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From intuition to professionalism: the construction of a dynamic evaluation model for special education literacy of teachers in general schools

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Abstract. As inclusive education expands globally, general school teachers face systemic challenges in bridging the gap between classroom realities and mandated professional competencies. Using a qualitative grounded theory design, this study decodes the developmental trajectory of special education literacy among general school teachers. Data were generated through theoretical sampling, comprising in-depth interviews with eight teachers across diverse regional contexts and a focus group with seven educational stakeholders; the theoretical saturation of the emerging model was rigorously verified via constant comparative analysis. The findings conceptualize a three-stage developmental continuum—progressing from intuitive experience to professional practice, and ultimately to reflective professionalism—cross-cut by five dynamic dimensions: cognitive appraisal, instructional practice, institutional support, home–school collaboration, and professional learning. Crucially, the study uncovers a structural decoupling within this trajectory, conceptualized as the "Instructional Substitution Effect", wherein teachers' technical deficits compel a reliance on defensive behavior management over substantive differentiated instruction. By addressing this "practice-ahead-of-cognition" asymmetry, this study advances inclusive pedagogical theory and provides a diagnostic blueprint for designing localized, scaffolded teacher professional development and structural school support eco-systems.

Keywords: inclusive education, special education literacy, teacher professional development, general school teachers, dynamic evaluation model

1. Introduction

Since the beginning of the 21st century, the focus of global inclusive education development has transitioned from universal access to education towards the pursuit of equity and quality. This shift presents a transformative challenge to the professional competencies of teachers in mainstream schools. As a vital component of a high-quality education system, China's special education is evolving from a scale-based expansion centered on "guaranteeing basic rights" to a new phase of intrinsic development that emphasizes "appropriateness and quality" [1]. In recent years, strategic frameworks such as "*China's Education*

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Modernization 2035" and the "*14th Five-Year Plan for Special Education Development and Improvement*" have explicitly identified the comprehensive promotion of inclusive education as a national strategy. However, this strategic shift towards universal access and high quality fundamentally relies on the special education competencies of the primary practitioners—mainstream school teachers. The structural mismatch between policy vision and the professional capabilities of frontline teachers is increasingly becoming a critical bottleneck that hinders the transition of inclusive education from concept to reality [2].

As a localized practice of inclusive education in China, the concept of "inclusive education" has been promoted for many years; however, the severe lack of special education literacy among teachers in regular schools has become a fundamental bottleneck that restricts high-quality development. Existing empirical research indicates that the inclusive education literacy of teachers in regular schools is significantly lower than that of resource teachers and special education teachers, revealing a pronounced literacy gap [3, 4]. The deep-seated root of this predicament lies in the systemic separation between regular education and special education within the pre-service teacher training system. Regular education teacher trainees generally lack the stringent requirement of special education credits, resulting in significant professional and technical limitations for frontline teachers when addressing the needs of children with special needs. Furthermore, the persistence of a medical model of disability perspectives, the misalignment of the regular academic evaluation mechanism, and the absence of a professional support system collectively constitute structural obstacles to the advancement of inclusive education towards genuine inclusion.

From an international perspective, Western countries have established a well-defined approach to enhancing teachers' competencies in inclusive education. This is guided by professional standards in special education and supported by interdisciplinary collaborative communities. In contrast, while China has articulated the requirements for teachers' special education competencies in regular schools at the policy level, it still lacks a flexible entry mechanism and a comprehensive training system in practice [5]. Scholars such as Deng Meng argue that the cultivation of talent in inclusive education should be differentiated into two tiers: "universal" and "professional". The key to addressing the current limitations in the competencies of teachers in regular schools lies in the implementation of a systematic training program for "universal" pre-service talent [6]. Specifically, for publicly funded teacher trainees, who represent the backbone of basic education, the development of their pre-service special education capabilities should focus on enhancing their professional identity, increasing practice-oriented courses (such as training in barrier-free communication), and promoting multidisciplinary integration [7]. Empirical research further supports that systematic training and experience with children with special needs are critical factors influencing teachers' competencies in inclusive education [8]. Therefore, integrating special education competencies into the established training system for teachers in regular schools is essential for dismantling the structural barriers to inclusive education.

The innovativeness and academic contributions of this study are primarily reflected in three aspects: First, regarding paradigm integration and theoretical construction, this study adopts a qualitative research paradigm, overcoming the previous limitation of treating general education and special education as parallel systems. Through multi-subject narratives, it constructs a robust "three-tiered, five-dimensional" evolutionary model of special education literacy for general school teachers, integrating both pre-service and in-service education while stratifying general and specialized education. Second, concerning the empirical application of path design, the study draws from the real-world challenges of inclusive education in my country and engages in an in-depth dialogue with international experiences. It extracts a systemic reform strategy that is conceptually guided, standards-driven, and supported by collaboration, thereby providing a contextually transferable operational reference for optimizing teacher training policies. Third, in terms of the value orientation of institutional logic, this study elevates the special education literacy of general school teachers from an

"optional" aspect at the margins of the system to a "mandatory" component within the teacher education system, thereby providing a solid institutional reform foundation for the genuine realization of high-quality educational equity.

2. Methodology

2.1. Study subjects

This study adopts a qualitative research paradigm with the objective of reconstructing the dynamic evolutionary logic of special education competence among teachers in mainstream schools. This is achieved through in-depth dialogues that involve multiple subjects and contexts. To enhance the trustworthiness and credibility of qualitative research, the study integrates two rounds of individual in-depth interviews with focus group discussions at the organizational level, adhering to the principle of data source triangulation [9]. By employing mutual verification and supplementation of diverse data sources, the study endeavors to comprehensively depict the three-dimensional landscape of interwoven individual experiences and organizational ecology.

