



Sustainable Competitive Intelligence for Inclusive School Readiness: An Educational Intelligence Framework for Children with Disabilities

Inteligência Competitiva Sustentável para a Prontidão Escolar Inclusiva: Um Modelo de Inteligência Educacional para Crianças com Deficiências

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ABSTRACT | Purpose: This review explores the ways in which teachers use observations, assessments, family knowledge, and service records to interpret and form educational intelligence for making judgments and providing support to children with disabilities regarding school readiness. **Methodology/approach:** Using a structured integrative design, the review synthesized 34 peer-reviewed articles published between 2020 and 2025. Sources were located through targeted searches and citation chaining, then checked against publisher records and DOI metadata. Evidence was coded by readiness domain, intelligence-cycle stage, source, decision use, organizational condition, and ethical safeguard. **Originality/Relevance:** The article adapts competitive-intelligence logic to inclusive early childhood education without treating children or schools as competitors. Educational intelligence is framed as an ethical capacity to scan signals, triangulate evidence, interpret uncertainty, coordinate action, and learn from outcomes. **Key findings:** Useful intelligence comes when one integrates the process of observing with developmentally appropriate assessment, family voice, a multidisciplinary approach and contextual information. Data, by themselves, do not lead to better decisions. Teacher data literacy, team structures and workflows, data records, organizational structures and supports, and mitigations against deficit labeling, surveillance, and inaccurate precision are all key factors in quality. **Theoretical/methodological contributions:** The review outlines an Inclusive Educational Intelligence Cycle and six propositions relating to scanning breadth, triangulation, interpretive competence, family engagement, organisational learning and ethical governance with readiness support. It also outlines a research agenda focused on access, inclusion and responsible decision-making. **Keywords |** School readiness. Children with disabilities. Competitive intelligence. Educational intelligence. Teacher data literacy. Inclusive education

RESUMO | Objetivo: Esta revisão explora as formas pelas quais os professores utilizam observações, avaliações, conhecimentos fornecidos pelas famílias e registros de serviços para interpretar e constituir inteligência educacional destinada à tomada de decisões e ao apoio a crianças com deficiência no que se refere à prontidão escolar. **Metodologia/Abordagem:** Utilizando um desenho estruturado de revisão integrativa, foram sintetizados 34 artigos revisados por pares, publicados entre 2020 e 2025. As fontes foram localizadas por meio de buscas direcionadas e rastreamento de citações (*citation chaining*) e, posteriormente, verificadas com base nos registros das editoras e nos metadados dos DOI. As evidências foram codificadas de acordo com o domínio de prontidão escolar, a etapa do ciclo de inteligência, a fonte, o uso na tomada de decisão, as condições organizacionais e as salvaguardas éticas. **Originalidade/Relevância:** O artigo adapta a lógica da Inteligência Competitiva à educação infantil inclusiva, sem tratar crianças ou escolas como concorrentes. A inteligência educacional é concebida como uma capacidade ética para monitorar sinais, triangular evidências, interpretar incertezas, coordenar ações e aprender com os resultados. **Principais Resultados:** A inteligência útil é produzida quando se integram processos de observação com avaliações apropriadas ao desenvolvimento, participação das famílias, abordagem multidisciplinar e informações contextuais. Os dados, isoladamente, não conduzem a melhores decisões. A alfabetização de dados dos professores, as estruturas e os fluxos de trabalho das equipes, os registros de dados, as estruturas e os suportes organizacionais, bem como as medidas destinadas a evitar rotulações baseadas em déficits, vigilância e falsa precisão, constituem fatores fundamentais para a qualidade. **Contribuições Teóricas/Metodológicas:** A revisão propõe um Ciclo de Inteligência Educacional Inclusiva (*Inclusive Educational Intelligence Cycle*) e seis proposições relacionadas à amplitude do monitoramento, triangulação, competência interpretativa, envolvimento familiar, aprendizagem organizacional e governança ética no apoio à prontidão escolar. Além disso, apresenta uma agenda de pesquisa centrada em acesso, inclusão e tomada de decisão responsável.

Palavras-chave | Prontidão escolar. Crianças com deficiências. Inteligência competitiva. Inteligência educacional. Letramento em dados. Educação inclusiva.

1. INTRODUCTION

Competitive Intelligence is an organizational capability that transforms scattered signals into intelligible and actionable intelligence. It links a stated decision need to environmental scanning, environmental collection, environmental verification, environmental analysis, environmental dissemination, environmental utilization, and environmental feedback (Calof & Wright, 2008; Dishman & Calof, 2008; Fuld, 1995; Herring, 1999; Kahaner, 1996; Prescott & Miller, 2001). The cycle addresses information asymmetry, supports responsible decision-making, and sustains organizational learning.

A challenging application of this problem is making children with disabilities school-ready. Factors contributing to readiness include child, accessibility of receiving environment, knowledge of the family, early intervention, and transition support. This means that the teacher has to deal with different observations, assessments, service records, and family reports, which are reported at different times, differently, and by different people. The challenge isn't that they don't have enough data, it's that they have too much data that is not presented in a coherent format and will never lead to a defensible decision.

Based on the literature of education research, there are four readiness domains: accessibility conditions, teacher data literacy, and family participation. Competitive Intelligence details how organisations plan intelligence requirements, how organisations search environments, how they confirm sources, how they communicate conclusions and how they gain knowledge from action. There is no literature that provides a full account of how distributed evidence is transformed into

institutional intelligence for inclusive decisions. Without strong transfer, this gap becomes a problem since support is delayed, isolated scores are not privileged and asymmetry between families and professionals is maintained.

