 4 AA; 19 3rd, 47 4th, 46 5th; 35 with secondary disability
Geenen & Powers (2006)	Transition planning for foster care youth	Large urban district in Oregon; 57,000 students	Nine students with LD in foster care 10 students with LD not in foster care All between ages of 16 to 21
Harrison et al. (2017)	Alignment between transition goals and parent/guardian and student knowledge	54 high schools from five states (Kansas, Missouri, Ohio, Pennsylvania, South Carolina)	43 students receiving services for LD
Hoover et al. (2018)	Culturally responsive practice for ELLs with LD	District #1: large suburban with 90,000 students; 26% ELLs; Mid-Atlantic state District #2: Medium rural district with 65,000 students; 35% ELL; Western state	30 elementary and secondary grade students receiving services for LD
Hott et al. (2020)	IEP characteristics for secondary grade students with mathematics LD	15 rural districts from Southeast Enrollment between 77 and 589 students 69% to 91% of students economically disadvantaged 49% C, 22% AA, 21% H	89 students with mathematics LD 59 M, 30 F; 57 C, 19 AA, 12 H, 1 O; 14 6th, 9 7th, 18 8th, 26 9th, 11 10th, 6 11th, 5 12th; 79 free and reduced-price lunch

(continued)

Table 1. (continued)

Reference	Focus	District and school characteristics	Student demographics
Hott et al. (2021)	Examine IEPs from rural districts for compliance and to identify common errors	Seven rural districts from the Southeast Total enrollment 2,826, ranging from 106 to 515 students 47% of students economically disadvantaged 84% C, 8% H, 5% AA	65 students with LD 38 F, 27 M; 49 C, 10 AA, 4 H, 2 O; 42 secondary grade, 23 elementary
Landmark & Zhang (2012)	Transition components of IEPs	8 LEA within 7 county region of Texas; Economically disadvantaged ranged from 30.1% to 90.6%, mean of 59.76%; one exemplary, one recognized, six acceptable	82 students receiving services for LD between the ages of 14 and 21
La Salle et al. (2013)	IEP characteristics of students served through inclusion	Districts from Indiana; from all regions of state; Mix of urban, suburban, and rural districts	70 students receiving services for LD
Lo (2014)	IEP readability	Three LEAs in eastern United States	Four students with LD in grades 1, 7, 8, and 11 One student with OHI and LD in grade 2 One student with HI and LD in grade 4
Spiel et al. (2014)	Characteristics of IEPs and 504s for middle school students with ADHD	Urban, suburban, and rural districts School #1: 433 students; 91% W; 48% free/reduced lunch; School #2: 1,025 students, 93% W, 31% free/reduced lunch; School #3: 800 students, 75% W, 16% free/reduced lunch; School #4 653 students, 98% W, 52% free/reduced lunch; School #5: 1,243 students, 99% W, 56% free/reduced lunch; School #6: 1,147students, 37% W, 58% free/reduced lunch; School #7: 641 students, 53% W, 77% free/reduced lunch; School #8: 832 students, 77% W, 17% free/reduced lunch; School #9: 707 students, 98% W, 54% free/reduced lunch	19 students receiving services for LD

Note. LD = learning disability; IEP = Individualized Education Program; C = Caucasian; AA = African American; M = male; F = female; A = Asian; H = Hispanic; AI = American Indian; ELL = English Language Learner; O = other; LEA = local education agency; OHI = other health impairment; HI = hearing impairment; ADHD = attention deficit hyperactivity disorder; W = White.

Table 2. Analysis Methods and Major Findings.