2.1.1. In-depth interview

Based on purposive sampling, this study selected six representative ordinary schools in Wenzhou, encompassing county towns, urban-rural fringe areas, and rural regions, as research bases. A total of eight participants were interviewed, comprising four front-line teachers and four school administrators. The study employed systematic semi-structured interviews to explore the genuine challenges that teachers encounter in cognitive, teaching, and collaborative dimensions across varying resource allocation scenarios. This design ensures that the research findings possess substantial contextual richness and good transferability, thereby providing robust micro-level empirical evidence for subsequent model construction.

2.1.2. Focus group interview

This study further incorporates an organizational ecology perspective to explore the dynamic operational logic of inclusive education within the school system. Focusing on a school in a suburban area of Wenzhou, the study organized a focus group discussion with seven representatives, including school administrators, teaching management staff, and frontline teachers. Through interactive dialogue, the discussion examined deep-seated contradictions within the school organization regarding resource allocation, individualized instructional interventions, and home-school collaboration. This collective narrative, which involved multiple stakeholders, effectively integrated the practical experiences of various participants, thereby laying a systematic contextual foundation for constructing a "three-tiered, five-dimensional" inclusive education literacy model in this study.

2.2. Research objectives

This study aims to deconstruct and reconstruct the mechanisms underlying the development of special education literacy among general school teachers, thereby addressing the misalignment between knowledge and practice in inclusive education. Specifically, the study seeks to: (1) Identify the core dimensions of special education literacy by examining the practical challenges that general school teachers encounter in inclusive classrooms and refining the multidimensional components of teacher literacy. (2) Develop a dynamic "three-level, five-dimensional" evaluation model by integrating theories of special education development with qualitative evidence to explain the progression of teachers' literacy from experiential practice to professional awareness. (3) Describe the developmental characteristics of teacher literacy by translating qualitative findings into an observable behavioral framework that captures the continuous evolution of teachers' knowledge and

professional practice. (4) Explain how dynamic evaluation supports teacher professional development by examining its role in strengthening school support systems and professional learning communities, thereby promoting the integration of teacher cognition and practice.

2.3. Research methods

2.3.1. In-depth interview method

This study employed a semi-structured, in-depth interview method to explore the current state of professional competence and the real-world challenges faced by teachers in mainstream schools during inclusive education programs. Researchers conducted a systematic survey of teachers with diverse teaching experience and subject areas. The interview design primarily addressed dimensions such as classroom management, allocation of teaching energy, and knowledge of special education. By conducting an in-depth exploration of the structural dilemmas and professional needs encountered by the interviewed teachers, this method aims to provide robust field evidence for the subsequent selection and establishment of an evaluation index system for special education competence among teachers in mainstream schools.

2.3.2. Focus Group Interview (FGI)

This study introduces a focus group approach to dismantle the perspective barriers of individual practitioners and to examine the support system for inclusive education from both organizational and social ecology perspectives. Researchers convened focus group discussions with teachers from mainstream schools, resource teachers from institutions for children with intellectual disabilities, and parents of children with special needs. Through an interactive dialogue mechanism, they explored the delivery pathways of professional support and the conflicts arising from these roles. This design not only helps to deconstruct the boundaries of rights and responsibilities among diverse stakeholders within the inclusive system but also promotes the transformation of individual narratives into an organizational "reciprocal consensus". Thus, it lays the empirical framework and contextual foundation for this study's construction of a dynamic evaluation dimension of collaboration between mainstream and special needs education, as well as home-school co-education.

2.3.3. Topic analysis method

After transcribing the interview recordings, this study employed Braun and Clarke's Thematic Analysis method to conduct bottom-up inductive coding and thematic extraction of the qualitative texts [10]. The analysis process strictly adhered to six stages: First, the researchers repeatedly reviewed the texts to familiarize themselves with the raw data. Second, they analyzed the narratives of practical difficulties faced by ordinary frontline teachers sentence by sentence, generating initial codes that reflected their actual behavioral manifestations. Third, similar codes were clustered to initially extract potential themes. Fourth, the raw data were compared to examine the thematic fit. Fifth, the researchers translated teachers' daily experiential descriptions—such as failures in classroom order management and student behavioral manifestations—into academically neutral theoretical concepts through theoretical benchmarking, thereby defining and naming core categories. Finally, based on this grounded analysis, the extracted multidimensional competency categories were structurally represented as the framework for the subsequent evaluation indicator system, ensuring that the construction of the tool was closely anchored to the real ecosystem of inclusive education classrooms.

2.4. Research process

This study follows a logical framework of "real-world diagnosis—indicator construction—practice verification—mechanism generation" in its systematic design.

The first stage (needs diagnosis), based on the inclusive education classroom ecosystem, systematically identifies practical bottlenecks faced by ordinary school teachers in classroom management, individualized

instruction, and cross-disciplinary support through literature review, semi-structured interviews, and focus group discussions, establishing a qualitative data baseline.

The second stage (model construction) utilizes qualitative thematic analysis techniques to perform multi-level inductive coding of texts, extracting the core categories of special education literacy among ordinary school teachers. Combining cutting-edge special education theories, literacy development is divided into a dynamic evolutionary hierarchy of "primary (cognitive)—intermediate (practice)—advanced (reflective)". The first stage involves constructing a "three-tiered, five-dimensional" dynamic evaluation theoretical model.

The second stage (tool development) involves developing the "*Observation Rubric for Special Education Competency Behavior of Regular School Teachers (Draft)*" based on the above model. Through practical simulations of typical cases, the rubric's suitability and practical value in process evaluation and qualitative behavior description are explored.

The third stage (mechanism generation) involves theoretical benchmarking and integration analysis of empirical materials and tool applications, transforming the evaluation system into a three-in-one empowerment mechanism of "assessment-training-support", providing evidence-based policy recommendations for the construction of a high-quality inclusive education teacher support system.

