

# High-Quality Systematic Literature Reviews in Special Education: Promoting Coherence, Contextualization, Generativity, and Transparency

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## Abstract

High-quality systematic literature reviews provide a systematic process for identifying, synthesizing, and critiquing multiple studies and, in turn, inform theory, research, practice, and policy. With a focus on special education systematic reviews, we propose four core principles (i.e., coherence, contextualization, generativity, and transparency) to guide scholars in conducting meta-analyses, systematic narrative reviews, and qualitative meta-syntheses. Specifically, we articulate how scholars can promote each of these principles at each stage of the review process to enhance the rigor, relevance, and credibility of their systematic review: (a) framing the problem and research questions; (b) planning procedures to identify, analyze, and synthesize studies; and (c) presenting and interpreting results. Last, we discuss future directions in light of issues of equity and approaches to bridge synthesis findings and practice and policy.

To guide educational decisions for students with disabilities, scholars, policy makers, and practitioners depend on empirical knowledge. Yet, knowledge gained from one study cannot simultaneously irrefutably prove or disprove theory, rule out competing hypotheses, provide evidence of effectiveness and generalization, and capture lived experiences (Shavelson & Towne, 2002). Rather, each study contributes to a widening evidence base that can inform theory, highlight gaps in research, and provide evidence of effectiveness such that they can, collectively, inform policy and practice (Institute of Education Sciences & National Science Foundation, 2013). Systematic reviews provide a process for synthesizing and critiquing multiple studies to draw conclusions about what is known, how confidently it is known, and what still needs to be known (Siddaway et al., 2019). Because advancing knowledge

is a collaborative endeavor across diverse paradigms and varied methodologies, systematic reviews are a powerful tool for building consensus and constructing empirical knowledge about special education.

Systematic reviews hold potential to improve the experiences and outcomes of students with disabilities through several key functions. First, scholars often underscore the importance of systematic reviews for identifying evidence-based practices, placing them “at the center of the evidence-based practices

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movement” (Talbott et al., 2018, p. 246). Systematic reviews can also help scholars assess the rigor and quality of instruments (e.g., Kilgus et al., 2018), supporting consensus about which measures to use for research and practice. Further, systematic reviews can help develop and advance theory about phenomena (e.g., Bettini et al., 2016). They also offer a unique opportunity to define and understand the needs of students with disabilities and the state of the field (e.g., Chow et al., 2022; Scruggs et al., 2007).

Given their crucial importance for promoting collective understandings, guidance regarding what constitutes a high-quality systematic literature review provides a shared framework to evaluate and improve reviews in special education. Thus, this guidance paper articulates four core principles (i.e., coherence, contextualization, generativity, transparency) that should be evident in special education–focused systematic literature reviews. We first define what constitutes systematic literature reviews. We next describe and justify the importance of the core principles, articulating how to promote these principles at each stage of the review process (see Tables 1 to 3). Last, we conclude with implications and considerations for future reviews.

## Defining Systematic Reviews

Systematic reviews differ from general reviews, which may include only a subset of relevant studies (e.g., conceptual papers, introductions to studies). Instead, by definition, systematic reviews follow a rigorous, systematic process to identify, retrieve, and synthesize all relevant studies on a topic. Systematic reviews tend to fall into three broad approaches: meta-analyses, narrative reviews, and meta-syntheses. See Table S2 in the supplemental materials for exemplary reviews of each type. *Meta-analyses* use statistical procedures to aggregate quantitative results from multiple studies. Combining data from multiple studies with similar designs provides a more robust estimate of aggregate effects (Shamseer et al., 2015).

Meta-analysis is often used to evaluate intervention efficacy and can be used to synthesize the relations between constructs (e.g., Nguyen et al., 2020), estimate prevalence of population characteristics (e.g., Chow et al., 2022), and advance developmental and psychological theory (e.g., Peng et al., 2020). *Narrative reviews* synthesize research by narratively exploring findings across studies (Shamseer et al., 2015). This approach is especially useful when studies use widely varied methodologies as well as when the review aims to deepen theory or examine relationships among a variety of constructs (e.g., Cumming et al., 2020). *Qualitative metasynthesis* is analogous to meta-analysis but synthesizes qualitative studies and uses qualitative methods to draw conclusions (e.g., Scruggs et al., 2007). This approach is particularly useful when a body of studies is mostly qualitative.

## Guidance on Systematic Literature Reviews

Scholars have published many high-quality guidance papers providing support for conducting rigorous systematic reviews (e.g., Page et al., 2021; Siddaway et al., 2019) and multiple specific to special education (Maggin et al., 2017; Talbott et al., 2018). These papers provide excellent procedural guidelines regarding what steps to take when reviewing the literature. Table S1 in the supplemental materials includes procedural guidance papers and resources that detail specific steps to take when conducting a meta-analysis, narrative reviews, or meta-synthesis. Rather than reiterating prior procedural guidance, we propose four core principles that should be evident in a completed review and that scholars should promote at each stage of the review process. We do not intend for the core principles to replace or diminish existing procedural guidance. Rather, to promote high-quality systematic reviews in special education, we intend for the core principles to supplement prior guidance by clarifying what those procedures should aim for and why.