It poses the question of what should be scanned and how, how evidence is gathered and validated, how information becomes strategic and decision intelligence, and what are some of the conditions for inclusion in governance? It frames a Sustainable Competitive Intelligence Cycle for Inclusive School Readiness, and relates the phases to classic scholarship and determines managerial routines and priorities for empirical testing.

2. THEORETICAL FRAMEWORK

School readiness and Competitive Intelligence become analytically useful when both are treated as relational capabilities. Readiness concerns the fit among the child, the learning environment, and the available support. Intelligence concerns how an organization defines a decision need, evaluates distributed evidence, communicates an interpretation, and learns from action. Their integration shifts attention from isolated measures to the quality of the institutional decision process.

2.1 School Readiness as a Multidimensional and Relational Construct

In recent years, there has been an emerging multi-dimensional perspective of readiness. There is the potential for disruptions in cognitive, language, motor, self-regulatory, social-emotional, health, adaptive, and participation domains, even across the same child (Coelho et al., 2024; Garon-Carrier et al., 2024; Harrington et al., 2020; St Laurent et al., 2021). The average scores in person-centred studies may mask individual patterns of strengths and support needs. For children with disability, observed performance can also result from communication mode, sensory load, motor requirements, language, or response format, rather than the intended skill.

Studies specific to disabled learners confirm this contextual interpretation. Children who are deaf or hard of hearing (DHOH) who participate in timely early intervention are more likely to be kindergarten ready (Meinzen-Derr et al., 2020). Children who are very preterm can have motor-coordination challenges in addition to having wider readiness challenges (Spittle et al., 2022). Multidomain assessment instead of one academic criterion is recommended when it comes to autism-related work (Mukkiri et al., 2022). There is also a strong focus on access, early support and systems capacity, particularly in low and middle-income countries, in the broader disability reviews (Lynch and Soni, 2025; Nair et al., 2023; Samia et al., 2022). While there is consensus on the breadth of these studies, there is no consensus on the relative weight given to emphasis on standardisation and on situated participation.

It should also be noted that longitudinal associations should be treated with caution. There is a connection between kindergarten readiness and later learning, health and social outcomes, but success at the population level does not guarantee a trajectory for an individual child (Fitzpatrick et al., 2020). Readiness differences are also linked to factors such as access to preschool and adverse

and positive experiences in the preschool years, as well as pandemic disruption (González et al., 2022; Green et al., 2021; Jackson et al., 2021; So et al., 2023). Readiness information most defensibly informs support and monitoring. It is an issue when it makes entry difficult, turns uncertainty into a label and doesn't alter the receiving environment.

Identifying multiple readiness domains is just the beginning of Competitive Intelligence. The question is whether the organization is broad enough to be able to pick up on the relevant child and environmental signals and narrow enough so it does not get distracted from a decision need (Calof & Wright, 2008; Herring, 1999). A multi-dimensional approach is of limited value if evidence is fragmented, unobtainable, or not disseminated to the people who can put it into practice.

2.2 Teacher Noticing, Assessment, and Data Literacy

Situated noticing is the initial experience of readiness, as seen in teachers' engagement in routines, responses to communication, persistence, regulation, movement, and changes across conditions. These observations become traceable evidence or impressions based on data literacy. Lee et al (2024) separate Knowledge, Skills, Dispositions, Applications and Behavior. This wider perspective is important, as a teacher might have knowledge of a measure but not be confident enough to challenge the missingness, accessibility, or a prevailing interpretation (Oo et al., 2021; Sandoval-Ríos et al., 2025; Witte et al., 2025).

The results of the training are not always consistent. Teacher outcomes are positively impacted by data-literacy programs, but the impact is influenced by level of intensity, authenticity, feedback, and opportunities to apply learning (Filderman et al., 2022). Time, collaboration, leadership and tools that can be used are also recurring implementation conditions identified by implementation studies (Blumenthal et al., 2021; Tayem & Bourgeois, 2025). The issue at hand is who is responsible for competence, the teacher or the organisation. The evidence is on one side, and in favor of a combined explanation: Individual reasoning is required, but the decision rights and routines are the determinants for when it will be used.

Patterns can be found through technology and access can be quickened, but what is easy to count can be privileged. Pedagogical alignment (Børte et al., 2023) and teacher data literacy (Børte et al., 2023) are highlighted when discussing reviews of technology-supported formative assessment. The same applies to early-childhood technology preparation where there is a similar reliance on professional purpose and context (Papavlasopoulou et al., 2024). A dashboard may not include prompting, physical conditions, sensory conditions or communication conditions for children with disabilities. Digital competence cannot then be the determining element of the decision process, but must be subordinate to it.

Teacher data-literacy research tends to focus on the teacher as an individual. Governance, organizational memory, dissemination and utilization are all components that are equally important in the process of Competitive Intelligence (Dishman & Calof, 2008; Prescott & Miller, 2001). This means that, in the absence of shared routines, decision rights, and a feedback record in schools, training will produce only intermittent intelligence boosts.



2.3 Sustainable Competitive Intelligence, Governance, and Strategic Decision-Making

Competitive Intelligence is not information gathering, but rather an interpretation, dissemination and use of information for a purpose in a timely manner. It is a well-documented process, the classical accounts of which record a series of planning, environmental scanning, collection, verification, analysis, communication, action, and feedback (Calof and Wright, 2008; Dishman and Calof, 2008; Fuld, 1995; Herring, 1999; Kahaner, 1996; Prescott and Miller, 2001).

Planning relates to a readiness or participation decision in educational organizations; scanning involves examining what is happening with child, family, classroom, service, school and policy; collection involves selecting evidence relevant to the planning; verification involves testing the credibility and conditions of access; analysis involves comparing sources and uncertainty; dissemination involves communicating a bounded conclusion; utilization involves making it linked to action; and feedback involves evaluating the end product and the process.