Reference	No. of IEPs reviewed and timeframe	Parts of IEP coded	Major findings
Borders et al. (2015)	268 IEPs from 62 students 5 years	PLAAFPs, educational labels, goals, benchmarks, service time, service providers	• Students with LD more likely to receive services from an intervention specialist than students with MD, HI, or OHI • 70% of benchmarks for students with LD focused on reading, mathematics, and/or written language
Bray & Russell (2018)	5 S	NR	• Majority of goals focused on state standards • Progress monitoring methods reported • Majority of supports were assessment accommodations • Specialized instructional supports absent • 1 IEP included instructional methods that addressed the student's learning difficulties
Catone & Brady (2005)	120 IEPs from 54 students NR	Goals and objectives focusing on basic reading skills, comprehension, and spelling	• 73% of IEPs did not include treatment recommendations or goals in decoding or word recognition • 56% of high school IEPs stated comprehension difficulties but did not address word reading difficulties • 17% of high school IEPs did not have a reading goal • 22% of high school IEPs had general statements about basic reading skills but did not specify skills to target and did not include an objective • Decrease in % of IEPs with basic reading skills objectives over time
Crim et al. (2008)	1,045 S	Statements about curricular modifications (instruction, delivery, methods, evaluation)	• High-ability students with LD had fewer modifications compared with average and low ability • Unable to determine the degree to which the needs of high-ability students are being met
Geenen & Powers (2006)	90 S	Transition goals and plans	• No specific findings for students with LD
Harrison et al. (2017)	93 S	Transition goals (employment, training)	• No specific findings for students with LD
Hoover et al. (2018)	29 S	PLAAFP, annual goals, special factors/ delivery statements, accommodations	• CLR rarely included in PLAAFP, goals, and special factors/delivery • Academic English language and English vocabulary development rarely included • Commonly used accommodations for ELLs not present in IEPs
Hott et al. (2020)	89 S	PLAAFP, annual goals, services, accommodations	• Majority of IEPs included mathematics focused PLAAFPs and goals • Goals tended to not focus on concepts and skills necessary for success in Algebra • Accommodations lacked sufficient specificity for implementation • Specialized instruction absent from IEPs • Poor alignment between PLAAFP, goals, and accommodations
Hott et al. (2021)	133 S	PLAAFP, annual goals, progress monitoring methods	• No specific findings for students with LD

(continued)

Table 2. (continued)

Reference	No. of IEPs reviewed and timeframe	Parts of IEP coded	Major findings
Landmark & Zhang (2012)	212 S	Descriptive content	• IEPs of students with LD were more likely to include evidence of inclusion • IEPs of students with LD were less likely to include evidence of employment preparation, self-determination • IEPs of African American students with LD were less likely to include evidence of family involvement
La Salle et al. (2013)	130 S	Goals, PLAAFPs	• No specific findings for students with LD
Lo (2014)	28 S	IEP sections written in complete sentences	• No specific findings for students with LD
Spiel et al. (2014)	60 S	PLAAFPs, MAGOs, statements regarding accommodations and modifications, statements regarding services to address nonacademic/behavioral goals	• No specific findings for students with LD

Note. IEP = Individualized Education Program; PLAAFP = present level of academic achievement and functional performance; LD = learning disability; MD = multiple disabilities; HI = hearing impairment; OHI = other health impairment; S = snapshot; NR = not reported; STSRP = Transition Services Review Protocol; CLR = culturally and linguistically responsive; ELL = English Language Learner; MAGO = measurable annual goals and objectives.

emphasized in instruction and service delivery for this sample of students. Thus, IEPs were representative of the transition to standards-based service delivery for secondary grade students served in inclusive classrooms.

In Catone and Brady's (2005) investigation of IEPs for students with LD and word reading difficulties, 17% of IEPs for high school students did not have a reading goal. Furthermore, 22% of high school IEPs did not specify reading skills to target during service delivery and did not include a specific objective. The researchers also reported a decrease in the percentage of IEPs with basic reading skill objectives over time. These findings suggest that word reading difficulties are less likely to be addressed as students' progress to the secondary grades, as indicated by this sample of IEPs.

In their investigation of culturally and linguistically diverse students with LD, Hoover et al. (2018) reported that culturally and linguistically responsive practices were rarely included in goals. Academic English language and English vocabulary development were also rarely included in IEPs. These findings suggest that the needs of ELLs with an LD included in this participant sample were not appropriately addressed by their IEPs.

Finally, in a study focusing on characteristics of secondary grade students with mathematics LD, Hott and colleagues (2020) reported goals tended to not focus on skills and concepts necessary for success in Algebra 1. The researchers note that success in Algebra 1 is considered a gateway for opportunities to develop competency in more advanced mathematics. Thus, the focus of IEPs may have potentially created barriers to higher levels of achievement in this area.

Services Account for All Academic and Behavioral Needs. Five studies reported findings relevant to this area (Borders et al., 2015; Bray & Russell, 2018; Catone & Brady, 2005; Crim et al., 2008; Hott et al., 2020). Borders and colleagues (2015) reported that students with LD included in the participant sample were more likely to receive services from an intervention specialist than students receiving special education services for multiple disabilities, hearing impairment, and other health impairment. However, the appropriateness of services (e.g., the degree to which they account for all identified areas of student need) cannot be determined based on the information reported in this investigation. The degree to which services focused on the provision of research-based instructional methods also cannot be determined.

Bray and Russell (2018) reported that majority of supports for secondary grade students with LD were assessment accommodations. In this investigation, specialized instructional methods were often absent from IEPs.

