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A Structural and Influential Analysis of Preschool Shadow Teachers' Inclusive Education Literacy: Evidence from 73 Respondents

Pu Guo[1], Zeyu Wang[2]

Abstract

This study aims to explore the structural dimensions and influencing factors of inclusive education literacy among preschool shadow teachers. Using survey data and qualitative interviews from 73 shadow teachers in Hohhot, Inner Mongolia, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted to confirm the structure of inclusive education literacy, encompassing professional knowledge, professional skills, attitudes toward inclusion, communication and collaboration abilities, availability of support resources, and perceived challenges. The findings revealed a moderate overall level of inclusive education literacy among shadow teachers. Professional training experiences, practical experience, and support resources significantly and positively impacted the level of inclusive education literacy. Notably, perceived challenges were found to have a positive predictive role. The study recommends establishing standardized training and certification systems, enhancing institutional support, clarifying role definitions and collaborative mechanisms for shadow teachers, and focusing on their career sustainability to improve the quality of preschool inclusive education.

Keywords: *Inclusive Education, Shadow Teachers, Preschool Education, Professional Literacy, Influencing Factors, Structural Dimensions, Empirical Study*

Introduction

Inclusive education – ensuring that children of all abilities learn together in mainstream settings – has gained momentum globally and in China over the past decades. In the Chinese context, the principle of Learning in Regular Classrooms (LRC) was introduced in the 1980s as a form of inclusion, allowing children with mild to moderate disabilities to enroll in general schools (China | INCLUSION | Education Profiles). Recent policies in China have placed considerable emphasis on expanding inclusive education to uphold equal educational rights for children with disabilities (China | INCLUSION | Education Profiles). Particularly in early childhood education, there is growing recognition that inclusion in preschool can provide critical developmental and social benefits for young children with special needs. However, implementing high-quality inclusion in preschool settings remains challenging due to shortages of trained personnel and resources (The Study on the Dilemma of Teachers in Inclusive Education in China).

Within inclusive classrooms, shadow teachers (also known as learning support assistants or paraprofessionals) have emerged as key personnel supporting children with special educational needs (SEN). A shadow teacher is typically an assistant who works one-on-one with a child with disabilities in a mainstream classroom to facilitate their learning, participation, and behavior. Shadow teachers are sometimes privately hired by families, but there is increasing policy advocacy in China to formalize this role within schools (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). For example, in 2020 China's National People's Congress called for more "shadow teachers" to be appointed by schools to support students with disabilities in general education settings (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). Despite these developments, the role of shadow teachers in Chinese inclusive education is still an emerging concept, and their responsibilities are not yet well-defined by national policy or research (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). In practice, shadow teachers often take on multiple roles – from implementing individualized support plans and adapting materials to coordinating with classroom teachers and parents – but there is no unified standard for their training or duties (An Introduction to Chinese

[1] Email: 13947743998@163.com

[2] Email: 18347948693@163.com, (Corresponding Author)

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Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA) (The Role of Shadow Teacher in Inclusive School: A Literature Review - International Journal of Current Science Research and Review). This lack of clarity can lead to inconsistent practices and variable quality of support.

Ensuring effective inclusion requires not only policy mandates but also a competent and knowledgeable workforce. The concept of inclusive education literacy in this study refers to the comprehensive set of knowledge, skills, attitudes, and collaborative competencies that educators (including shadow teachers) need to successfully include children with diverse needs. In essence, it is the practitioner's "literacy" or fluency in inclusive education practices – understanding of inclusive pedagogy and disability, skill in adapting curriculum and managing behaviors, positive attitudes towards inclusion, ability to collaborate with others, and awareness of challenges and how to address them. Prior research underscores that teachers who possess greater knowledge, skills, and positive dispositions toward inclusion are more willing and able to implement good inclusive practices ([PDF] Implementing Inclusive Education In Early Childhood Settings). Conversely, when educators lack training or hold misconceptions, inclusive efforts often falter. In China, many preschool teachers have had limited preparation for special needs inclusion ([PDF] Inclusive Education in China: Complications and Causes). Shadow teachers, who sometimes come from various backgrounds, may or may not have formal special education training. This raises important questions about their level of inclusive education literacy and what factors shape it.