Intelligence governance is responsible for determining needs, gaining access to records, interpreting evidence, communicating outcomes, and reviewing outcomes. It also calls for accountability and documentable uncertainty, source attribution and purpose limitation and privacy.

Families, teachers, specialists, leaders and receiving schools all have different perspectives on the readiness picture, creating information asymmetry. Governance mitigates this imbalance by making sources apparent, documenting dissent and bringing in the right knowledge to decision-makers.

Strategic intelligence takes the cycle one step further. Patterns can be used to alert leaders to hidden assessments that cannot be accessed, transitional issues, staffing challenges, and the need for professional learning opportunities.

Decision intelligence links evidence to management by providing: decision question; evidence pattern; uncertainty; responsible person; action; success indicator; review date. This helps to avoid spreading the dissemination without documentation.

To the extent that the goals of the system are public values, sustainable competitive advantage is an enduring institutional capacity to identify new needs, integrate resources, whether human, physical, or other, and ensure avoidable exclusion and learning are minimized. It does not imply competition between children or school ranking. This analysis is in line with the findings of Ibrahim et al. (2025) and Isichei et al. (2023) that Competitive Intelligence is related to learning orientation and sustainable competitiveness.

2.4 Ethical and Inclusive Intelligence

Intelligence practices can be detrimental to inclusion if taken out of the context of rights and relationships. Three risks recur. When the initial label leads to the subsequent explanation, it is called "deficit amplification. A surveillance paradigm requires a lack of decision-making purpose and a lack of meaningful family control in collection. False precision is when a score is attributed to the child as if it is the reality, when language, sensory demand, communication mode, or administration conditions are not a good match for the child.



These risks should be dealt with at all stages of governance. Collection should focus on a specific decision need. Sources should be selected for relevance rather than convenience. Records should keep records separate from inferences, point out access conditions, make note of uncertainty, and limit access to legitimate educational roles. Participation and support are better than delay or exclusion.

In different organizational cultures, the same evidence can result in different decisions. Whether teams ask how participation can be enhanced or if the child is a part of the setting is influenced by inclusive attitudes and classroom practice (Llorent et al., 2024; Prisiazhniuk et al., 2024; Woolfson, 2025). Also, it helps to have family knowledge. Reciprocal relationships boost contextual understanding and engagement of children, while consultation in isolation degrades the legitimacy of professionals and the quality of their intelligence (Lewis et al., 2023).

Inclusive-education scholarship provides the norm and the legitimacy test, and Competitive Intelligence provides the institutional structures within which the norm and the legitimacy test can be enforced. There is no legal definition of who can have records, how uncertainty is communicated, or how secondary use is regulated. On the other hand, an effective intelligence cycle cannot be defended when it undermines family involvement and/or when the use of support data becomes an instrument of exclusion. Thus, ethical quality and intelligence quality are interdependent.

2.5 Competing Perspectives and Theoretical Tensions

There are four tensions that cannot be solved with the increased data in the literature. The use of standardized assessment increases the level of comparability, and disability research indicates performance may also be a function of accessibility, language, and communication mode, as well as sensory demand. Data-literacy research has highlighted the dangers of poor interpretation around data abundance becoming workload and metric domination, while digital systems boost speed and volume. Professional judgment is achieved with professional expertise; however, the hierarchy of professionals can also maintain information asymmetry when family knowledge is deemed second-class knowledge. The focus of Competitive Intelligence is strategic advantage, while the focus of inclusive education is rights, participation and public value.

The proposed framework is not about the obfuscations of these tensions but about how they are managed. It involves scanning in a decision-oriented way, identifying distinct sources, explicitly acknowledging uncertainty, involving only one other person, utilizing in an accountable fashion, and providing feedback. This position is not like a measurement-based model, as it involves organizational reasoning as an element of the construct of validity. It also has decision rights, documentation requirements, and review responsibilities as opposed to an unstructured relational model.

2.6 Integrated Conceptual Position

The five premises on which the integrated position is based. Readiness is multidimensional. Evidence is spread out among individuals and locations. Asymmetric information can lead to a misrepresentation of information to the decision maker. Interpretation and use is dependent on

the capability of the organization. There is a need for intelligence governance at each stage. The distinction between data, information and intelligence is found in these premises. Data is information that is gathered from observations or records. Information is the organization of data in context. Intelligence is corroborated, collated and coherent information on time, controlled and connected to an accountable action and feedback loop.

The classical Competitive Intelligence cycle is maintained in Figure 1. Defining the decision need is modelled after a key-intelligence-topic logic; environmental scanning is modelled after Calof and Wright, disciplined collection and verification after Fuld, analysis and triangulation after Fleisher and Bensoussan, dissemination, utilization and feedback after Prescott and Miller, and the governance layer after Dishman and Calof and Pellissier and Nenzhelele. The education adaptation process starts with a readiness/participation decision and is completed by accountable action and organizational learning. This is captured in a clear way in Table 1.