Furthermore, the researchers reported that only one IEP included instructional methods that addressed identified student needs. Study findings suggest that the needs of secondary grade students with LD included in this sample were not appropriately addressed by their IEPs, due to the absence of specialized supports and methods that target identified student needs.

In the work of Catone and Brady (2005), 73% of IEPs did not include instructional recommendations in decoding or word recognition. This finding is concerning, as students included in this sample all had word level reading difficulties. Crim et al. (2008) reported that high-ability students with LD had fewer modifications compared with average and low ability students with LD. However, the researchers were unable to determine the degree to which the needs of high-ability students were met by the provision of services included in IEPs.

Finally, Hott and colleagues (2020) reported concerns with the degree to which supports met the identified needs of secondary grade students with a mathematics LD. Accommodations, as written in the IEP, tended to lack sufficient specificity for implementation by school-based professionals. Furthermore, specialized instructional methods in mathematics were often absent from IEPs. Thus, the researchers questioned the degree to which this sample of IEPs provided appropriate opportunities for skill development and accounted for the manner in which LD adversely affected mathematics performance.

Assess Progress on Annual Goals. One study reported findings related to the assessment of annual goals (Bray & Russell, 2018). In this study, progress monitoring methods were reported in IEPs. However, this study included only five secondary grade students with LD and the appropriateness of these methods was not reported.

Include Statements of Program Modifications or Supports for School Personnel. Two studies reported findings on the provision of program modifications (Crim et al., 2008; Hoover et al., 2018). In an investigation of 1,055 IEPs for elementary grade students with an LD from two Southwestern suburban districts, Crim et al. (2008) reported that high-ability students with LD had fewer modifications compared with average and low ability students with LD. However, the researchers were unable to determine the degree to which the needs of high-ability students with LD were being met, based on information provided in IEPs. The researchers could also not determine whether high-ability students with LD were considered for gifted education programs, based on the information provided in IEPs. Hoover et al. (2018) reported that culturally and linguistically responsive practices were rarely included in special factors and delivery statements. This finding suggests that students within this participant sample did not have access to appropriate program modifications.

State Accommodations Needed to Assess Academic and Functional Performance. One study reported findings related to the provision of accommodations for state assessments (Bray & Russell, 2018). In this investigation, the majority of supports included in the IEPs of five secondary grade students with LD were assessment accommodations. This finding suggests that efforts to adapt assessments, so that, students are better able to demonstrate what they know and can do was emphasized by their IEP teams.

IEPs are Revised When Necessary. Two studies reported relevant findings (Borders et al., 2015; Catone & Brady, 2005). Borders and colleagues (2015) reported changes in IEP goals, services, and minutes of services were observed in response to changes in disability category. However, the researchers reported difficulties comparing the characteristics of IEPs over time due to the lack of a consistent method for writing them (e.g., inconsistent use of language across educators; lack of a consistent IEP format over time). Catone and Brady (2005) reported a decrease in the percentage of IEPs with basic reading skills objectives over time. In this investigation, 17% of high school IEPs did not have a reading goal. Furthermore, 22% of high school IEPs had general statements about reading skills but did not specify the skills to target and did not include an objective. This finding suggests that the IEPs of students included in this sample were not appropriately revised in response to student needs.

IEP Team Composition and Collaboration

One study reported findings regarding the consideration of parent/guardian concerns (Landmark & Zhang, 2012). Using a stratified random sample of IEPs for secondary grade students with disabilities from seven counties in Texas, Landmark and Zhang (2012) reported that 75% of IEPs had evidence of family involvement. In this study, IEPs for African American students with LD were less likely to have evidence of family involvement. This finding suggests concerns with the degree to which policy mandates in this area were realized for these students who were included in the participant sample.

Discussion

Individualized Education Programs play a critical role in public education, as they operationalize the provision of FAPE (Yell, Collins, et al., 2020). Students with disabilities who receive special educations services are a protected class of student, with FAPE considered a civil right (Freeman et al., 2019). In practice, IEPs are developed through a collaborative process with parents/guardians (IDEA, 2004), with educators relying on their training and professional judgment (Bailey & Weingarten, 2019). During this process, IEP teams consider a student's disability or

disabilities and how they adversely affect school performance, current levels of student performance, services and supports that are necessary for the student to make appropriate progress in school, and the location in which services and supports should be provided (e.g., LRE; Yell, Collins, et al., 2020). Although data suggest that many students with disabilities continue to underperform despite the provision of special education services (Arundel, 2022), research has yet to estimate the degree to which the promise of IEPs is realized in school practice, as indicated by their characteristics and quality (e.g., the degree to which they comply with policy mandates and practice recommendations). The purpose of this investigation was to identify and describe peer-reviewed research on IEP characteristics and quality for students with LD. In this investigation, we sought to identify participant and IEP characteristics as well as the manner in which IEPs changed over time. Findings suggest a need for additional research in this area, as well as a need to report study data and findings in greater detail.