## Core Principles

We developed the core principles of *coherence*, *contextualization*, *generativity*, and *transparency* based on a combination of prior guidance papers (e.g., Alexander, 2020; Maggin et al., 2017; Wilson & Anagnostopoulos, 2021), our own experience conducting and evaluating systematic reviews, and a review from our expert reviewers. Thus, these principles are informed by our positionality—our personal and professional values, experiences, identities, and commitments. We all have extensive experience conducting systematic reviews, including narrative reviews (all authors), meta-analyses (Authors 1 and 3), and meta-syntheses (Author 2). We also all have experience in the editorial process, evaluating reviews for publication, and guiding students through systematic reviews. Although we tend to approach our own research from different epistemological paradigms (i.e., different perspectives on how knowledge is constructed/obtained; Crotty, 1998), we share a strong value for epistemological pluralism (Goertzen, 2010): we strongly believe special education scholarship is enriched by dialogue among results obtained using methods privileging varied ways of knowing. These lenses informed our value for these principles as well as our thinking regarding the relevance of these principles to varied methodologies in special education.

**Coherence.** High-quality systematic reviews should be coherent.

*Coherence involves creating and maintaining a chain of logic throughout, such that the introduction, method, results, and discussion are all oriented around the same clearly defined purpose and research question or questions.*

Coherence is essential to rigor, ensuring that scholars link research questions to methods and interpretation of results. Without coherence, misalignment among questions, methods, and interpretations can limit

credibility of the review (Wilson & Anagnostopoulos, 2021).

Central to overall coherence is epistemological coherence: the extent to which scholars' assumptions about how knowledge is constructed or revealed are consistent throughout (Wilson & Anagnostopoulos, 2021). For example, some scholars may examine the effectiveness of an intervention from a postpositivist lens. This lens posits that, through careful procedural steps to minimize biases and test falsifiable hypotheses, researchers can iteratively discover closer and closer approximations of objective truth (Crotty, 1998). From this perspective, a systematic review provides an opportunity to reveal the closest approximation of the objective truth, as synthesizing studies allows scholars to show how studies build on one another. When conducting a review from this perspective, the review's analytic and synthesis steps should reflect assumptions of postpositivism. For example, authors may apply a priori codes to studies' findings to both (a) minimize the effects of researchers' biases on the interpretation of the corpus of studies and (b) systematically build on and refine prior knowledge (which should inform selection of codes).

In contrast, scholars may explore participants' experiences of that same intervention from a constructionist perspective. This epistemological perspective assumes that objective reality exists, but the meaning of reality is constructed by individuals and communities. Thus, truth cannot be understood outside people's experiences (Crotty, 1998). From this perspective, the process of reviewing the literature is an active process of knowledge construction (vs. knowledge discovery, from a postpositivist perspective); accordingly, results are constructed through scholars' engagement with included studies, whereas those studies' findings were constructed through researchers' engagement with participants and data. Thus, minimizing bias may be less important than transparently reporting how scholars engaged with and made meaning of the studies. Similarly, if scholars form questions through the lens of specific theories (e.g., DisCrit; Annamma et al., 2018), that theory should be evident in how scholars identify and synthesize studies. In

these cases, a priori codes may be based on the tenets of the chosen theory.

As an exemplar with strong coherence, Bal and Trainor (2016) reviewed conceptual papers and empirical studies of culturally responsive teaching in special education. They developed a rubric to evaluate the cultural responsiveness of interventions based on their conception of culture. They conceptualized culture as a dynamic social process through which humans engage in collective, iterative problem solving that is mediated by tools and shaped by historically rooted intersectional systems of power and privilege. They used this conception of culture as a lens to critique purportedly culture-neutral intervention research and to inform development of a tool to evaluate the cultural responsiveness of interventions. Their orientation around this conception of culture was clear in the introduction, manifested in their analytic choices, and evident in their conclusions, promoting strong coherence throughout the review.

#### *Contextualization.*

*Research is produced in particular contexts, including historical and sociopolitical, disciplinary, methodological, and research team contexts.*

As Shpancer (2010) notes, “There is no such thing as the view from nowhere, or from everywhere. . . . You cannot understand the view without the point of view” (p. 136). Thus, contextualizing the research is essential to understanding, interpreting, and improving it (Wilson & Anagnostopoulos, 2021).

**Sociopolitical and historical context.** Scholars should consider the sociopolitical and historical context in which the research was produced. Research is shaped by the concerns, policies, and conceptual frames of the place and time in which it is produced. These are, in turn, shaped by interlocking systems of power and privilege (e.g., racism, ableism, heteropatriarchy, nativism, linguisticism) that shape who conducts research and thus what

concerns, policies, and conceptual frames are foregrounded (e.g., Boveda & Battacharya, 2019). For example, many disabled people have lived experience with and strong opinions about interventions but limited access to academia.<sup>1</sup> These perspectives are primarily present in position statements from self-advocacy organizations (e.g., Autistic Self-Advocacy Network), which are not usually included in reviews, further perpetuating exclusion. Scholars should bring perspectives of marginalized stakeholders into conversation with the research they review. For example, position statements could help frame questions, provide lenses for evaluating studies, or suggest novel questions.

Many aspects of historical and sociopolitical context may be useful to consider when conducting a review, depending on the topic (Wilson & Anagnostopoulos, 2021). For instance, scholars could consider who is or is not represented in studies’ samples, whose input is or is not captured, and how this may limit conclusions. Scholars may also consider whose priorities are reflected in primary studies’ research questions and whose priorities are omitted.

As an exemplar, Kulkarni (2017) situated a narrative review of disproportionate representation of Asian American students in special education in the sociopolitical context of U.S. culture, which often erases the wide diversity of experiences and cultures that are collectively categorized as “Asian American.” Rooted in this context, the review prioritized understanding how Asian American students with different immigration histories and countries of origin may be differently positioned regarding special education. The sociopolitical and historical context thus informed how Kulkarni analyzed studies, interpreted results, and critiqued extant research.