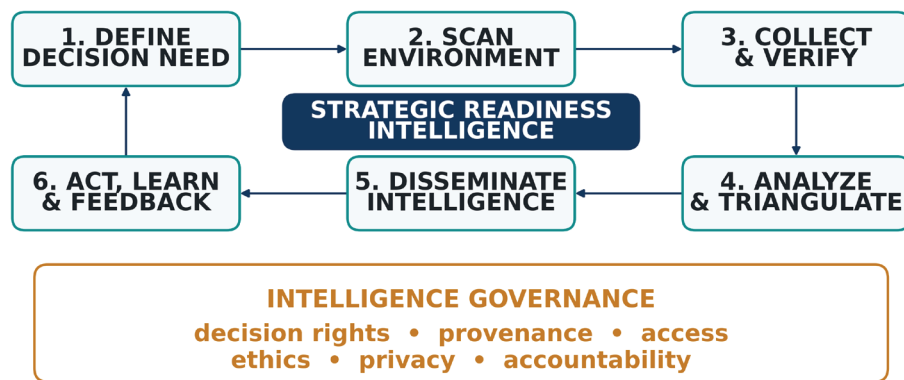


Figure 1. Sustainable Competitive Intelligence Cycle for Inclusive School Readiness

Note. Authors' synthesis based on Herring (1999), Calof and Wright (2008), Fuld (1995), Fleisher and Bensoussan (2015), Prescott and Miller (2001), Dishman and Calof (2008), Pellissier and Nenzhelele (2013), and the education literature cited in the text.

Table 1. Classical Competitive Intelligence Cycle and Its Educational Adaptation

Classical CI function	Foundational grounding	Adaptation for inclusive school readiness
Define intelligence need	Herring (1999)	Frame a readiness, participation, transition, or resource decision.
Environmental scanning	Calof and Wright (2008)	Scan child, family, classroom, service, receiving-school, policy, and community signals.
Collection and verification	Fuld (1995)	Collect decision-relevant evidence; record source, access conditions, timing, and credibility.
Analysis and triangulation	Fleisher and Bensoussan (2015)	Compare methods, informants, settings, and alternative explanations; state uncertainty.
Dissemination, utilization, and feedback	Prescott and Miller (2001)	Communicate a bounded conclusion, name the action and responsible person, and review the outcome.
Governance and organizational capability	Dishman and Calof (2008); Pellissier and Nenzhelele (2013)	Define decision rights, privacy, family participation, accountability, and organizational learning.

Note. The mapping preserves the decision-oriented logic of Competitive Intelligence while changing the purpose from market advantage to inclusive public value.



The stage mapping is summarized in Table 1; the constructs that make the cycle observable and testable are defined in Table 2.

Table 2. Construct Definitions and Observable Indicators

Construct	Definition	Observable indicators
Readiness profile	Pattern of strengths, support needs, and participation conditions across developmental domains.	Communication, cognition, motor function, self-regulation, social-emotional competence, health, adaptive behavior, engagement.
Environmental scanning breadth	Range of child, family, classroom, service, policy, and system signals examined for a defined decision need.	Multiple settings; environmental conditions; strengths and risks; receiving-school readiness; external service and policy signals.
Collection quality	Relevance, accessibility, timing, and traceability of collected evidence.	Repeated observation; appropriate measure; source attribution; fair administration; data minimization.
Triangulation	Comparison of evidence across methods, informants, settings, and time.	Convergence and contradiction are documented; no single source dominates without justification.
Interpretive competence	Ability to evaluate evidence, uncertainty, bias, and alternative explanations.	Distinguishes observation from inference; questions missingness; tests environmental explanations.
Decision intelligence	Explicit connection between synthesized intelligence, a feasible decision, responsibility, and outcome review.	Decision question; bounded interpretation; named action; responsible person; success indicator; review date.
Intelligence governance	Organizational control of planning, collection, access, analysis, dissemination, utilization, and feedback.	Decision rights; source provenance; access rules; ethical safeguards; uncertainty disclosure; audit trail; accountability.
Sustainable institutional capability	Capacity to maintain, learn from, and improve intelligence routines across decisions and over time.	Protected time; collaborative routines; leadership; accessible records; organizational memory; feedback use; professional learning.
Information-asymmetry reduction	Degree to which relevant knowledge is made visible and usable across families, teachers, specialists, leaders, and receiving schools.	Reciprocal communication; source visibility; disagreement recorded; accessible summaries; timely transfer.
Strategic intelligence utilization	Use of recurring evidence patterns for institutional management beyond a single classroom decision.	Staffing; professional learning; transition protocols; accessible resources; service coordination; policy response.

Note. Constructs integrate school-readiness, disability, data-literacy, inclusive-education, and Competitive Intelligence research. The organizational constructs operationalize governance, information-asymmetry reduction, strategic use, and sustainable capability.

3. METHOD

The study used a structured integrative review as suggested by Whittemore and Knafl (2005) which involves the following five phases: Problem identification, literature search, data evaluation, data analysis, and presentation. This design was suitable because the evidence is across developmental, disability, assessment, data-literacy, family, and organisational-intelligence research, and the populations, constructs, and outcomes are heterogeneous, and pooling of data is not possible.

The review was structured and integrative in nature, and was not systematic. Thus, the number of identifications and Cohen's kappa are not claimed as separate parts of the process outline, as this was not the original process. Rather, methodological transparency is ensured by using well-defined eligibility criteria, a well-structured evidence matrix, design-sensitive appraisal, disclosure of selection biases, and qualitative robustness checks.



3.1 Search and Eligibility Logic

Journal articles published from January 2020 to December 2025 were analyzed. Searches were performed on publisher platforms and PubMed-indexed records, using DOI discovery, exact title searches, and backwards and forward citation chaining. Combinations of the terms included school readiness/transition, disability/inclusion, teacher assessment/data literacy and environmental/competitive intelligence.

Articles qualified if they provided information about readiness signals, evidence collection or verification, teacher interpretation, organizational use or ethical protections. There were no exclusion criteria other than qualitative empirical studies; systematic review/meta-analysis, and critical reviews were eligible and reports, dissertations, conference papers, preprints, and reports that did not have the publication metadata available were excluded.

Seminal Competitive Intelligence sources before 2020 and the methodological source by Whittemore and Knafl (2005) were utilized just as a theoretical and methodological basis to support the study. They were not included in the analytic corpus for 2020–2025 or counts of articles for themes.