In our review, we found 13 studies investigating the characteristics and quality of IEPs provided to students with LD in "business as usual" conditions. Only 1,530 students with LD were included as study participants, the majority of which were educated in suburban school settings. Of these studies, only seven reported specific information on the IEPs of students with LD. These findings are concerning, as the IEP operationalizes the provision of FAPE for a student with a disability (Yell, Collins, et al., 2020). Thus, limited research has investigated the major artifact associated with the provision of civil rights for students with LD. Analyses of IEP content could be used to identify trends in service delivery for this student population, which in turn could be used to obtain a more informed understanding of factors that contribute to continued underperformance in school (Fuchs et al., 2018).

Among this small pool of studies, inconsistent reporting of participant demographic information was observed. Specifically, information on gender, ethnicity, SES, and primary language were often absent in studies meeting selection criteria. Researchers have long noted the importance of reporting demographic information for participant samples, as well as concerns with the consistency in which this information is provided (Robertson et al., 2017). First, reporting of participant demographics is necessary to determine the degree to which research is representative of school practice (Sinclair et al., 2018), as well as to determine whether specific populations are more or less likely to be provided an IEP that is likely to confer FAPE.

Second, we were unable to determine the degree to which IEPs change over time, as only two studies investigated characteristics over time (Borders et al., 2015; Catone & Brady, 2005). In one of these studies, the researchers were unable to draw conclusions due to changes in document format and inconsistencies in the use of language across IEPs over time. However, findings from one study suggested that IEP teams were not responsive to changing student characteristics. IEP teams are mandated to be responsive to changing student strengths and areas for development through the provision of timely and responsive adjustments to the IEP. Adjustments may occur during annual meetings, as well as when data suggest that students are unlikely to achieve an annual goal (U.S. Department of Education, 2017). However, the tendency for researchers to focus on a static sample of IEPs (e.g., IEP characteristics at one point in time) may suggest the inherent difficulties of conducting longitudinal research in this area.

Regarding IEP quality, studies meeting selection criteria that reported findings specific to students with LD noted concerns. Reported concerns include incomplete PLAAFPs, absence of goals that target student needs, absence of appropriate services such access to specialized instruction and accommodations that are written with sufficient specificity to inform classroom implementation, and limited parental involvement in IEP development. However, only seven studies meeting selection criteria reported findings that were specific to students with LD. Although this limited pool of studies is likely insufficient to make generalizations regarding IEP quality for students with LD, the number of concerns reported relative to strengths are noteworthy.

It should be noted that studies meeting selection criteria tended to not investigate the degree to which IEP services and supports were empirically based. Student access to research-based instruction and support is critical to improving academic, social, and behavioral outcomes (Fuchs et al., 2018; McKenna et al., 2015). However, researchers have long noted a research to practice gap (Carnine, 1997; Gersten & Smith-Johnson, 2001), pointing to a need to identify empirically supported practices and the conditions necessary for their implementation, disseminate this information to practitioner audiences (McKenna et al., 2019), and establish conditions for their application by school-based professionals (Sanetti & Collier-Meek, 2019). Since IEPs are an artifact of special education, investigations focusing on the inclusion of research-based practices in IEPs could potentially indicate the degree to which the research to practice gap exists for students with disabilities in general, as well as differential impact by student populations (e.g., differential access to research-based support and intervention by student disability, ethnicity, primary language status, SES background, and the intersectionality of these characteristics).

Implications for Practice

Findings from this review point to three tentative implications for practice. The following recommendations are suggested in consideration of study limitations as well as findings from observation research, which have documented