**Disciplinary context.** Special education scholarship is situated in a disciplinary context, founded on shared understandings of theory, methods, and aims, but it belongs to the broader field of education. Further, special education draws on psychology, sociology, medicine, neuroscience, and other disciplines. And the problems facing special

education are not unique. For example, other disciplines (e.g., medicine) also face the challenges of tailoring evidence-based interventions to the distinct needs of individuals across a large, decentralized array of service providers. Thus, other bodies of research can bring fresh perspectives and ideas to bear on enduring challenges, enriching a review's impact. Frameworks from other fields can help scholars better conceptualize research questions and identify gaps in the literature.

As an exemplar, Ko et al. (2021) reviewed studies of boundary-crossing collaboration among practitioners from different domains of practice (e.g., special educators, English language teachers). They drew on cultural historical activity theory, a framework often used in other educational research, which is especially useful for understanding how people engage agentially (i.e., with agency) in complex social systems that shape and constrain their possibilities for action. This theory provided a lens through which to conceptualize educators' collaboration.

**Methodological design context.** Just as every study's findings are constrained by its methods, findings from a systematic review are constrained by the methodological tools used in the primary studies. For example, special education scholars have largely relied on randomized experiments or single-case-design studies to make causal inferences, which are especially beneficial for intervention research. More recently, special education scholars have begun to adopt other methods that have permitted an expansion of causal inference research (e.g., regression discontinuity; Choi & Lee, 2021; difference-in-difference; Roth et al., 2022; fixed-effect regression; Chow, 2021). For instance, studies on the effects of policies have been substantially improved using these rigorous designs (see Shapiro, 2022), where previously scholars primarily relied on descriptive or correlational designs. Thus, scholars' interpretation and critique of included studies should be responsive to the methodological constraints within which the primary studies' authors were working. When synthesizing studies, attending to the methodological context in which researchers

operate can help scholars offer more robust and nuanced critiques and recommendations.

**Researchers' identities and experiences as context.** Scholarship is shaped by the scholars who conduct it (Wilson & Anagnostopoulos, 2021). Thus, scholars should consider the context of their research team. The questions scholars ask, their theoretical frameworks, selected designs and methods, and interpretations are all shaped by individual positionality (Castillo & Gillborn, 2022). For example, a scholar who identifies with struggling teachers may ask different questions of, use different methods for, and draw distinct inferences from a study to understand teachers' struggles, compared with a scholar who identifies more with students or parents.

Scholars also have tended to approach positionality differently based on the epistemological lens through which they conduct the review. From a postpositivist perspective, positionality may bias results. Thus, from this perspective, scholars try to limit effects of positionality on results, engaging in systematic and transparent steps (e.g., double coding) to demonstrate that any scholar following the same procedures would find the same results. Other lenses (e.g., critical, constructionist) center researchers' positionality as a tool that supports them in framing and analyzing the literature (Koro-Ljungberg et al., 2009). Using these lenses, scholars often state how their positionality shaped the review. For example, Hernández-Saca et al. (2018) systematically reviewed qualitative studies that examined the intersection of social constructions of identity and (dis)ability in the lived experiences of students with disabilities with multiply marginalized identities. Aligned with their epistemological perspective, the authors made transparent how their identities and experiences shaped analysis, highlighting how they co-constructed understanding, with awareness of each other's positionality.

Scholars operating from postpositivist perspectives have traditionally not made their positionality transparent, as fidelity to procedures is intended to eliminate effects of positionality on the study. Yet, the choice of an epistemological paradigm is, itself, an aspect

of positionality (Trainor & Graue, 2014). Further, data are not neutral but rather are produced by human beings in interaction with others, within a culture, that shapes the tools they use and how they use them (e.g., Bal & Trainor, 2016). As Castillo and Gillborn (2022) argue,

*All data is socially constructed. . . . This does not mean that data is simply made up . . . rather it means that data is not found lying around in neatly organized bundles. . . . Surveys are created by researchers constructing questionnaires, and statistics are created by numerous decisions about what to count and how to count it. All analysis—quantitative and qualitative—is guided by the researchers’ beliefs about the key research problems and their theories about the processes that they are exploring. It follows logically that data cannot “speak for itself”—whether it is an interview, a survey or a census. (p. 12)*

Some scholars have critiqued the assumption that one *can* adopt a position of neutrality, contending that claims of neutrality may mask ways in which dominant oppressive assumptions and processes (e.g., racism, classism, ableism) have been normalized and treated as neutral in U.S. society (e.g., Castillo & Gillborn, 2022; Stage & Wells, 2014). These scholars have pressed for, regardless of epistemological lens, critical reflection on positionality throughout the research process and make this consideration of their positionality transparent to readers. Although this has not been standard practice in the past, we encourage scholars to consider positionality as a key aspect of their systematic reviews (for guidance on positionality, see Castillo & Gillborn, 2022; Milner, 2007; Trainor & Graue, 2014).

**Generativity.** A high-quality systematic review should be generative, such that the whole is more than the sum of its parts. Scholars

should highlight how their review builds on prior knowledge to generate new knowledge. To do so, results should not simply list findings from a bundle of isolated studies but instead synthesize them to generate theory, stronger inferences, or novel questions.

*Generativity requires putting studies into conversation with one another, considering how and why one study’s findings may illuminate, complicate, or diverge from another’s.*

For example, contradictory findings may suggest heterogeneity of effects, contextual considerations, or methodological limitations, whereas complementary findings may confirm hypotheses or theory.

Sometimes, bringing studies into conversation with one another does not promote generativity if the corpus of studies is very small or repetitive. In these cases, scholars can draw on research or frameworks from other fields (i.e., consider discipline context) to generate empirical knowledge relevant to special education. For example, in a systematic review of observational measures of collaborative teaching, Jones et al. (2019) found only four studies. Thus, they drew from medical and military research, as rigorous measures of team collaboration exist in other fields yet remain scarce in education. Through this expanded lens, they were able to interpret extant studies, identify gaps, and generate future directions.