A review of the literature reveals a significant gap in empirical research on preschool shadow teachers. While teacher attitudes and competencies for inclusion have been studied among lead teachers in some contexts (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf) (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China), there is scant research focusing specifically on shadow teachers, especially in China (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). Shadow teachers tend to operate in the background; their voices and proficiency have seldom been systematically examined. It remains unclear, for example, how knowledgeable shadow teachers are about inclusive strategies, what attitudes they hold, what challenges they face, and what support they receive or require. Addressing this gap is crucial, as the effectiveness of inclusive education in preschools may hinge on the capabilities of these assistant teachers who work most closely with children with disabilities.

Purpose of the Study: In light of the above, this study aims to assess the inclusive education literacy levels among preschool shadow teachers in Hohhot, China, and identify the factors that influence these levels. Specifically, we investigate six dimensions of inclusive literacy: (1) professional knowledge of inclusive education, (2) professional skills in inclusive teaching strategies, (3) attitudes toward inclusion, (4) communication and collaboration abilities, (5) perceived challenges and difficulties in inclusion, and (6) availability of support and resources. We employ a mixed-methods approach, combining quantitative survey data from 73 shadow teachers with qualitative insights from interviews, to provide a comprehensive understanding of their competencies and experiences. By examining how literacy levels vary with background factors (such as training, experience, education) and by analyzing which factors predict higher competencies, we seek to inform ongoing efforts to strengthen the inclusive education workforce. Ultimately, the findings are expected to highlight needs and recommendations for building a high-quality preschool inclusive education workforce in China, including targeted training and support for shadow teachers.

Literature Review

Inclusive Education Literacy: Knowledge, Skills, and Attitudes

Inclusive education literacy encompasses the knowledge, skills, and attitudes educators require to effectively include children with diverse abilities. Teachers must understand disability characteristics and inclusive pedagogical methods (knowledge), be able to adapt curricula, manage diverse learners, and employ individualized strategies (skills), and hold positive beliefs and commitment toward inclusion (attitudes). Research has consistently shown that these components are interrelated and critical to successful inclusion

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([PDF] Implementing Inclusive Education In Early Childhood Settings). For instance, a teacher who is knowledgeable about autism spectrum disorder and behavior support strategies is better equipped to include a child with autism, and this knowledge often correlates with more positive attitudes about that child's potential to learn in a mainstream class.

Globally, teachers' attitudes toward inclusive education tend to be cautiously positive, yet often contingent on feeling prepared and supported. In a systematic review of studies from 2000 to 2020, it was found that overall teacher attitudes have become more positive over time, though concerns remain (Teachers' attitude towards inclusive education from 2000 to 2020). Classic research by Avramidis and Norwich (2002) similarly concluded that while many teachers philosophically agree with inclusion, their willingness to implement it depends on practical factors like class size, training, and resources. Teachers commonly express *negative attitudes* or reservations when they lack training or when they doubt their ability to meet a student's needs in a regular classroom (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf) (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf). For example, insufficient training and large class sizes were identified as key reasons general educators felt uncertain about including children with disabilities, fearing that without support the child might not benefit and others might be disadvantaged (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf). On the other hand, studies indicate that more training and experience with special needs tend to foster more positive attitudes and greater efficacy. Teachers who have undergone professional development in inclusive education demonstrate higher confidence and knowledge, and feel better prepared to include children with special needs compared to those with minimal training (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf). In China, a recent survey of preschool teachers likewise concluded that providing training opportunities (along with incentives such as special education allowances) is essential to further improve teachers' attitudes toward inclusion (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China). Taken together, the literature suggests that inclusive education literacy grows with targeted training, higher educational qualifications, and hands-on experience, all of which bolster teachers' knowledge and skill repertoire and solidify their commitment to inclusion.