Authorship, year, journal, volume and article number and DOI metadata were checked for each analytic reference retained. In the final sample, there were 34 articles. The corpus was not generated through a database export, hence, discovery did not cover the whole corpus, but was a targeted search based on citation chaining; hence, the corpus can only support bounded critical synthesis and not exhaustive coverage.

Table 3 summarizes the composition and analytical contribution of the verified corpus.

Table 3. Characteristics of the Verified Evidence Corpus (n = 34)

Evidence cluster	Articles	Primary contribution to the review
School readiness, development, and disability	15	Readiness domains, vulnerability profiles, early intervention, access conditions, and long-term relevance.
Teacher data literacy, assessment, and decision making	11	Collection, interpretation, training, formative assessment, technology use, and action routines.
Inclusion, family relationships, and teacher attitudes	4	Family voice, child engagement, inclusive culture, classroom practice, and ethical use.
Competitive intelligence and organizational learning	4	Scanning, analysis, implementation, learning orientation, and intelligence capability.
Publication period	2020–2025	All 34 analytic articles fall within 2020–2025. Earlier foundational Competitive Intelligence and methodological sources are excluded from corpus counts.
Synthesis status	Structured integrative review	The corpus supports critical and conceptual synthesis; it does not support pooled effect estimation.

Note. Counts refer only to the 34 articles in the analytic corpus. Earlier foundational Competitive Intelligence and methodological sources support theory and method but are excluded from n = 34.

3.2 Review Process and Selection Bias

The review operationalized Whitemore and Knafl's five-stage approach through six documented activities: defining the review questions, targeted literature discovery, eligibility assessment, metadata verification, evidence coding, and integrative synthesis. Figure 2 presents these activities and the final 34-article analytic corpus.

Selection bias may arise from English-language coverage, uneven indexing, publisher-platform discovery, and citation chaining, which can favor well-connected studies. Explicit eligibility rules, DOI checks, source attribution, and sensitivity analyses reduced but did not remove this risk.

3.3 Evidence Matrix and Coding

Each article was entered into an evidence matrix. Bibliographic fields were followed by study purpose, population, setting, design, readiness domain, disability relevance, data source, intelligence-cycle stage, organizational condition, ethical issue, and main contribution. Empirical findings were separated from the authors' interpretations. This distinction reduced the risk of treating a discussion claim as a measured result.

Coding proceeded in two passes. The first pass used deductive categories derived from the intelligence cycle: define need, scan, collect, verify, synthesize, interpret, disseminate, act, and learn. The second pass was inductive. It identified recurring issues such as source fragmentation, family voice, inaccessible assessment, time pressure, professional confidence, multidisciplinary coordination, deficit framing, and uncertainty. Codes were compared across the school-readiness, teacher-data, inclusion, and competitive-intelligence clusters.

The evidence was then translated into six propositions. A proposition was retained when it was supported by more than one literature cluster and did not depend on a single instrument or country. The propositions are conceptual results. They are not statistical hypotheses tested on a primary dataset. Their purpose is to make future empirical work possible.

3.4 Design-Sensitive Quality Appraisal

Data evaluation was conducted within the evidence matrix. Empirical studies were examined for clarity of purpose, appropriateness of design, transparency of sampling and measurement, coherence of analysis, and treatment of limitations. Reviews were examined for explicit search, selection, and synthesis procedures. Conceptual sources were examined for argumentative coherence and traceable support.

The appraisal criteria reflect domains used across MMAT, CASP, and JBI instruments, but they were applied as a design-sensitive narrative evaluation rather than combined into one numerical score across unlike study designs. Evidence was classified as direct, adjacent, or framing, and the classification governed the strength and scope of claims in the synthesis.

3.5 Consistency Checks and Robustness

Eligibility, coding, and interpretation were checked against the predefined review questions, inclusion rules, source metadata, and the evidence matrix. The review used a single consolidated decision record and is therefore presented as an integrative synthesis rather than a dual-screened systematic review.

Five qualitative checks restricted the synthesis to disability-specific readiness studies, early-childhood studies, non-pandemic evidence, education-only evidence, and non-technology evidence. A relationship was retained when it remained visible in the restricted subset and qualified when its scope narrowed.

The review has no participant-level dataset and reports no reliability, correlation, regression, machine-learning, or feature-importance estimates. Tables 3–7 present corpus composition, thematic synthesis, propositions, managerial translation, and qualitative sensitivity checks.

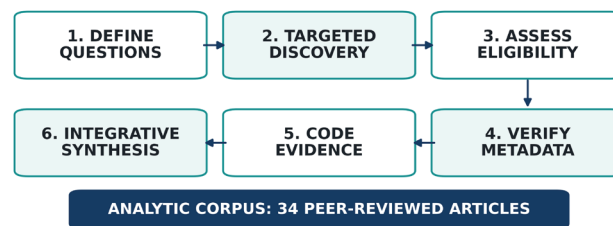


Figure 2. Structured Integrative Review Process

Note. The diagram presents six operational activities nested within Whittemore and Knafl's five-stage integrative review approach and the final verified 34-article analytic corpus. It is not a PRISMA identification-screening flow.

Figure 3 summarizes the traceable movement from source signals and evidence-matrix coding to quality appraisal and synthesis outputs.