**Transparency.** High-quality systematic reviews should be transparent and reflect open-science reform efforts to combat against research that is “protected, closed, and unverified” (Cook et al., 2018, p. 106). Scholars should promote transparency by sharing their positionality, clearly defining constructs, offering robust descriptions of methodological procedures (Page et al., 2021), openly sharing materials via open-science sites (e.g., <https://osf.io>), and reporting limitations. For example, scholars may choose to only include peer-reviewed articles in their corpus, but the choice to exclude gray literature (e.g., doctoral dissertations) is a limitation, as studies with positive findings are more likely to be

published than those with null or negative findings (Chow & Ekholm, 2018); thus, scholars should transparently note limitations for their review as a function of their own choices. In essence, scholars should provide sufficient information so that readers can critically judge the trustworthiness of the review's evidence.

Scholars should consider preregistering protocols publicly (e.g., in Open Science Framework). In a preregistered protocol, scholars openly publish their proposed purpose and methods a priori. This helps to promote transparency, protect against arbitrary decisions and reporting bias (e.g., reporting only significant results), and reduce risk of unnecessary duplication of reviews (Cook et al., 2018; Shamseer et al., 2015; Tricco et al., 2018). Scholars may be concerned that preregistration is not relevant for some types of reviews, as it is most common with analyses of quantitative data (e.g., meta-analyses). Yet, there is growing support for the preregistration of qualitative research. For example, Haven et al. (2020) argue that preregistration of qualitative work can help "make visible the connections between analytical assumptions, evidence, and decisions that form a particular interpretation of the data" (p. 2). Scholars may also be concerned that preregistration requires rigid adherence to proposed procedures and thus may undermine iterative, inductive processes (e.g., grounded theory analyses). However, preregistration does not prohibit scholars from making changes during the analysis. Rather, scholars should update their protocol as needed, maintaining transparency about revisions and corresponding decisions, and be transparent about their decisions in the final manuscript, including how and why these differed from the preregistered protocol. As such, preregistration may also be compatible with more inductive and iterative approaches to systematic reviews.

As an exemplar of a transparent, open study, King and Fazel (2019) preregistered their protocol for a systematic review of the effects of peer-led interventions on mental health outcomes of school-age youth. In their initial protocol, they excluded studies in which peers were not between 4 and 18 years. On the basis of the initial search, they expanded to include students older than 18 if the study

took place in a country or culture where it was common for students to be older (King & Fazel, 2021). As in this example, preregistration does not preclude scholars from making sensible judgments about how to adjust their plan in response to emerging findings.

### ***Promoting Core Principles Throughout Key Stages of the Review***

To enhance the rigor, relevance, and credibility of their systematic review, scholars need to actively work to promote the core principles throughout the stages of the review process: (a) framing the problem; (b) planning and enacting procedures to identify, analyze, and synthesize studies; and (c) presenting and interpreting results (Alexander, 2020; Siddaway et al., 2019). The specific steps in each stage will vary by review type (e.g., meta-analysis, narrative review, metasynthesis), and scholars should consult guidance papers and exemplars specific to their approach (see Table S1 for resources by review type and Table S2 for exemplary reviews). In the following sections and in Tables 1 through 3, we outline how scholars can actively promote coherence, contextualization, generativity, and transparency during each stage.

***Stage 1: Framing the Problem.*** As illustrated in Table 1, conducting a systematic review begins with framing the problem and developing timely, well-defined purpose and research questions (Alexander, 2020). In high-quality reviews, scholars state a purpose that fills an articulated need in the field (e.g., to develop theory, determine intervention effectiveness; Siddaway et al., 2019) and outline the population of interest, relevant constructs, and planned objectives and hypotheses (Cooper et al., 2019). Specifying a purpose and theoretical foundation is key to coherence and transparency, as these should inform all other aspects of the review.

This process begins with scoping the literature and preregistered protocols to determine if prior systematic reviews have been or are being conducted on the topic. Scholars then

**Table 1.** Stage 1: Framing the Problem; Steps, Functions, and Core Principles for the Introduction.

Step	Core principle
Rationale and theoretical foundations: Define problem review will address, situating problem within existing theory, context, and research.	<p>Coherence:</p> <ul style="list-style-type: none"><li>• Define epistemological orientation and theoretical foundation.</li><li>• Explicitly state problem the review will address.</li></ul> <p>Contextualization:</p> <ul style="list-style-type: none"><li>• Describe problem within context of relevant theory, current educational concerns, and research, considering relevant historical, sociopolitical, disciplinary, and methodological contexts.</li></ul> <p>Generativity:</p> <ul style="list-style-type: none"><li>• Describe how the review will extend existing evidence.</li></ul> <p>Transparency:</p> <ul style="list-style-type: none"><li>• Clearly articulate problem, situating it within foundational theory, relevant constructs, target population, setting, and design.</li><li>• Provide empirical and theoretical support for all points made in rationale.</li><li>• Preregister protocols.</li></ul>
Purpose and research questions: Provide explicit statement of purpose and research questions.	<p>Coherence:</p> <ul style="list-style-type: none"><li>• Explicitly state the purpose and research questions and ensure they align with epistemological lens and theory.</li></ul> <p>Context:</p> <ul style="list-style-type: none"><li>• Ensure purpose and research question are informed by relevant historical, sociopolitical, disciplinary, and methodological contextual considerations.</li></ul> <p>Generativity:</p> <ul style="list-style-type: none"><li>• Describe how review will answer questions and inform important implications.</li></ul> <p>Transparency:</p> <ul style="list-style-type: none"><li>• Define key constructs, target population, setting, and design.</li><li>• Provide empirical and theoretical support for chosen constructs, target population, setting, and design.</li></ul>

Note. Adapted from Page et al. (2021), Talbott et al. (2018), and Tricco et al. (2018).