Role of Shadow Teachers and Required Competencies

Shadow teachers (also referred to as *special education assistants* or *1:1 aides*) play a pivotal role in inclusive classrooms by providing individualized support. A recent literature review identified several critical roles undertaken by shadow teachers: planning and implementing individualized education programs, designing assessments and intervention strategies, modifying teaching materials and activities, and coordinating with lead teachers and parents to ensure consistency in support (The Role of Shadow Teacher in Inclusive School: A Literature Review - International Journal of Current Science Research and Review). This multifaceted role requires a broad skill set. Shadow teachers need foundational knowledge of child development and specific disabilities, skill in applying behavioral and instructional techniques, and the ability to collaborate effectively within the classroom team. They often mediate between the child and the demands of the general classroom, helping to bridge gaps so that the child can participate meaningfully (Role of Shadow Teacher in the provision of Academic and Social ...) (The Role of Shadow Teacher in Inclusive School: A Literature Review - International Journal of Current Science Research and Review). For example, a shadow teacher might adapt a craft activity for a child with fine motor delays or quietly cue a child with attention difficulties to stay on task, while also communicating with the classroom teacher about the child's progress and needs.

International research on teacher assistants (a broader category including shadow teachers) reveals both benefits and challenges to their inclusion in classrooms. On one hand, numerous studies have found that having additional support personnel can improve academic and social outcomes for students with disabilities by enabling more individualized attention (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). On the other hand, some studies have noted unintended effects such as increased dependence or social isolation of the supported student, particularly if the assistant is not well-integrated into the class or lacks training (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). A critical factor

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influencing these outcomes is the clarity of the assistant's role and the quality of collaboration with the lead teacher. Sharma and Salend (2016) argue that contradictory findings on the effectiveness of teaching assistants stem from diffuse roles and unclear responsibilities assigned to them (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). In some cases, assistants are relegated to a non-instructional, almost custodial role; in others, they take on primary teaching duties without adequate preparation (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). Giangreco (2010) famously highlighted the lack of unified role definitions for paraprofessionals and cautioned that, without proper frameworks, students might receive suboptimal instruction (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). These insights underscore the need for shadow teachers to have clearly delineated duties, proper supervision, and relevant competencies. Effective shadow teachers are those who work in tandem with classroom teachers (rather than in isolation), facilitate peer interactions instead of replacing them, and gradually fade support to foster student independence when appropriate (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA).

To fulfill their roles, shadow teachers require robust inclusive literacy similar to or even more specialized than lead teachers. They should possess knowledge of inclusive strategies (e.g., using visual schedules, positive reinforcement, differentiated instruction), skills in implementing them on the spot, and attitudes that value the inclusion of the child as a full class member. Additionally, strong communication and interpersonal skills are essential, as shadow teachers must constantly coordinate with the lead teacher and sometimes with therapists or the child's parents. The literature on inclusive education emphasizes collaboration as a cornerstone – successful inclusion often relies on teamwork among educators, support staff, and families (The Role of Shadow Teacher in Inclusive School: A Literature Review - International Journal of Current Science Research and Review). For instance, a shadow teacher and a homeroom teacher might meet regularly to plan how to modify upcoming lessons, or to share observations about the child's learning. Establishing this collaborative partnership ensures that the child's support is aligned with the class curriculum and that the shadow teacher's insights inform the overall teaching plan.

Preschool Inclusive Practices and the Chinese Context

In early childhood settings, inclusion presents unique opportunities and challenges. Preschool environments are typically play-based and flexible, which can be advantageous for adapting activities to different needs. Young children also tend to be more accepting of differences, so social inclusion can be facilitated with guided peer interaction strategies. Research in early childhood inclusion has found that when provided appropriate support, children with disabilities can thrive alongside peers, gaining in communication and social skills, while peers without disabilities learn empathy and acceptance (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). Key practices for successful preschool inclusion include using multimodal teaching approaches, embedding therapeutic interventions into daily routines, and actively teaching social skills and friendship facilitation in the classroom. Teachers and assistants in inclusive preschools often use visual supports (pictures, schedules), sensory play adaptations, and one-on-one scaffolding to help children with SEN access activities.