3. Results

This study employed qualitative thematic analysis and utilized the three-level coding procedure of grounded theory to conduct bottom-up, progressive coding and thematic clustering on eight individual semi-structured in-depth interviews and one group focus discussion text. The data analysis strictly adhered to the logical sequence of "open coding—axial coding—selective coding": (1) In the open coding stage, the original text was conceptually deconstructed sentence by sentence, extracting key semantics directly related to the special education literacy of general education teachers; (2) In the axial coding stage, similar concepts were clustered through the organic connections among developmental categories, initially condensing secondary categories such as "ineffective interventions in inclusive classroom behavior" and "lack of supportive resources"; (3) In the selective coding stage, the core thematic structure was integrated around the central attribute of "the mechanism for constructing special education literacy among general education teachers". Ultimately, the study extracted five core themes and structured them into a three-level dynamic developmental framework comprising the "cognitive layer—practical layer—reflective development layer".

3.1. The "necessity consensus" and real-world contradictions of special education competency

Qualitative text clustering analysis revealed a notable superficial consensus among the surveyed teachers (T1-T8) regarding the necessity of special education competence for general education teachers. However, further textual analysis indicates that this consensus does not originate from teachers' intrinsic professional awareness; rather, it is driven by external pressures stemming from frontline inclusive education practices. In an increasingly heterogeneous classroom environment, the high-intensity emotional labor and behavioral intervention demands of students with special needs compel general teachers to adopt a clear "instrumental" and "defensive" perception of special education competence. Individuals often confine the core value of special education competence to maintaining classroom order and preventing disruptions in teaching, rather than emphasizing the substantive development of the potential of children with special needs. As one frontline general teacher articulated, "As long as the children do not cause trouble and the class can be finished, that is fine" (T3, T4). Concurrently, this recognition of competence, based on practical pressures, encounters a typical bottleneck characterized by "low institutional support". Several surveyed teachers and administrators

highlighted the absence of a clear competence assessment mechanism and a coherent in-service training system at the school level. The urgent practical needs of individuals, coupled with the lack of organizational support, profoundly illustrate the structural disconnect between teachers' perceived competence and the institutional guarantees provided by schools. Consequently, this has resulted in a significant "situation-driven" and "experience-dependent" characteristic in the current special education competence needs of general school teachers, and the paradigm shift from "emergency management methods" to "professional education concepts" remains incomplete.

Table 1. Cognitive dimension (knowledge understanding and evaluation mechanisms)

Typical Performance	Open Coding	Axial Category	Category Definition	Selective/ Selective Coding
"Nowadays, every teacher should know a bit about special education".	Deontic recognition of the general-special education integration trend	Deontic literacy consensus	Teachers' superficial and normative recognition of inclusive education policies and professional ethics	Cognitive Layer
"There are more and more special students in the class".	Practical pressure of normalized Learning in Regular Classrooms (LRC)	Context-driven concept perception	Passive literacy needs triggered by the surging heterogeneity in the classroom ecosystem	Cognitive Layer
"The school did not make it mandatory, but we must know how to handle it".	Implicit teaching obligations under informal institutions	Disconnect between role expectations and institutional rigidity	Structural tension where formal assessment constraints are absent but front-line practice is unavoidable	Practical Layer
"It is important, but nobody teaches us".	Supply-side vacuum of professional development needs	Failure of institutional support	Structural contradiction between teachers" professional development willingness and the scarcity of post-service training resources	Reflective & Developmental Layer
"We are required to manage them, but we do not know how to do it in our work".	Conflict between bureaucratic responsibility and professional self-efficacy	Marginalized identity dilemma	Bearing the responsibility of inclusive practice but lacking special education professional identity and knowledge/skills support	Cognitive Layer
"We know it is important, but we do not know how to do it".	Disconnection between theoretical perception and action paths	Contradiction of knowledge-action gap	Translation barriers between macro inclusive concepts and micro individualized teaching techniques	Practical Layer

3.2. Dual deficiencies in knowledge and assessment skills and the "experience substitutes for professionalism" mechanism

Matrix coding of qualitative texts reveals that the "inability to assess" and "relying solely on experience" are high-frequency nodes in the narratives of interviewed teachers (T1-T8), indicating a systemic lack of competence among ordinary school teachers in diagnosing children with special needs. The study found that the vast majority of ordinary teachers have not yet established a comprehensive professional knowledge system in special education, which is manifested in a three-dimensional deficiency: a lack of basic diagnostic knowledge in special education, the inability to scientifically design Individualized Education Programs (IEPs), and insufficient skills to utilize standardized assessment tools. As frontline teachers stated: "We have never even heard of IEPs, let alone scales" (T5, T8). Faced with the limitations of knowledge and skills in real inclusive classrooms, ordinary teachers have generally developed an informal coping mechanism of "experience substituting for professionalism". In daily teaching settings, teachers heavily rely on subjective behavioral observations and experiential intuition, often basing their diagnoses of students' potential disabilities on superficial characteristics such as "frequency of fidgeting" or "abnormal classroom concentration". For example, T4 candidly admitted: "I saw him fidgeting a lot in class, so I thought this child must have Attention-Deficit Hyperactivity Disorder (ADHD)". This informal assessment, lacking scientific support, struggles to accurately reflect the true needs of children with special needs. This phenomenon profoundly indicates that the special education competence of teachers in ordinary schools remains in a "pre-professional" stage. Due to the long-standing gap in core knowledge, the "experience substitution mechanism" has become normalized and entrenched in grassroots teaching, resulting in fragmented and subjective assessment behaviors that are far from being internalized into a scientific and robust professional competence structure.