concerns with the provision of special education services for students with LD (see McKenna et al., 2015; Walker & Stevens, 2017). First, a greater emphasis on mandates and procedures associated with IEP development may be warranted in pre-service preparation programs. Pre-service teachers require access to model school practice during field-based experiences to develop their repertoire of skills. However, it is possible that pre-service teachers may encounter practices, or artifacts of school practice, such as the IEP, that may deviate from what is recommended or mandated. Pre-service teachers need to be able to identify procedural and substantive compliance issues when they are encountered, as well as effective methods for addressing them. This goal can be achieved by ensuring pre-service teachers are provided instruction utilizing model IEPs, as well as sufficient practice opportunities to master the complexities associated with IEP writing (e.g., consideration of a student's disability or disabilities and how it impacts school performance to design an individualized IEP that is reasonably conceived to ensure FAPE). Instruction in this area would likely require multiple classes focusing on student characteristics, academic and behavioral methods and interventions, and assessment practices as competencies in these areas are utilized in IEP development. Prepracticum and practicum experiences could be used to provide opportunities for the integration and application of these competencies targeted during coursework. Furthermore, pre-service teachers may benefit from having ongoing opportunities to engage in problem-based learning, such as simulated IEP meetings centered on IEP development and collaboration with parents/guardians and students with disabilities. Although parent/guardian collaboration is viewed as a procedural safeguard, research suggests that they are often marginalized during the IEP process (Carson et al., 2020; Rossetti et al., 2020; which may contribute to concerns with IEP quality).

Second, in-service educators may benefit from additional training in the development and the characteristics of high-quality IEPs. One potential benefit of this training is that pre-service teachers may be more likely to encounter model or effective practice in this area. Most importantly, training in this area may result in students with LD having an IEP that is more likely to align with practice recommendations, policy mandates, and confer FAPE. Districts may find it beneficial to perform a needs assessment by analyzing the characteristics of student IEPs to identify areas of strength and development. Training could then target the most frequently identified areas of need. However, considering the real-world limitations experienced by many schools, additional resources are likely needed for this recommendation to be feasible. One possible avenue is the development of strong partnerships between university pre-service preparation programs, experts in program evaluation, and local education agencies (LEAs).

Finally, findings from this review may suggest a need to consider the potential impact of the working conditions of special educators on IEP development (see Billingsley & Bettini, 2019; Gilmour & Wehby, 2020). Although causal inferences are beyond the scope of this review, working conditions can affect teacher effectiveness, and IEP quality can serve as a proxy for special educator effectiveness. It is possible that the quality of IEPs would improve through better student access to highly qualified special educators who teach in more manageable working conditions (e.g., fewer competing demands on their time and professional expertise, improve access to instructional resources and supports). Thus, additional special education funding to provide incentives for persons to enter the field, to train them well, and for schools to employ, retain, and support them may be beneficial.

Limitations

Four limitations are associated with this study. First, this study did not include gray literature. However, we sought to base our findings on investigations that went through peer review (e.g., high-quality studies). Second, our literature search was performed up to the year 2019. It is possible that additional studies meeting selection criteria have been published since this time. However, we were able to identify 11 studies, many of which reported concerns with IEP quality. Third, we focused exclusively on studies reporting information collected through a document analysis (e.g., IEPs). It is possible that data collected through observation, interviews, and focus groups would provide additional insight into IEP quality and changes to IEP over time. Finally, this investigation did not focus on IEP implementation. It is certainly possible for a student to have a high-quality IEP document that is not implemented with fidelity (Yell et al., 2022). However, we sought to specifically investigate the characteristics of IEPs, as they are associated with several important practice recommendations and policy mandates.

Future Research

Findings from this review suggest six areas for future research. First, additional investigations focusing on the characteristics of IEPs for students with LD is needed to obtain data on a more representative sample of IEPs. Second, when conducting these studies, researchers should consider reporting standards so that detailed descriptions of student characteristics are provided (see Gersten & Edyburn, 2007; Rao et al., 2020). Efforts should be made to report information on gender, ethnicity, SES, and primary language. Reporting participant demographics with a greater level of specificity would also align with the increased emphasis of funding agencies in this area. Third, researchers are encouraged to disaggregate findings for student

disability populations. In this investigation, six studies meeting selection criteria did not report specific findings for students with LD. This issue could potentially be addressed by providing access to study data as supplementary online materials or through open science frameworks. Fourth, future research should investigate how IEP characteristics change over time in response to changing student strengths and areas for development. Research in this area is needed to better understand the degree to which schools are responsive to students over time. Fifth, in consideration that studies meeting selection criteria tended to focus on the IEPs of students in suburban school districts, future research should investigate the characteristics and quality of IEPs for students with LD who are educated in rural and urban school settings. Finally, we suggest that agencies, such as the Institute of Education Sciences (IES) and the Office of Special Education Programs provide funding to develop researcher-practitioner partnerships that focus on delivering the promise of IEPs. Efforts in this area would likely benefit from activities designed to identify the mechanisms and resources necessary for fidelity implementation and to take lessons learned to scale.

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*Indicates article meeting selection criteria.

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