**Table 2.** Stage 2: Planning Procedural Methods; Steps, Functions, and Core Principles for the Method.

Step	Core principle
Inclusion and exclusion criteria: Specify inclusion and exclusion criteria for identifying relevant studies.	Coherence: • Ensure criteria link to purpose and research questions and align with epistemological lens and theory. Contextualization: • Consider historical, sociopolitical, and methodological (e.g., design constraints) contexts to inform criteria. • Consider other disciplines' scholarship that could be relevant to criteria. Generativity: • Consider if scope of included studies is sufficiently broad to permit a generative synthesis. Transparency: • Specify and define all inclusion and exclusion criteria, with supporting rationale for each criterion. • Provide examples of studies that were and were not included and the rationale for their inclusion or exclusion.
Search strategy: Provide comprehensive descriptions of search terms and information sources used to locate studies.	Coherence: • Ensure chosen search terms and information sources yield studies relevant to purpose and research questions. Contextualization: • Consider historical, sociopolitical, and disciplinary contexts in selecting search terms and information sources. • Consider whose voices may be excluded, if exclusions are justifiable, and other relevant sources to include. Generativity: • Consider whether search procedures are sufficient to identify enough studies for a generativity. Transparency: • Report and justify all identified/used sources (e.g., databases, journals, search terms). • Report and justify all search terms.
Selection procedures: Describe thoroughly procedures used to screen and select relevant studies to include in review.	Coherence: • Ensure selection procedures identify studies relevant to research questions. Contextualization: • Consider how research team contexts may inform screening decisions. Generativity: • Consider whether body of selected studies can, collectively, support generativity. • Consider expanding inclusion and exclusion criteria, searches, and bringing in other frameworks and literature if needed. Transparency: • Describe and share all procedures (e.g., interrater reliability) and tools used to screen and select studies. • Consider how team members' identities and experiences may have shaped screening decisions.
Data collection: Provide thorough description	Coherence: • Ensure data collection procedures capture relevant data to answer research questions.

(continued)

**Table 2.** (continued)

Step	Core principle
of methods used to extract relevant data from included studies.	Contextualization: <ul style="list-style-type: none"><li>• Gather data that allow interpretation of study findings in light of methods by which findings were obtained.</li><li>• Consider extracting data that capture sociopolitical, disciplinary, and methodological contexts.</li></ul>
	Generativity: <ul style="list-style-type: none"><li>• Ensure the data gathered from studies are sufficiently robust to support generativity.</li></ul>
	Transparency: <ul style="list-style-type: none"><li>• Transparently report methods for data extraction and openly share tools used (e.g., coding schemes).</li><li>• Describe and share procedures used to train team to extract data and report reliability of data extracting.</li></ul>
	Coherence: <ul style="list-style-type: none"><li>• Ensure synthesis procedures provide results that address the purpose and answer research questions.</li><li>• Ensure synthesis methods are aligned with epistemological lens and theory.</li></ul>
Synthesis methods: Describe procedures used to synthesize data to answer research questions.	Contextualization: <ul style="list-style-type: none"><li>• Use varied contexts of studies as lenses through which to synthesis studies and relationships with one another.</li></ul>
	Generativity: <ul style="list-style-type: none"><li>• Bring studies into conversation with one another to construct new understandings and questions.</li><li>• Consider how study quality shapes the knowledge studies can collectively generate.</li></ul>
	Transparency: <ul style="list-style-type: none"><li>• Report and describe all synthesis steps and openly share materials (e.g., syntax).</li><li>• Transparently describe how team members' identities and experiences may have shaped procedures.</li></ul>
	Coherence: <ul style="list-style-type: none"><li>• Ensure procedures capture relevant data to answer research questions.</li><li>• Ensure rubrics align with purpose and align with epistemology and theory.</li></ul>
Study quality assessment: Explain process used to evaluate quality of included studies (if relevant).	Contextualization: <ul style="list-style-type: none"><li>• Consider methodological context of study and how this aligns with the selected rubric.</li><li>• Consider how quality may be shaped by contexts in which the studies are being produced.</li></ul>
	Generativity: <ul style="list-style-type: none"><li>• Evaluate strengths and weaknesses in the aggregated studies and how these inform the quality of generativity.</li></ul>
	Transparency: <ul style="list-style-type: none"><li>• Describe procedures used to assess study quality and openly share evaluation tools.</li><li>• Consider how team members' identities and experiences may have shaped assessment of study quality.</li></ul>

Note. Adapted from Page et al. (2021), Talbott et al. (2018), and Tricco et al. (2018).

**Table 3.** Stage 3: Presenting and Interpreting Results; Steps, Functions, and Core Principles for the Results and Discussion.

Step	Core principle
Results presentation: Organize and present findings with a focus on addressing research questions.	Coherence: • Ensure results address purpose of review and answer research questions. Context: • Consider contexts of included studies to help organize and present findings (e.g., sample demographics). • Provide relevant contextual information in sharing the results. Generativity: • Consider how aggregated studies illuminate, complement, or complicate one another. Transparency: • Thoroughly describe and report all results, provide result tables, and openly share materials (e.g., outputs).
Discussion: Thoroughly summarize and interpret results.	Coherence: • Ensure summary and interpretation of results link back to the purpose and answer research questions. Context: • Consider how historical, sociopolitical, disciplinary, and methodological contexts shape results' interpretation. Generativity: • Discuss strengths and weaknesses in aggregated studies and how these inform results' interpretation. • Discuss how the review addresses the problem or purpose and builds knowledge. Transparency: • Ground interpretations in the data, and frame within relevant theory, prior research, and contexts. • Describe how team members' identities and experiences may have shaped interpretation of results.
Limitations and implications: Discuss limitations and implications of the review.	Coherence: • Discuss limitations and implications in context of the purpose, research questions, and the field. Context: • Consider how contexts inform limitations and implications of results, including need for future research. Generativity: • Discuss how limitations may affect generativity of the review overall. • Discuss implications of findings for future research, policy, or practice. Transparency: • Report and describe limitations of the review based on (a) included studies and (b) review process. • Describe how findings inform future research, theory, practice, and policy.