Table 2. Dual deficiency of knowledge and assessment competence and the mechanism of "experience substituting professionalism"

Typical Performance	Open Coding	Axial Category	Category Definition	Selective/ Selective Coding
"Mainly relying on gut feeling to judge whether there is a problem".	Empiricist intuitive screening	Intuitive substitution of professionalism	A defense mechanism where teachers entirely rely on personal pedagogical common sense for subjective diagnosis in the absence of standardized tools	Cognitive Layer
"Just seeing if they are constantly moving around".	Superficial judgment of static symptoms	Informal behavior recognition patterns	Overemphasizing visible somatic or classroom-disruptive behaviors while ignoring intrinsic cognitive and psychological disorder characteristics	Cognitive Layer

Table 2. Continued

"There is no specialized method for assessment".	Structural deficiency of technical tools	Vacuum in professional assessment systems	Lack of operable and standardized special education diagnostic and assessment tools in the school environment	Practical Layer
"We do implement IEPs, but in a rather simplified way".	Deprofessionalized execution of individualized programs	Devolution and attenuation of IEP practices	Individualized Education Programs (IEPs) degenerating into formalized records, lacking precise intervention designs tailored to children's specific traits	Practical Layer
"Usually, we just suggest they go to the hospital for a check-up".	Externalized shirking of professional responsibility	Medicalized dependence of diagnostic authority	A tendency for front-line teachers to resort to external medical authorities for validation when school-based professional support fails	Institutional Layer
"We can only teach; screening is something we cannot do".	Self-limitation of role boundaries	Professional efficacy defense and boundary confirmation	Teachers clearly perceiving their own competence barriers, leading to marginalized exclusion of core special education responsibilities	Reflective & Developmental Layer

3.3. Classroom behavior management as a core source of stress and an inefficient cycle of intervention mechanisms

Qualitative thematic analysis reveals that "classroom behavior management" is the most significant and consistently reported source of stress among all surveyed teachers (T1-T8) engaged in inclusive education practices. In real-world contexts, externalized emotional outbursts (such as crying, screaming, and other crisis behaviors), severe attention deficits (e.g., frequent leaving of seats), and stereotypical behaviors exhibited by students with special needs present structural challenges to maintaining normalized teaching order and classroom ecological balance. In response to complex classroom emergencies, the coping strategies employed by the surveyed teachers predominantly exhibit three passive defensive forms: first, "real-time reassurance", which involves temporarily isolating children from the physical teaching environment to help them calm down (T1, T3); second, "control maintenance", which aims to uphold general order at the expense of minimizing teaching disruptions (T5); and third, "delayed handling", which entails postponing the issue during class and addressing it through home-school collaboration channels afterward (T2, T7). However, in-depth textual analysis indicates that these strategies primarily serve as emergency measures. The severe lack of scientific intervention techniques, such as Applied Behavior Analysis (ABA) and structured support programs, leaves teachers vulnerable to feelings of professional helplessness in practice. Some interviewed teachers explicitly noted the ineffectiveness of conventional disciplinary methods; for instance, T4 remarked that ordinary criticism is ineffective and that traditional punishments yield no significant feedback. This leads to the core conclusion that, at the grassroots level of inclusive education, there is an urgent need for special education competencies among general teachers, characterized by a significant "de-academicization/technology-driven"

trend—where their professional need for precise behavioral intervention skills substantially outweighs their pursuit of the ability to adjust differentiated academic instruction based on perceived efficacy. Addressing the challenges of classroom behavior management is crucial for preventing individual professional friction and facilitating the transition of competence from "cognition" to "practice".

Table 3. Practical dimension (classroom coping and behavior management)

Typical Performance	Open Coding	Axial Category	Category Definition	Selective/ Selective Coding
"Take them out first and let them finish crying".	Physical spatial isolation of crisis behaviors	Response-cost style emergency interruption	An expedient strategy where teachers temporarily deprive the student of the classroom environment to calm the externalized emotions of special children due to a lack of behavior intervention techniques	Practical Layer
"Constantly moving around", "reminded them many times but it is useless".	Persistent failure of intervention feedback	Ecological imbalance of the Learning in Regular Classrooms (LRC)	High-frequency externalized disruptive behaviors of special students breaching the tolerance threshold of the regular classroom, causing continuous collapse of regular order	Practical Layer
"Can only remind them over and over again".	Mechanized repetition of verbal admonishment	Technology-deficient defensive intervention	Teachers falling into an inefficient, singular, and self-consuming state of discipline because they lack scientific correction tools such as Applied Behavior Analysis (ABA)	Practical Layer
"Go to the homeroom teacher and then contact the parents".	Organizational transference of professional responsibility	Bureaucratic responsibility deferral mechanism	A tendency for subject teachers to transfer the authority of behavior intervention to external parties like the homeroom teacher or the family when real-time classroom management fails	Cognitive Layer

3.4. Structural weaknesses in the support system and the implementation dilemma of "exogenous drives"

Qualitative text analysis reveals that the current external support system for developing special education skills among ordinary school teachers heavily relies on top-down policy directives, task-based training, and the establishment of resource classrooms. However, this support system exhibits significant systemic weaknesses and structural disconnects in its grassroots implementation. First, the existing professional training system is markedly "formalistic" and "decontextualized", failing to address the core challenges faced by frontline educators (T2, T5). Second, resource classrooms, which are essential physical spaces for supporting inclusive education, generally suffer from institutionalized decoupling between "administrative indicator construction" and "physical functional operation", leading to a dilemma of functional symbolic idleness. Furthermore, the absence of a robust internal psychological support ecosystem within schools fails to meet the

emotional support needs required for complex emotional interventions in inclusive classes (e.g., T1, T7). This structurally weak support ecosystem directly fosters a passive professional development mentality among ordinary teachers. As one interviewed teacher (T6) noted: "Without rigid policy requirements, I will not proactively learn". This common narrative underscores that the current approach to enhancing the special education competence of ordinary teachers remains deeply entrenched in a typical "exogenous driving model". Due to the lack of a continuous professional empowerment network and substantial resource support, the teaching profession has not yet been motivated to actively embrace inclusive education, resulting in significant implementation losses of macro-level policy initiatives at the micro-school level. Consequently, this hinders the institutionalized path for teachers' competence to evolve towards a "reflective development level" and enhanced "professional awareness".