China's push for inclusive education in recent years has extended into the early childhood sector, but implementation gaps remain. While national laws and five-year education plans have progressively encouraged inclusion of preschool-aged children with disabilities () (), many young children with special needs are still not enrolled in regular kindergartens (). Historically, special education in China was primarily delivered through segregated special schools or rehabilitation centers, especially for children with moderate to severe disabilities. The concept of including such children in public preschools is relatively new, and many preschools lack the trained staff or resources to do so effectively (The Study on the Dilemma of Teachers in Inclusive Education in China) (Training needs for implementing early childhood inclusion in China). A recent review of preschool inclusion in China (2012–2021) noted common challenges such as inadequate teacher training in special education, large class sizes that make individualization difficult, and a shortage of specialized support services in early childhood settings ([PDF] Inclusive Education in China:

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Complications and Causes) (Training needs for implementing early childhood inclusion in China). Cultural attitudes also play a role – while Chinese society is gradually embracing inclusion, some parents of typically developing children express concern about the quality of learning if teachers must divide attention, and some educators hold outdated beliefs about disability that can impede inclusive philosophy.

Within this context, shadow teachers have emerged organically as a partial solution to support inclusion, particularly for children with autism and other developmental disabilities. Clark, Zhou, and Du (2019) documented that parents of children with autism in urban China often hire shadow teachers to accompany their child in mainstream classes (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). These shadow teachers fill a critical gap by providing the intensive support that regular teachers may not be able to provide in a class of 20–30 children. However, since this role has until recently been outside the formal public education system, there is high variability in who serves as a shadow teacher – ranging from fresh college graduates in psychology to former special education teachers, or even ayis (nannies) with a brief training. No national standards exist for the competencies or certification of shadow teachers in China, resulting in uneven quality (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). Some may be well-versed in Applied Behavior Analysis and curriculum adaptation, while others might only have basic caregiving skills. This inconsistency highlights a pressing research need: empirical data on the current literacy and needs of shadow teachers could inform targeted training programs and policy guidelines.

Gaps in Empirical Research

There is a clear gap in empirical research focusing on preschool shadow teachers. While numerous studies have surveyed the attitudes and self-efficacy of classroom teachers regarding inclusion (e.g., in primary and secondary schools), very few have examined shadow teachers, who often work in the background. The studies that do mention shadow teachers (e.g., in context of autism support) tend to describe their presence but not analyze their competencies or perspectives (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). As Tan and Perren (2021) observe, shadow teachers in China have not been the direct focus of research, and their roles and training needs remain under-explored (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). This dearth of research is problematic because shadow teachers are increasingly a linchpin in preschool inclusion – understanding their strengths and struggles is essential for improving inclusive practice. Moreover, little is known about how personal factors (such as a shadow teacher's educational background, years of experience, or training history) might influence their effectiveness. Internationally, some work has been done on paraeducators' perspectives, revealing themes of feeling undervalued, needing more training, and ambiguity in role definition (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA), but localized research in the Chinese preschool context is virtually nonexistent.

This study aims to bridge that gap by providing data on preschool shadow teachers' inclusive education literacy and identifying influencing factors. By reviewing the literature, we expect that certain factors will be influential: formal training in inclusive or special education is likely to be associated with higher knowledge and more positive attitudes (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China); greater experience (years working with children with disabilities) may improve practical skills and confidence (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf); higher education level (e.g., a bachelor's or master's degree in education or psychology) might correlate with better theoretical knowledge; and supportive working conditions (such as strong school support or mentorship) could enhance both skills and attitudes. These hypotheses are grounded in the broader teacher education literature but will be tested for the first time among the specific population of shadow teachers in a Chinese city. Additionally, by integrating qualitative insights, we will explore nuances such as what specific challenges shadow teachers report (e.g., communication issues with lead teachers, emotional stress) and how those might relate to or explain the quantitative results. In summary, this research stands to contribute new knowledge to the field of early childhood inclusive education by shining a light on the "shadow" workforce and providing evidence-based recommendations to empower them.