Note. Adapted from Page et al. (2021), Talbott et al. (2018), and Tricco et al. (2018).

articulate how their review addresses a timely need within (a) a relevant theoretical orientation or (b) the context of existing literature. An overly broad, narrow, or ambiguous purpose or research question may limit scholars' capacity to identify relevant research and draw conclusions. As an exemplar, Merrill et al. (2017) noted no review since 1993 had examined the effectiveness of school-based social problem-solving (SPS) programs. Thus, they addressed a need by providing an up-to-date review, situated in the context of interdisciplinary SPS theories, and highlighted the importance for students with or at risk for significant behavior problems.

**Stage 2: Planning Procedures.** Procedures are the “what, where, when, and how of a systematic literature review” (Alexander, 2020, p. 11)—the steps scholars take to find and select articles, extract data, and analyze data. See Table 2 for how to promote core principles in procedures and Table S1 for guidance on planning procedures specific to review type.

**Inclusion and exclusion criteria.** Scholars use inclusion and exclusion criteria to determine if studies should be included in the review (Alexander, 2020). High-quality reviews clearly articulate and justify criteria that are (a) linked to the research questions, (b) theoretically and empirically defensible, and (c) applied to all studies in a transparent manner (Siddaway et al., 2019). Scholars should provide a sound rationale for criteria, linking them to their purpose, to promote coherence and transparency (Alexander, 2020; Siddaway et al., 2019). As an exemplar, Reichow et al. (2013) conducted a meta-analysis of nonspecialist psychosocial interventions for students with intellectual disability or autism. They defined each criterion, providing a strong rationale based on theory, prior research, and context. For instance, they decided to include studies regardless of randomization to ensure they located relevant studies with high ecological validity; thus, their understanding of the methodological context also informed criteria.

**Search strategy.** Scholars then use a systematic search strategy to identify all potentially relevant studies. See Tables 2 and S1 for step-by-step procedures to formulate a search strategy. In high-quality reviews, scholars transparently specify search terms. Terms operationalize the research questions (e.g., participants, variables of interest; Siddaway et al., 2019). If scholars use limited terms, they risk missing relevant studies. Yet, if terms are too broad, the resulting corpus may be unwieldy, making the screening process unfeasible. As an exemplar, Brunsting et al. (2014) conducted a review of special educator burnout, using search terms that reflected “all possible combinations, derivations, and previous iterations” of terms reflecting (a) elements of burnout, (b) references to special education, and (c) references to teachers (p. 685). With these terms, Brunsting et al. were able to identify all relevant studies of special educator burnout.

Scholars also describe the information sources they searched using these terms, including electronic databases (e.g., ERIC), relevant journals, and alternate sources (e.g., conference repositories, organization emails, contacting scholars). For example, in a review of school factors shaping students' neurocognitive development, Cumming et al. (2020) searched all journals that had published at least one article identified through their database search. Scholars also often conduct an ancestry search (i.e., examining references of identified studies) or a progeny search (i.e., examining all studies citing key articles or previous reviews) to identify all relevant studies.

**Selection procedures.** Scholars next use a systematic process to determine if the studies, located through the search, meet inclusion criteria, keeping a detailed record of this process, often illustrated with a flow diagram (e.g., Page et al., 2021). Typically, scholars export studies to a data management system and follow a series of systematic steps to eliminate irrelevant studies (e.g., screen titles and abstracts, screen full texts; Siddaway et al., 2019). For example,

Douglas et al. (2022) divided studies between authors, screened each study, and coded for criteria. They then read studies' full texts as they came to consensus about disagreements. At each phase, they documented interrater reliability (i.e., level of agreement) on a proportion of screened studies.

Search and screening phases are often iterative. If screening yields few studies, scholars may conduct a more expansive search. Further, inclusion and exclusion criteria sometimes change based on the size of the identified corpus of studies. If scholars identify few studies, they may expand inclusion and exclusion criteria; conversely, if they identify so many studies that synthesis is not feasible, they may narrow criteria. Scholars may also retain their original criteria, even if the search yields few studies, and use their results as a rationale to argue more research is needed. For example, Goldman and Burke (2017) meta-analyzed effects of interventions to increase parental involvement. Only four studies met inclusion criteria. They used the lack of studies and the importance of the topic to justify a need for more research. Justifying these choices is essential for coherence and generativity; clearly describing them is essential for transparency.

*Data collection procedures.* After identifying studies that meet criteria, scholars then extract and code relevant data from each study. The information extracted depends on the review's purpose (Siddaway et al., 2019) and type (i.e., meta-analysis, narrative review, metasynthesis). For example, narrative reviews evaluating the methods used in a body of literature may code methodological information. For instance, Alzahrani and Leko (2018) coded for indicators of studies' methodological rigor to determine if peer tutoring met criteria for an evidence-based practice. The scholars used a coding template based on the Council for Exceptional Children's (CEC) Standards for Evidence-Based Practices in Special Education. Other reviews may code studies' methods to provide methodological context, but the primary focus is still on studies' results. Although scholars often use a coding

structure, there are other approaches to data extraction. For example, in a systematic review of research on special educator attrition, Billingsley and Bettini (2019) used a process of iterative memoing instead of coding.