Table 4. Institutional and support dimension (external environmental structure)

Typical Performance	Open Coding	Axial Category	Category Definition	Selective/ Selective Coding
"No training has been provided for over a decade".	Institutional disruption of post-service professional development	Structural absence of professional empowerment networks	Lack of a coherent, long-term, and practice-oriented inclusive education professional development support network within the school arena	Reflective & Developmental Layer
"If it is not required, we just put on a show; we will not proactively learn it".	Externalized attachment of professional growth motivation	Institutional rigidity dependence mechanism	Teachers lacking endogenous drive for literacy development, with professional growth highly dependent on rigid administrative directives from the bureaucracy	Reflective & Developmental Layer
"The resource room is empty".	Symbolic hollowing out of physical support spaces	Institutional alienation of hardware resources	Key material supports such as resource rooms degenerating into mere checklists for administrative indicators, failing to translate into substantive pedagogical support	Reflective & Developmental Layer
"There is a psychological counseling room, but it is rarely used".	Functional atrophy of the psychological support ecosystem	Marginalized operation of auxiliary support systems	Low utilization rate of emotional and psychological support facilities within the school, failing to effectively feed back into the ecosystem of inclusive classrooms	Reflective & Developmental Layer

Table 4. Continued

"There are no explicit requirements".	Vacuum in the institutional binding force of literacy development	Absence of rigid regulations at the organizational level	The school level failing to incorporate special education knowledge and competence into the rigid institutional framework of teacher evaluation, resulting in a lack of mechanism constraints	Reflective & Developmental

3.5. High convergence of training demands and the dual-driven mechanism of "context-case"

Table 5. Professional development and competence needs dimension (reverse derivation structure)

Typical Performance	Open Coding	Axial Category	Category Definition	Selective/ Selective Coding
"I want to know what exactly is wrong with these children".	Structured integration of the theories of children's disabilities	Structured construction of inclusive knowledge	Teachers' demands for the systematic acquisition of foundational knowledge in special education and the pathological characteristics of various disability types	Reflective & Developmental Layer
"I do not know how to handle their stress responses or crisis behaviors".	Deficiency in behavior analysis and crisis intervention techniques	Clinical-technical intervention orientation	Teachers' practical technical needs for implementing scientific behavior modification (such as ABA) under emergent classroom situations	Reflective & Developmental Layer
"I hope to be able to adjust the curriculum".	Translation barriers from general curriculum to individualized programs	Individualized curriculum translation competence	Teachers' competency demands for academic task layering, environmental accommodation, and secondary development of teaching materials based on special children's IEPs	Reflective & Developmental Layer
"I want to know how to accurately assess them".	Willingness to leap from informal screening to scientific assessment	Dynamic assessment and primary diagnostic competence	Teachers' professional needs to master structured assessment tools to achieve precise characterization of special children's daily behaviors	Reflective & Developmental Layer
"I prefer offline in-person training".	Paradigm shift from theoretical lectures to contextualized experiences	Embodied professional development demands	Teachers' preference for an embodied learning model that relies on real-world classroom simulations, case deconstruction, and the physical presence of experts	Reflective & Developmental Layer

Qualitative textual analysis reveals that the interviewed teachers (T1–T8) exhibit a highly converged practical demand regarding the construction of development paths for special education professional competence. In selecting training paradigms, teachers generally question the efficacy of a singular, online infusion of abstract theories, indicating a profound reliance on substantive, embodied training models. Their core demand structure points specifically to the in-person guidance of high-level experts and the thorough dissection of cases within real-world settings, focusing on three modules: the scientific classification of special children's basic characteristics, professional intervention for complex emotions, and emergency responses to classroom-disruptive behaviors. This underscores the urgent need for regular teachers to dismantle the barriers between abstract theories and complex practices, with the expectation of establishing a dual-driven learning mechanism centered on "case-driven" and "contextual simulation" to achieve the situated transferability of special education knowledge. Notably, peer assistance encounters a significant efficacy bottleneck in this field. The interviewed teachers (T5, T8) noted that due to the extreme individual heterogeneity of students enrolled in the Learning in Regular Classrooms (LRC) program and the limited number of samples (the LRC rate follows a low-frequency normal distribution), it is challenging for regular subject teachers to extract universal intervention experiences. Consequently, routine peer discussions are confined to low-level repetitions of superficial experiences. This objective limitation at the sample level further validates the urgent and realistic demand for introducing external professional special education teams into regular schools, as well as establishing standardized and localized special education case libraries for contextualized empowerment. This represents a critical supportive impetus for teachers' literacy to transition from the "cognitive layer" to the "practical layer".

3.6. Construction of an explanatory framework based on "three-tier dynamic evaluation"

3.6.1. The "cognitive layer" (initial stage) of conceptual emergence and experience dependence

The qualitative coding matrix (see Table 1) reveals that the cognitive layer serves as the foundation of special education literacy among general school teachers. In this initial developmental phase, the literacy characteristics of teachers are predominantly characterized by a dual combination of "consensus on normative literacy" and "situationally compelling conceptual perception". On one hand, the interviewed teachers expressed a basic recognition of the value of inclusive education at the level of professional ethics; on the other hand, this recognition is heavily dependent on the practical pressures associated with normalized mainstreaming. Due to the structural absence of systematic professional training prior to and following employment, the mediation mechanisms among teachers exhibit a notable characteristic of "experience substituting professional expertise" when addressing real special education needs. The core bottleneck lies in the structural separation between value recognition and action techniques. While individuals subjectively perceive the necessity of special education intervention, they often lack the professional knowledge anchors at the micro-technical level and are compelled to rely on intuitive experiential reasoning when confronted with the atypical behaviors of children with special needs. This empirical pre-understanding, devoid of support from scientific tools, has resulted in ordinary teachers' special education literacy remaining stagnant at a superficial, nascent stage of conceptual understanding within the blind spot of practice.