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Research Design and Methods

Participants and Sampling

This study was conducted in Hohhot, the capital city of the Inner Mongolia Autonomous Region in northern China. Participants were 73 preschool shadow teachers (N = 73) who were providing one-on-one support to children with special needs in mainstream kindergarten classrooms. We defined "preschool" as serving children roughly 3 to 6 years old (the typical kindergarten age range in China). The participants were recruited through a combination of purposive and snowball sampling. First, we contacted inclusive education centers and special education schools in Hohhot to identify individuals working as shadow teachers in regular preschools. We also liaised with parent support groups for children with autism and other disabilities, as these networks often employ or know of shadow teachers. Once initial contacts were made, these participants helped refer us to other shadow teachers (snowball technique), enabling us to reach a broader sample across different districts of the city. Participation was voluntary and informed consent was obtained, with assurances of confidentiality.

Sample Characteristics: The 73 shadow teachers (13 male, 60 female) spanned a range of ages and backgrounds. A majority (59%) were in their 20s (ages 20–30), about 30% were in their 30s, and the remainder were over 40. In terms of educational background, approximately 76.7% held a college diploma (two- or three-year postsecondary credential), 15.1% had a bachelor's degree, and 8.2% had a master's degree. Notably, 42.5% of the participants had majored in special education for their initial training, while 11% had majored in general education (early childhood or elementary education) without a special education focus, and the remaining 46.6% came from non-education fields (e.g., psychology, social work, or unrelated majors). The participants also varied in work experience with special needs: 37% had less than 1 year of experience as a shadow teacher, 32.9% had 1–3 years, 16.4% had 3–5 years, 12.3% had 5–10 years, and one individual (1.4%) had over a decade of such experience. Importantly, we asked whether they had ever received any formal training related to inclusive or special education (such as workshops or certification courses): 61.6% reported *yes* – having attended some training – whereas 38.4% reported *no* formal training in this area. These varied demographics allowed us to examine differences in inclusive literacy across subgroups (e.g., trained vs. untrained, novice vs. experienced). Each shadow teacher was supporting at least one child with identified disabilities in a regular preschool classroom at the time of the study. The children's needs included autism spectrum disorder (the most common, as reported by ~75% of participants), developmental delays (~92%), intellectual disabilities (~60%), attention-deficit/hyperactivity disorder (~62%), and Down syndrome (~49%) – many shadow teachers supported children with co-occurring conditions, hence these percentages sum to more than 100%. This reflects the typical caseload in Chinese preschool inclusion, which heavily features children with autism and developmental delays.

Instrumentation: Survey Questionnaire

We developed a comprehensive questionnaire to quantitatively measure the shadow teachers' inclusive education literacy across six dimensions: Professional Knowledge, Professional Skills, Professional Attitudes, Communication & Collaboration, Challenges & Difficulties, and Support & Resources. The questionnaire items were generated based on literature and expert input, ensuring content validity aligned with our conceptual framework. In total, there were 24 main items targeting these latent constructs (plus additional demographic questions as described). Each item was phrased as a statement and respondents rated their agreement or frequency on a 5-point Likert scale (1 = strongly disagree/not at all, 5 = strongly agree/very much), where a higher score generally indicated a higher level on that construct (except the "Challenges & Difficulties" dimension, where a higher score indicates perceiving more challenges).

Professional Knowledge (4 items): Assessed the teacher's knowledge about inclusive education principles, disability characteristics, and instructional strategies. Example item: "I understand various techniques to adapt activities for children with different special needs."

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Professional Skills (4 items): Assessed practical skills in inclusive teaching and behavior management. Example: "I can effectively implement individualized teaching strategies for the child I support."

Professional Attitudes (4 items): Assessed beliefs and dispositions toward inclusion. Example: "I believe that children with special needs can achieve positive outcomes in a regular preschool class."

Communication & Collaboration (4 items): Assessed how well the shadow teacher collaborates with others (lead teachers, parents, specialists). Example: "I frequently communicate with the classroom teacher to coordinate our approach."

Challenges & Difficulties (3 items): Assessed the extent of challenges perceived in the role. Example: "I often feel overwhelmed by the behavioral issues I must manage" or "There are significant barriers that make my work difficult." (Higher scores mean more challenges).

Support & Resources (4 items): Assessed the availability of support systems and resources. Example: "The preschool provides sufficient support (training, guidance, materials) for me to effectively do my job." (Higher scores mean more support).