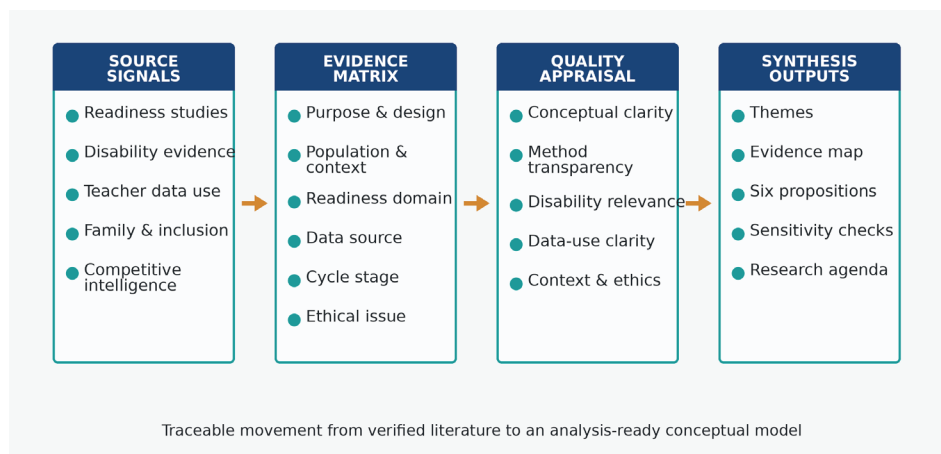


Figure 3. Evidence Processing and Analytical Pipeline

Note. Authors' design. The pipeline represents review procedures and does not imply participant-level statistical analysis.

4. RESULTS AND DISCUSSION

The synthesis indicates that school-readiness decisions are organizational intelligence work under uncertainty. Studies agree that several sources are needed but differ over standardized comparison, contextual observation, professional interpretation, and family knowledge. The central task is selective integration: deciding what to scan, verify, communicate, and act upon.

4.1 What Teachers Scan

Teachers scan communication, early learning, motor coordination, self-regulation, health, participation, family routines, service information, and the accessibility of the receiving environment. Developmental studies support broad readiness domains, while disability and inclusion research shows that performance also depends on communication mode, sensory demand, task design, and classroom conditions.

The literature agrees on breadth but differs in emphasis. Standardized studies favor comparable developmental indicators; disability-focused work gives greater weight to the conditions under which a child demonstrates a skill. Family evidence adds routines, language, interests, and supports that operate outside school.

The disagreement concerns the object of scanning. Developmental studies prioritize child-level domains, whereas inclusion research treats accessibility and the receiving environment as equally relevant. Herring's decision-need logic bounds the scan without excluding contextual barriers.

4.2 What Teachers Collect

Multi method and multi-informant direct observation, developmentally appropriate assessment, work samples, family accounts and specialist evidence. One source alone is not sufficient to make a high stakes readiness decision.

Structured measures can be helpful when the purpose and boundaries are understood. Disability specific work supports are appropriate comparison but scores must be interpreted in conjunction with communication mode, sensory conditions, prompting and environmental access.

In the case of technology-oriented studies, the rate of collection and timely feedback are valuable, but in teacher-data research, interpretation and workload are constraints. The framework thus considers relevance, accessibility, timely, and traceability instead of volume.

Triangulation enhances credibility only when sources are not merged. When there are differences between home and school, it might be an environmental barrier, so it should be looked at, not averaged out.



4.3 How Information Becomes Intelligence

Information turns into intelligence through: verification, synthesis, interpretation and dissemination. Verification tests fairness, opportunity, task accessibility, missingness, and source credibility; synthesis compares patterns among domains, settings, sources, and time.

Interpretation is dependent upon teacher data literacy, such as questioning familiar explanations, searching for disconfirming evidence, differentiating between observation and inference, and declaring uncertainty. Learning experienced over time, through cases, is more relevant than technical training.

Multi-professional interpretation reveals assumptions as teachers, families, specialists and leaders have complementary knowledge. If communication is not two-way, easily accessible, and can influence the decision, then family involvement has little impact on contextual accuracy and feasibility.

It is a common failing that dissemination occurs again and again. Actionable intelligence should include the question of the decision, the evidence pattern, the uncertainty, the action recommended, the person responsible for the action, the indicator of success and the date the action is reviewed. If these are missing, reports may not be used.

Researchers differ in their opinions regarding the key constraint, with some focusing on information systems and others on interpretive skills. The framework puts technology in the infrastructure; intelligence in controlled reasoning and usage.

Table 4 compares the evidence contribution and principal limitation at each stage of the cycle.

Table 4. Evidence Synthesis Across the Competitive Intelligence Cycle for Inclusive School Readiness

Stage	Teacher practice	Strongest evidence contribution	Main limitation
Define need	Frame a specific readiness or participation decision.	Data-based decision-making reviews stress purposeful inquiry.	Questions are often implicit or shaped by available metrics.
Scan	Notice child, family, service, classroom, and system signals.	Readiness research supports multidimensional and contextual scanning.	Environmental and strength-based signals receive less attention than deficits.
Collect	Gather observations, assessments, work samples, family reports, and specialist input.	Disability-specific studies support multimethod assessment.	Sources remain fragmented and may be inaccessible or late.
Verify	Check conditions, source credibility, missingness, and task accessibility.	Assessment and data-literacy research supports critical interpretation.	Verification routines are rarely described explicitly.
Synthesize	Compare evidence across sources, settings, and time.	Person-centered readiness research supports pattern-based interpretation.	Contradictions are often treated as error rather than information.
Interpret	Develop bounded explanations and state uncertainty.	Teacher data literacy and collaboration are consistently important.	Training may focus on tools rather than reasoning and bias.
Act	Select adaptations, coordinate support, or plan transition.	Formative-assessment and early-childhood data-use studies link evidence to action.	Documentation may occur without implementation.
Learn	Review outcomes and update the profile, support, and process.	Competitive-intelligence and learning-orientation studies support feedback cycles.	Longitudinal process evidence in inclusive early childhood settings is limited.

Note. Evidence synthesis draws on Børte et al. (2023), Garon-Carrier et al. (2024), Lee et al. (2024), Meinzen-Derr et al. (2020), and Ranjan and Foropon (2021).