Overall, high-quality reviews provide a transparent description of this process, including any coding schemes and data extraction tools used, training provided, and procedures for building consensus or obtaining interrater reliability (Shamseer et al., 2015). For example, Brock et al. (2017) conducted a meta-analysis of the efficacy of practitioner training on implementation outcomes. They provided a detailed description of coding procedures, how they extracted data from studies, and procedures for training coders. Researchers can further promote transparency by sharing these materials through online supplementary materials or open-science repositories.

*Synthesis methods.* Scholars systematically synthesize studies, bringing studies into conversation with one another based on data collected from each study. This step is crucial to generativity. Different methods may be appropriate, depending on the research questions and the studies scholars synthesize. When synthesizing research that is primarily quantitative, meta-analysis may be appropriate (Higgins et al., 2019). A key benefit of meta-analysis is that coding and statistical procedures to analyze data reduce reliance on the statistical significance of each primary study, thereby permitting less biased estimates. Meta-analysis allows researchers to apply standard inferential statistical procedures to estimate overall relations, which scholars can interpret in the context of the literature and search parameters (see Borenstein et al., 2021; Higgins et al., 2019, for guidelines on statistical procedures). As an exemplar, Gesel et al. (2021) used meta-analysis procedures to examine effects of professional development on data-based decision-making and curriculum-based measurement on teacher outcomes. Because the studies collected similar outcome measures on a similar population, meta-analysis was a logical analytic method; they were able to determine

professional development had an average effect on teacher outcomes ( $g = 0.57$ ).

In narrative reviews, scholars may use a variety of synthesis procedures to answer research questions. For example, they may calculate summary statistics as well as qualitatively analyze studies' findings or characteristics. For example, Rodgers et al. (2022) reviewed validity evidence for observation systems in descriptive studies of teachers' instruction for students with disabilities. They used descriptive quantitative methods to explore trends in the validity evidence over time and inductive analysis to explore the aspects of instruction researchers focused on.

In metasyntheses, scholars use qualitative analytic methods. Some use generic deductive and inductive procedures. For example, Hirano et al. (2018) iteratively coded (using both deductive and open coding), memoed, and peer debriefed to synthesize barriers to family engagement in transition planning. Others use established qualitative methodologies. For example, Freedle and Wahman (2021) used grounded theory procedures to synthesize findings of studies examining families' experiences of young children's challenging behavior.

Transparently reporting the methods used is crucial to transparency (Shamseer et al., 2015). Often, scholars detail search and screening methods but not data collection and synthesis methods, giving readers little information about extraction and synthesis processes. Indeed, some of our own reviews are guilty of this (e.g., Bettini et al., 2016). This represents a failure of transparency, as readers are unable to evaluate the methods used. Scholars can promote coherence and transparency by justifying methods in light of their aims, epistemological lens, and review type.

**Study quality assessment.** Scholars often evaluate methodological quality. Reporting the quality of studies can support both scholars' and readers' understanding of the state of extant research and what inferences that research permits (Shamseer et al., 2015). Study quality can also be useful when including unpublished literature to counter the argument that dissertations are of lower quality

than published studies. Scholars should justify which quality criteria they selected (e.g., CEC's Standards for Evidence-Based Practices in Special Education; Cochrane Collaboration tool for assessing risk of bias) and how they applied these criteria consistently. Note that not all reviews need to evaluate study quality; this is needed only when a quality evaluation is core to research questions or review type (e.g., meta-analysis). However, all high-quality reviews should contextualize studies' results within the limitations of methods used to obtain those results (i.e., consider methodological context).

**Stage 3: Presenting and Interpreting Results.** As shown in Table 3, when presenting, interpreting, and discussing results, high-quality systematic reviews (a) organize findings to address research questions, (b) summarize results, (c) ground interpretations and conclusions in the data (Chow et al., 2021; Shamseer et al., 2015; Talbott et al., 2018), (d) link back to the review's aims, and (e) interpret results in context (Wilson & Anagnostopoulos, 2021). As an exemplar, Cumming et al. (2020) systematically reviewed associations between school-based experiences and student executive function (EF) development. Their results aligned with their purpose, and their conclusions and discussion were grounded in data. For instance, they drew no definitive conclusions about relationships between punitive school environments and student EF, as only two studies examining this met criteria. Yet, in the discussion, they situated these findings in the context of related research, which demonstrated adverse effects of punitive home and community settings on EF development.

High-quality reviews also discuss implications of their findings and limitations of the review (Alexander, 2020; Shamseer et al., 2015). This offers scholars an opportunity to highlight how findings can inform future research, practice, and policy. For example, in a meta-analysis, Barnes et al. (2014) found cognitive-behavioral interventions (CBIs) were effective in treating student aggression; yet, prior studies had limited discussion of culture, race, and ethnicity,

underscoring the need for future studies to consider culture and ethnicity in CBIs. As in this case, historical and sociopolitical contexts are important to interpretation (Wilson & Anagnostopoulos, 2021), as they can help scholars productively critique studies and inform limitations and implications. Overall, when interpreting results, scholars take an active role, using their expertise and judgment to foster knowledge feedback loops to inform future research, policy, and practice.

## Future Directions

High-quality systematic reviews are a powerful means by which scholars can build knowledge and shape special education theory, research, and the quality of practice and policy for students with disabilities (Talbot et al., 2018). We highlighted core principles for scholars to consider when reviewing special education research. Next, to help improve systematic reviews' impact on special education, we highlight additional considerations and future directions.