3.6.2. Context-driven and fragmented strategies: the "practice layer" (intermediate level)

The practice layer reflects the specific actions of ordinary teachers in addressing complex knowledge deficits in real-world inclusive education settings. Qualitative structural mapping (see Table 4) shows that at this intermediate stage of evolution, individual core competencies are forced to converge heavily on the single dimension of "classroom behavior management". In choosing specific intervention strategies, teachers exhibit strong characteristics of "technology-deficient defensive intervention", tending to rely on short-term measures

such as "response-cost-based emergency interventions" (e.g., physical isolation, real-time reassurance), accompanied by teaching compromises such as "lowering academic goal requirements", in order to maintain a micro-balance of normalized teaching order. However, a deeper analysis of its underlying mechanisms reveals that the practical behavior at this stage exhibits significant characteristics of "high context dependence" and "strategy fragmentation". Due to the lack of systematic, evidence-based guidance for special education interventions, frontline teachers' coping measures often fall into an inefficient cycle of emergency responses and internal friction, failing to establish a structured system of differentiated teaching and individualized behavioral support in the micro-classroom. This lack of practical tools has resulted in intermediate-level competence remaining stuck in the reactive, crisis-oriented stage of simply coping with the behavior of students with disabilities in mainstream education.

3.6.3. The "reflective development level" (higher level): a complex context of professional awareness and lack of support

The reflective development level signifies a critical transitional phase in the enhancement of teachers' competencies in special education, progressing towards professional awareness. Qualitative matrix analysis (refer to Tables 5 and 6) indicates that as inclusive education practices evolve, individuals become acutely aware of the paradigmatic barriers between existing empirical methodologies and scientifically evidence-based interventions. This awareness fosters an intrinsic demand for "clinical technical interventions" and the "individualized curriculum translation of knowledge and skills". At this stage, teachers' core developmental expectations are explicitly aimed at the scientific deconstruction of Individualized Education Plans (IEPs), the application of advanced techniques such as Applied Behavior Analysis (ABA), and the promotion of cross-disciplinary professional collaboration. However, a concurrent dilemma arises: despite teachers' robust professional reflection, they remain constrained by institutionalized alienation from essential hardware resources (e.g., the "idle resource rooms" illustrated in Table 5) and a lack of support within the school's professional ecosystem. This situation hinders their ability to construct a stable path for professional growth independently. The structural disconnect between "the emergence of professional awareness" and "the lack of institutional support" implies that the current professional development of senior teachers continues to depend passively on external drivers, such as rigid administrative directives. There is an urgent need for a paradigm shift towards an endogenous development mechanism centered on Professional Learning Communities (PLCs).

3.7. Model integration based on "three-tier dynamic evaluation"

This study employs a matrix cross-examination of interview texts across various dimensions to reveal that the evolution of special education literacy among general education teachers is constrained in practice by three structural tensions. First, there exists a structural imbalance between the number of special needs students, resulting from normalized inclusive education, and the individual special education knowledge and skills of teachers. Second, there is a misalignment between the intense behavioral management pressure in heterogeneous classrooms and the absence of professional special education support teams within schools. Third, delays in the implementation of macro-policy directives at the micro-school organizational level exacerbate these structural dilemmas, causing ordinary teachers' special education literacy to remain at a primary stress-coping stage in practice.

To bridge the gap between policy planning and frontline implementation, this study, drawing on the aforementioned coding results (see Tables 1 to 6), reverse-engineers and constructs a "three-tier, five-dimensional" dynamic evaluation model for ordinary school teachers' special education literacy. In-depth textual analysis indicates that the integration and transformation of this model heavily depend on three

empirical paradigm shifts: (1) regarding evaluation orientation, a shift from subjective, intuitive assessment to a "developmental orientation" aimed at accurately diagnosing skill blind spots; (2) concerning evaluation mechanisms, breaking the limitations of static, point-like identification by introducing dynamic tracking to fully represent the "processual trajectory" of teachers' evolution from cognitive and practical to reflective development stages; and (3) in terms of evaluation dimensions, expanding from a single classroom order indicator to a "five-dimensional structure" that encompasses cognitive assessment, teaching practice, environmental support, home-school collaboration, and learning needs. This paradigm shift, in turn, drives the reconstruction of the school support system and facilitates the advancement of the competency ladder.

3.8. Teachers' behavior observation rubric for special education literacy based on the "three-order five-dimensional" model (draft)

To implement the micro-application of the dynamic evaluation model, this study has developed the "*Three-Order and Five-Dimensional Behavioral Observation Rubric for General School Teachers' Special Education Literacy (Draft)*". The aim is to provide a set of qualitative reference standards for diagnosing teacher knowledge and evaluating school processes. To address the limitations of traditional static assessments, this rubric translates the grounded coding results presented in Tables 1 to 6 into dynamic behavioral descriptions that encompass five core dimensions and a continuous spectrum:

(1) Cognition and Assessment Dimension: The behavioral characteristics have evolved from an initial reliance on experience and intuition for unstructured screening to an intermediate stage where informal assessment tools are employed to categorize primary disorder types. Ultimately, this progression culminates in a high level of sophistication, characterized by the implementation of multi-source systematic dynamic assessments and the precise deconstruction and construction of Individualized Education Plans (IEPs).

(2) Teaching and Behavioral Practice Dimension: This dimension transitions from an initial approach that relies on expedient classroom discipline control methods, such as physical isolation and real-time comfort, to an intermediate phase where there is a passive implementation of dimensionality reduction in teaching goals and flexible adjustments to classroom rhythms. Ultimately, it focuses on a high level of practice that involves the normal deployment of integrated classroom differentiated teaching and the precise implementation of clinical intervention technologies, such as Applied Behavior Analysis (ABA).