4.4 How Teachers Utilize Educational Intelligence

There are three levels of educational intelligence. Immediate adjustments are made in the classroom by the teacher, plans are coordinated between staff and families across the disciplines and leaders use consistent patterns in support of staffing, professional development, accessible materials, and transition procedures.

At the classroom level, intelligence is used to provide a limited explanation and an answer that can be tested. A team can change the way they communicate, size of the group, speed of participation or sensory input and observe if participation increases.

Selective continuity – not an archive – is essential to transition decisions. Staff need to be successful in communicating, providing effective supports, interests, triggers and signs of fatigue, and providing an opportunity to make new observations.

Capability, opportunity, motivation, leadership and usable systems impact data-based decision making at an organisational level (Beatson et al., 2025; Botvin et al., 2023). When time, routines, records, and authority facilitate the use of teacher competence, then it becomes practice.

Data-use is typically viewed as a teacher practice in data-use studies and as an organisational practice in Competitive Intelligence. The framework brings them together by situating classroom judgement in the areas of governance, allocation of resources and feedback.

4.5 Barriers, Failure Modes, and Ethical Risks

Four failure modes recur. Fragmentation separates information by profession, program, or platform, especially during transitions. Metric dominance treats a standardized score as complete even when language, disability, culture, or access conditions differ from its assumptions.

Interpretive closure occurs when teams settle on an explanation and seek only confirming evidence. Structured questioning should record alternative explanations, contradictory observations, and the likely effect of environmental change.

Performative data use occurs when forms and dashboards are completed without changing instruction or coordination. Intelligence must lead to a named action and outcome review rather than end as documentation.

Ethical drift cuts across these failures. Information collected for support may later be used to sort, exclude, or compare. Governance must therefore constrain purpose, access, language, uncertainty, and downstream use.

Efficiency and inclusion also conflict. Standardized records support transfer and aggregation, but may erase contextual evidence; rich narratives preserve meaning, but can be hard to share. The cycle requires concise, traceable synthesis rather than choosing one format exclusively.

4.6 How the Framework Resolves Key Scholarly Disagreements

In the field, there are four points of disagreement: There is the question of standardized comparison against contextual validity; of data volume and capacity of interpretation; of professional authority and the reciprocal knowledge of the family; and of rapid action versus ethical governance.

The framework allocates each dispute to a stage, and also to a control. The standardized measures are put into collection, but are subject to accessibility checks during verification. Digital records can be used for scanning and dissemination, but are subject to purpose limitation and access rules. Rapid action will continue to have documented uncertainty and review but must be compared with family and cross-setting evidence.

A measurement model and an informal relational model is not enough. A governed intelligence cycle is characterised by comparability and contextual checking, professional judgment and reciprocal participation, timely action and accountability.

4.7 Integrated Analytical Framework

Figure 4 integrates environmental scanning, triangulation, information equity, teacher decision literacy, organizational support, and intelligence governance. Together, these conditions build a sustainable intelligence capability that supports classroom action, transition coordination, and institutional learning.



Figure 4. Sustainable Competitive Intelligence Framework for Inclusive School Readiness

Note. Authors' synthesis based on Børte et al. (2023), Filderman et al. (2022), Lee et al. (2024), Lewis et al. (2023), Maluleka and Chummun (2023), and the Competitive Intelligence literature discussed in Section 2.3.

The outcome is not a single readiness score, but a defensible capacity for timely action, coordinated transition support, and organizational learning. Process outcomes include decision timeliness, family participation, implementation fidelity, information equity, and completion of feedback.

Figure 5 shows an uneven evidence base. Research is strongest on readiness domains and teacher data literacy, moderate on multi-informant collection, family participation, and action, and weakest on verification, formal dissemination, information equity, feedback, and intelligence governance as one cycle.

	School readiness	Disability & inclusion	Teacher data use	Competitive intelligence
Readiness domains	Strong	Strong	Emerging	Limited
Access & context	Moderate	Strong	Emerging	Emerging
Multi-source collection	Moderate	Strong	Moderate	Emerging
Verification	Emerging	Moderate	Moderate	Emerging
Teacher interpretation	Emerging	Moderate	Strong	Moderate
Family participation	Emerging	Strong	Emerging	Emerging
Action & use	Emerging	Moderate	Strong	Strong
Feedback & learning	Emerging	Emerging	Moderate	Strong
Ethical governance	Emerging	Strong	Emerging	Emerging

Figure 5. Evidence Concentration Across Literature Clusters

Note. Authors' qualitative coding of the 34-article analytic corpus. Categories indicate relative concentration of directly relevant evidence, not effect sizes.

The six propositions derived from these relationships are stated in Table 5.

Table 5. Conceptual Propositions From the Review

Proposition	Statement	Evidence basis	Boundary condition
P1	Decision-focused scanning breadth increases the completeness of readiness understanding.	Multidimensional readiness and disability literature.	Excessive scanning creates overload when no decision question is defined.
P2	Triangulated and reciprocally shared evidence improves credibility while reducing single-measure bias and information asymmetry.	Assessment, family, person-centered, and Competitive Intelligence studies.	Sources must remain distinguishable; disagreement should be analyzed.
P3	Teacher interpretive competence mediates the conversion of evidence into action.	Data-literacy reviews and training meta-analysis.	Competence requires time, collaboration, and opportunities to apply learning.
P4	Reciprocal family participation improves validity, reduces information asymmetry, and strengthens implementation feasibility.	Family-teacher relationship and inclusive-transition evidence.	Participation must be accessible and must influence the decision.
P5	Organizational support strengthens the conversion of teacher data literacy into sustained intelligence use.	Data-based decision-making and organizational-learning research.	Tools without routines, leadership, and protected time have limited effect.
P6	Intelligence governance, including ethical safeguards and accountable decision rights, is a constitutive dimension of intelligence quality.	Competitive Intelligence, inclusive-education, disability, and data-governance concerns.	Supportive intent does not remove risks of labeling, surveillance, and exclusion.