### *Practical Considerations for Enacting the Core Principles*

We acknowledge that it may be challenging to attend to all of the core principles in light of journal guidelines, such as page limits and the anonymized peer review process (i.e., anonymous author and reviewer identities). For instance, addressing all aspects of contextualization (i.e., sociopolitical and historical context, disciplinary context, methodological design, researchers' identities) may be beyond what can be feasibly included in a manuscript. Thus, we encourage scholars to carefully consider (a) the core principle components that are essential to the review topic and (b) those that may be better suited to supplementary materials. For instance, in a review focusing on research related to disproportionality and students with emotional and behavioral disorders, underscoring the sociopolitical and historical context in the manuscript may be more important than the disciplinary context. Providing detailed information related to each principle may be untenable

given journal guidelines (e.g., word count), and we encourage scholars to consider what amount of detail is crucial to the review manuscript and what information can be included in supplemental files. For example, scholars may choose to provide more general positionality statements (names anonymized when under review) in the manuscript but include detailed positionality statements in supplementary files (included after the manuscript is accepted to adhere to anonymizing guidelines).

## Center Equity

Special education scholars have often thought of research addressing intersections among disability, race, class, and other axes of privilege and marginalization as being "about equity" or "about diversity" while conceptualizing other research (e.g., on behavioral interventions, professional development) as neutral. We encourage scholars to reconsider the assumption that any work *can* be neutral. Interlocking systems of power and privilege (e.g., racism, sexism, ableism; Crenshaw, 1991) shape all of society and, thus, all human activity, including research (e.g., Bal & Trainor, 2016).

We previously articulated, as core principles, that scholars should consider the historical and sociopolitical contexts in which the body of research was produced. Here, we put a finer point on that principle:

*to be high quality, a systematic literature review must consider the implications of these systems of power and privilege for the body of research they are reviewing.*

Of course, not all systematic reviews will focus on intersections among disability and other sociocultural identity markers, and we are not arguing that they should. Rather, we contend that all systematic reviews should be attentive to the ways in which these systems may have shaped the research they are reviewing. As examples, scholars might consider (a) the extent to which the tools used have been evaluated for racial biases, (b) the extent to which studies' samples are representative of

marginalized communities, (c) who has been engaged in developing the reviewed interventions, (d) whose perspectives are foregrounded, or (e) whether studies have examined potential heterogeneity based on positionality within systems of power and oppression. Considering these questions in light of the purpose and related theory is essential for scholars conducting the review, peer reviewers evaluating it, and readers making sense of it.

### ***Bridge the Systematic Review and Policy and Practice Gap***

Ongoing research-to-practice and research-to-policy gaps (Donnelly et al., 2018) limit the impact of systematic reviews on students with disabilities. Increasingly, organizations (e.g., United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2021), journals (e.g., *Exceptional Children*), and scholars have advocated for open-science practices to address problematic trends in research that have likely contributed to limited use of high-quality research.

In addition to the open-science practices we highlighted earlier, to ensure systematic reviews are useful to key stakeholders, scholars should consider collaborating with relevant stakeholders in the review process, from framing the problem and research questions to interpreting findings (Donnelly et al., 2018; UNESCO, 2021). For example, in a meta-analysis on language skills of youth in the juvenile justice system, Chow et al. (2022) included a court improvement program attorney as an author to ensure the voice of a stakeholder from the system was included in the framing and implications. Such inclusion (a) gives voice to stakeholders on topics that address their concerns, needs, and goals and (b) enhances dialogue among scholars, policy makers, and practitioners to identify where and how research can inform decision-making, policies, and implementation (Donnelly et al., 2018; UNESCO, 2021). The growing improvement-research community provides extensive guidance and exemplars regarding how sustained research collaboration with community stakeholders

can foster use of research evidence; we recommend scholars consult this body of guidance as a complement to open-science practices (e.g., Peurach et al., 2022).

Scholars should ensure their review is accessible, in terms of both downloading and how it is written. Often, systematic reviews are written for academic journals and not readily accessible to policy makers, practitioners, and other stakeholders (e.g., families). Donnelly et al. (2018) posit that to improve use of the research for practice and policy, manuscripts must also include targeted summaries with supporting graphics written for potential users. The field would also benefit from infrastructure (e.g., a website) through which reviews could be rapidly updated in ways that are accessible to practitioners and policy makers. Several federally funded sites provide exemplars of how to effectively link and translate research into effective practice for practitioners (e.g., <https://iris.peabody.vanderbilt.edu>; <https://intensiveintervention.org/tools-charts/overview>). In areas of special education research where evidence is rapidly evolving (e.g., neurocognitive development, educator shortages), a site that allows for rapid and accessible updates of results would also be beneficial.

Conducting a high-quality systematic review is time-consuming; in our experience, most reviews take 12 months or more to complete. Yet the problems reviews address are often pressing and rapidly changing. To enhance use of findings, scholars should consider uploading full texts and search terms to an open-science site, to facilitate updating as new studies become available (Donnelly et al., 2018), thus reducing the need for new full-scale reviews on the same topic. Last, scholars should consider conducting rapid reviews, which streamline the methods to conduct systematic review (see Ganann et al., 2010; Polisena et al., 2015).

### **Conclusions**

Special education research is a sprawling, interdisciplinary, and collaborative effort in which many scholars work from different



vantage points on problems that affect the experiences and outcomes of students with disabilities and their families. When they are coherent, contextualized, generative, and transparent, systematic literature reviews synthesize and make sense of this diverse body of work. In doing so, they provide a strong foundation for improving policy and practice and set the stage for the next generation of special education scholarship.

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## Supplemental Material

Supplemental material for this article is available online.

## Note

1. We are using identity-first language here because the examples are drawn from a community that has expressed a preference for identity-first language. We use person-first language elsewhere, generally deferring to the preferences of the community being described.

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