(3) Institutional and Resource Support Dimension: Behavioral manifestations progress from the initial stage of maintaining a normative understanding of inclusion policies, albeit with the resource classroom function rendered ineffective, to the intermediate stage of rigid task coordination and basic teaching guarantees constrained by the bureaucratic system. Ultimately, it reaches the advanced stage of proactively reconstructing the allocation of material resources within the school to maximize the effectiveness of physical support in the resource classroom.

(4) Home-School Collaboration and External Support Dimension: The communication paradigm shifts from the initial stage of problem-oriented, one-way information feedback to the intermediate stage of a two-way collaboration mechanism between home and school based on routine behavioral guidelines. Ultimately, it establishes the advanced stage of proactively integrating the strengths of external experts from medical and special education institutions for deep cross-disciplinary and cross-professional collaboration.

(5) Professional Development and Learning Needs Dimension: The driving force for growth shifts from the initial stage of being driven by bureaucratic administrative directives and external policy indicators to the intermediate stage of individual professional effectiveness defense and reflective awareness based on the integration dilemma. Ultimately, it concludes in the advanced stage of proactively radiating and constructing a

school-based Professional Learning Community (PLC) to achieve continuous endogenous value-added of special education knowledge and skills.

This rubric is currently an exploratory framework, primarily established based on text saturation and expert validity testing from qualitative field interviews. Future research will further optimize its item discrimination and standardized norms through the Delphi Method and large-scale empirical measurement.

4. Discussion

4.1. Explanatory significance of the cognitive-practice-development three-tier structure

Based on qualitative empirical texts, this study constructs a dynamic evolutionary model of special education literacy for ordinary school teachers, which consists of a "three-tier, five-dimensional" structure. This model profoundly reveals that the special education literacy of ordinary teachers is not a static, mechanical summation of knowledge and skills; rather, it is a dynamic evolutionary system characterized by a high degree of interplay among policy rigidity, classroom situational pressure, and support resources. First, in the "initial stage (cognitive stage)", there exists a significant structural disconnect between teachers' recognition of the necessity of inclusive education and their practical knowledge and skills. Their cognitive and assessment dimensions heavily rely on intuitive experiential reasoning. This experiential pre-understanding corroborates Florian's academic concern regarding ordinary teachers' susceptibility to "knowledge deficit anxiety" in the early stages of integration [11]. However, the unique contribution of this model is its revelation that this experiential dependence is not an individual's subjective rejection; rather, it is a "functional self-defense" mechanism arising from the systemic vacuum in pre- and post-service training. Second, in the "intermediate stage (practice stage)", the structure of teachers' knowledge and skills within the teaching and behavioral practice dimensions is compelled to converge towards the real-time maintenance of classroom order. This situation exemplifies the "situation-driven passive defense" characteristic of grassroots implementation of inclusive education. Teachers' practical behaviors demonstrate a structural contradiction marked by high situational dependence and fragmented strategies. This observation corrects the idealized assumption of the "synchronous advancement of knowledge and skills" prevalent in traditional teacher professional development, illustrating that in the absence of clinical techniques (such as ABA) support, frontline practice is susceptible to formalistic transformation due to inefficient internal friction. Finally, at the "higher order (reflective development stage)", individuals recognize the paradigmatic barriers between empiricism and scientific intervention, showcasing a strong professional awareness and endogenous demand for knowledge and skills. However, constrained by the institutionalized alienation of hardware resources (such as the underutilization of resource classrooms), this professional reflection exhibits a significant "exogenous-driven dependence" characteristic. This finding broadens the theory of inclusive ecosystems, indicating that the core bottleneck preventing teachers' professional development towards higher-level professional awareness is not the barrier of individual concepts, but rather the institutionalized absence of a meso-level support ecosystem.

4.2. Teaching and behavioral practice dimensions: the practice logic dominated by behavior management and the "instructional substitution effect"

This study identifies behavior management as the core practice logic employed by ordinary teachers in inclusive settings. This tendency to generalize the physical and mental disabilities of special needs students as a "classroom order crisis" underlies an "instructional substitution effect". In this effect, the professional logic of instructional design is supplanted by the rigid logic of behavior control, leading to a shift from substantive

educational goals to superficial order-maintaining objectives. This finding enriches the theoretical understanding of inclusive education. Traditionally, the academic discourse has concentrated on how teachers can implement "academic differentiation adjustments". In contrast, this study uncovers a more pervasive structural bias in grassroots practice: the prioritization of management over teaching. From a classroom ecology perspective, this substitution effect represents a "marginalized technical defense" that ordinary teachers resort to in order to sustain normalized teaching order amidst a deficit of special education knowledge and skills. While this approach may provide a superficial stability in the classroom environment in the short term, it ultimately results in a deprofessionalized form of behavioral control that not only limits the developmental spectrum of students with special needs but also constrains teachers' reflective practices through structural rigidity. This dynamic inevitably exacerbates the professional impotence of ordinary teachers.

4.3. Cognitive and assessment dimensions: professional competency deficiency and the "experience substitution" mechanism

The phenomenon of "experience substituting for professional competence" among ordinary school teachers in the cognitive and assessment dimensions is not merely an issue of individual knowledge deficits; rather, it results from the interplay between macro-level institutional marginalization and micro-level individual bounded rationality. On one hand, from a macro-level organizational perspective, the existing pre- and post-service training system for inclusive education demonstrates significant "decontextualization" and a lack of support, leading to the failure of structured special education diagnostic knowledge to be effectively integrated into the daily practices of ordinary classrooms. On the other hand, from a micro-level individual rationality perspective, this study reveals that frontline teachers, when confronted with high-pressure and highly heterogeneous classroom environments, tend to adopt a "lowest cognitive cost strategy". This observation aligns with and extends the classic discourse on bounded rationality: when faced with complex behaviors associated with special needs that exceed their professional expertise, individuals inevitably forgo the pursuit of optimal scientific diagnosis in favor of intuitive experiential reasoning to make prompt "satisfactory decisions". While this empirical substitution mechanism alleviates teachers' cognitive load and sustains real-time response efficiency in the short term, it inevitably leads to subjective assessment outcomes and a heightened risk of misjudgment, thereby obstructing the development of precise Individualized Education Plans (IEPs).