Note. The propositions are synthesis outputs, not statistically tested effects. They are intended for future empirical examination.

The model remains a theory-building framework. It has not been tested with primary organizational data, Delphi consensus, formal expert validation, or school implementation. Its



constructs and boundaries are provisional and require stakeholder assessment, process-tracing pilots, and multi-institutional testing.

4.8 Competitive Intelligence Contributions and Managerial Implications

The theoretical contribution is to position school readiness as an organizational intelligence problem. The framework operationalizes planning, scanning, collection, verification, analysis, dissemination, utilization, feedback, governance, and information equity, giving sustainable advantage a public-value meaning.

Table 6 translates the framework into four managerial routines. These routines connect case-level evidence with institutional responsibility without converting individual records into ranking devices.

Table 6. Managerial Actions Across the Intelligence Cycle

Intelligence stage	School-leader action	Illustrative application
Planning and scanning	Define the decision need and assign a responsible lead.	The transition team specifies which access conditions must be in place before school entry.
Collection and verification	Set source, access, provenance, and contextual-check rules.	Family report, classroom observation, and specialist input are compared and their limits recorded.
Analysis and dissemination	Require a bounded conclusion and an accessible intelligence summary.	The summary states the evidence pattern, uncertainty, disagreement, and intended recipient.
Utilization and feedback	Name the action, owner, success indicator, and review date.	Support is allocated and participation is reviewed after implementation.

Note. Examples illustrate institutional routines derived from the synthesis; they are not tested interventions.

Methodologically, the review provides constructs and observable indicators for future surveys, observation protocols, case studies, and multilevel models. These dimensions should remain separate until their measurement quality and dimensionality are established.

4.9 Research Agenda

First and foremost is expert and stakeholder validation. The clarity, completeness, ethical appropriateness, feasibility and relevance of the framework should be evaluated in a Delphi study involving teachers, leaders, disability specialists, family representatives, and Competitive Intelligence scholars.

Process Tracing is the second priority. Case studies should be presented in a way that covers each aspect of the concern raised in the case from initial signal to collection, discussion, action and review, based on observations, decision logs, meeting records and family accounts.

Organizational testing is the third priority. Multilevel studies can determine whether leadership, team routines, system usability, and learning climate account for intelligence use over and above individual teacher literacy for disability groups and contexts.



Ethical and intervention research is the fourth priority. Research needs to explore issues of inequity of information, overreferral, delayed entry, stigmatizing language, distrust of families, and differential surveillance, and to evaluate the technical training versus collaborative case-based inquiry.

Qualitative sensitivity and robustness checks considered in the context of the stability of the central synthesis are summarized in Table 7.

Table 7. Qualitative Sensitivity and Robustness Checks

Sensitivity condition	Result	Interpretive implication
Disability-specific readiness studies only	Core claims on multidimensionality, accessibility, triangulation, and family context were retained.	The framework remains relevant when adjacent general-readiness studies are removed.
Early-childhood studies only	Scanning, collection, family voice, and organizational support were retained; evidence on inclusive social-emotional outcomes narrowed.	Secondary-school evidence is supportive but not necessary for the central cycle.
Pandemic-specific studies removed	The need for contextual interpretation and organizational support was retained.	The framework does not depend on emergency remote-teaching conditions.
Competitive-intelligence studies removed	Most stages remained visible, but planning, dissemination, implementation, and feedback were less explicit.	Competitive-intelligence theory adds process coherence rather than replacing education evidence.
Technology-focused studies removed	Triangulation, family participation, and teacher judgment remained central.	The framework is not technology dependent; digital tools are optional supports.
No numerical pooling	No direction of evidence changed because claims were qualitative and process-based.	Statistical precision should be tested in future primary studies, not invented in a review.

Note. 'Retained' indicates that a relationship remained visible in the restricted literature subset. These are qualitative checks and do not represent effect-size sensitivity analyses.

5. FINAL CONSIDERATIONS

This review looked at the way that observations, assessments, family knowledge, specialist records, and contextual information are turned into intelligence around school readiness by educational organizations. The quality of decision-making depends on the planning, collection, verification, interpretation, communication, use and review of evidence.

What it brings to the table for Competitive Intelligence is the entire process applied to an all-encompassing public-service environment. Organizational capabilities emerge from: Environmental scanning, Information equity, Strategic intelligence, Decision intelligence, Governance and feedback. Timely needs identified, coordinated resources, retention of learning, and decreased exclusion are key components of sustainable advantage.

The implications for management are straightforward. Decision responsibilities should be clarified, collaborative time reserved and a record of decisions kept, and family and specialist information shared with the individual with decision-making authority. The question, evidence, uncertainty, action, responsible person, success indicator, and review date should be included with the name of the intelligence product.

The scope has several limitations. The discovery process was not targeted and may not have been representative of evidence in the region, in languages other than English, or of evidence that was not

well indexed; and the review was based on one screening record, not on dual independent screening. The design-sensitive appraisal was to be a narrative, as the corpus included empirical studies, reviews, and conceptual sources, which could not be weighted numerically. The proposed framework has not been validated by the Delphi, expert, or empirical study or been given institutional support.

Future work should include: content validity and ethics, decisions from signal to action, and testing across institutions. Key outcomes: Measurement quality, feasibility of implementation, information, equity, decision timeliness, organizational learning, family trust, and inclusive participation.

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