4.4. Institutional and ecological dimensions: external support discontinuity and the "institution-driven" learning dilemma

The "externally driven dependence" exhibited by teachers in ordinary schools across the dimensions of institutional support, resource allocation, and professional development profoundly reveals the structural blockages within the meso-level support environment that impede teachers' professional development. From a developmental ecology perspective, teachers' awareness of special education competencies is significantly contingent upon substantial feedback from the external system (e.g., administrative resource allocation) to the micro system (e.g., the classroom teaching environment). However, in grassroots practice, the "symbolic compliance" associated with key material environments, such as resource classrooms, underscores a structural mismatch between material capital investments and the allocation of professional human resources, leading to the functional failure of the support system. This meso-systemic disconnect results in frontline teachers' professional development becoming ensnared in a non-spontaneous "institutionally driven dependence" dilemma, where their competency enhancement is passively reliant on rigid external assessments rather than

being fueled by intrinsic motivation for professional growth. Consequently, this disconnection within the support ecosystem deprives teachers of the dynamic empowerment network essential for advancing to a higher "reflective development stage", thereby stifling the effectiveness of macro-policy benefits within the hierarchical barriers of micro-school organizations.

4.5. Theoretical contributions and explanatory power of the "three-order, five-dimensional" dynamic evaluation model

Based on the empirical findings presented above, the "three-order, five-dimensional" dynamic evaluation model reconstructed in this study demonstrates significant theoretical contributions and explanatory power in the domain of inclusive education teacher development. Firstly, this model deconstructs the nonlinear and multidimensional evolutionary trajectory of special education competence among general teachers. Traditional literature often treats teachers' special education abilities as decontextualized static variables; however, this model validates their hierarchical and dynamic evolutionary characteristics across five core dimensions: cognition, teaching, system, collaboration, and development. This provides a three-dimensional qualitative norm for competence measurement. Secondly, the model accurately characterizes the structural misalignment mechanism of "practice ahead of theory and cognition lagging behind". This finding reveals that frontline teachers experience high-pressure stress in the teaching practice dimension while remaining entrenched in empirical intuitive inferences in the cognitive assessment dimension, thereby pinpointing the systemic root cause of the "structural stifling of professional efficacy" among general teachers. Thirdly, the model establishes the theoretical status of the reflective development layer as the core mediating hub for professional advancement. This study emphasizes that the reflective development stage is not merely a simple aggregation of abilities; rather, it represents a crucial juncture for transforming practical experience into a specialized education knowledge system. Overcoming the symbolic alienation of external support systems and transitioning teachers from passive institutional adaptation to proactive professional awareness constitutes the pivotal turning point for the high-quality development of inclusive educators.

4.6. Theoretical contributions and implications

This study constructs a "three-tiered, five-dimensional" dynamic evaluation model, providing a novel perspective for deconstructing the generation and evolution mechanisms of special education literacy among ordinary school teachers within the context of inclusive education. This model transcends the limitations of traditional literature that treats special education competence as a decontextualized, static variable, thereby broadening the dynamic explanatory framework for teacher professional development. Additionally, it reveals the structural tension between micro-level teaching practices and meso-level institutional support. Furthermore, based on empirical findings from the "three-tiered, five-dimensional" model, the improvement of special education literacy among ordinary school teachers must align precisely with its dynamic evolution trajectory, achieving a shift from "exogenous rigid driving" to "endogenous spontaneous and conscious" practical approaches. Firstly, regarding teacher training paradigms, a hierarchical and progressive professional development system should be constructed based on the tiered needs of "cognition—practice—reflection", breaking the inertia of homogeneous routine training. Simultaneously, a rigidly embedded "context-case" dual-driven module based on real classroom ecology should be implemented to enhance teachers' clinical intervention techniques for the crisis behaviors of heterogeneous students. Secondly, concerning resource allocation, we should reverse the trend and transform resource classrooms from "symbolic space construction" to "functionally embedded teaching support", establishing a school-based special education case library by introducing external professional special education teams. Finally, in terms of cross-disciplinary collaboration

mechanisms, the researchers should rely on the structured deployment of Professional Learning Communities (PLCs) to guide teachers in achieving a paradigm shift from relying on individual experience to sharing structured professional knowledge, thereby bridging the structural misalignment of "practice ahead of time—cognition lagging behind".

5. Conclusion

This study demonstrates that special education literacy among teachers in general schools is a dynamic developmental process rather than a static set of competencies. The findings support a "three-level, five-dimensional" framework in which teachers progress from cognitive awareness to professional practice and ultimately to reflective professional development. Across this process, teacher development is shaped by five interrelated dimensions: cognitive assessment, teaching practice, environmental support, home-school collaboration, and professional learning needs.

The findings also reveal persistent structural challenges in inclusive education. Teachers continue to rely heavily on experiential judgment, prioritize classroom management over instructional adaptation, and face insufficient institutional support for sustained professional growth. These results provide a theoretical explanation for the gap between teacher cognition and inclusive practice and highlight the importance of dynamic evaluation as a mechanism for promoting continuous professional development. By emphasizing developmental progression rather than static competence assessment, this study offers a practical framework for supporting teachers' transition from passive adaptation to reflective professional practice within inclusive education.

This study is limited by its qualitative design, regional focus, and relatively small sample size, which may restrict the generalizability of the findings. Future research should validate the proposed framework using quantitative or mixed-method approaches across diverse educational contexts and employ longitudinal designs to examine how teachers' special education literacy evolves over time.

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