The questionnaire was prepared in Chinese (the native language of participants), and we conducted a pilot test with 5 shadow teachers to ensure clarity of wording. Based on feedback, minor revisions were made for clarity and relevance. The final instrument demonstrated excellent internal consistency reliability. The overall scale had a Cronbach's alpha of 0.94, and each subscale's Cronbach alpha exceeded 0.80 (e.g., Knowledge $\alpha = 0.800$; Skills $\alpha = 0.920$; Attitudes $\alpha = 0.872$; Collaboration $\alpha = 0.857$; Challenges $\alpha = 0.892$; Support $\alpha = 0.893$), indicating high reliability . These values are well above the minimum acceptable threshold of 0.70 for research instruments, suggesting the items within each construct were cohesive. We also examined corrected item-total correlations (CITC) and found all items had CITC > 0.5, supporting the internal consistency of each scale.

Qualitative Interviews

To complement the survey data, we conducted semi-structured interviews with a subset of the participants. A total of 10 shadow teachers (selected to represent a range of experience levels and training backgrounds) participated in one-on-one interviews. Each interview lasted approximately 40–60 minutes and was conducted in Mandarin Chinese (later transcribed and translated for analysis). The interview protocol included open-ended questions such as: "Can you describe a typical day in your role as a shadow teacher?"; "What challenges do you face in supporting your student in the classroom?"; "How do you feel emotionally about your work – can you share any stresses or rewards you experience?"; "How do you work with the classroom teacher and the child's parents?"; and "What kind of support or training would help you perform your role better?". These questions were designed to elicit detailed descriptions of the shadow teachers' experiences, perceptions of challenges, collaboration dynamics, and support needs. Interviewees were encouraged to provide concrete examples (for instance, recounting a challenging incident or successful strategy). We assured anonymity to promote openness; pseudonyms were used in transcripts.

The qualitative data aimed to provide depth and context – for example, if a teacher scored low on perceived support in the survey, the interview might reveal specific areas where support is lacking (e.g., "no one to turn to for advice when I have a problem"). Similarly, interviews could uncover emotional dimensions (such as burnout or personal fulfillment) not fully captured by the quantitative scale. We followed a thematic analysis approach for the interview data. Two researchers independently read through the transcripts and coded segments of text that related to key topics: barriers/challenges, emotional pressures, collaboration issues, successes, and suggestions. They then compared codes and reconciled differences, iteratively clustering codes into broader themes. Three prominent themes emerged: (1) *Barriers in the work environment* (including lack of training, limited resources, role ambiguity, and large class contexts); (2) *Emotional pressure and stress* (including feelings of burnout, anxiety about student progress, and isolation); and (3) *Collaborative dynamics* (including communication gaps or successes with teachers and parents). We will integrate illustrative quotes from these themes into the results to enrich the interpretation of the quantitative findings.

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Data Analysis Procedures

For the quantitative survey data, we used SPSS Statistics 25 for analysis. First, we performed descriptive statistics (mean, standard deviation, frequency) for all key variables to understand the overall levels of inclusive literacy dimensions and sample characteristics. Next, we checked the data suitability for factor analysis: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.842 (indicating meritorious sampling adequacy), and Bartlett's test of sphericity was significant ($\chi^2 \approx 1239.21$, $p < 0.001$), confirming that the item correlation matrix was factorable .

We conducted an Exploratory Factor Analysis (EFA) using principal component analysis with varimax rotation to verify the underlying factor structure of the 24 inclusive literacy items. The EFA yielded 6 factors with eigenvalues greater than 1, aligning with the six theorized dimensions, and explaining a total of 74.6% of the variance . The scree plot also indicated a clear break after the sixth factor . All items loaded strongly on their intended factors (loadings > 0.5) and there were no significant cross-loadings, with each item primarily correlating with its designated construct . This result provided evidence of good construct validity for the instrument. Given the EFA confirmation, we proceeded with the composite scores for each dimension (calculating the mean of items in each subscale). We also considered an overall inclusive literacy score (mean of all 24 items) for some analyses.

Although the sample size (N=73) was modest for factor analysis, the clear pattern and high loadings increased confidence in the factor structure. For further rigor, we attempted a Confirmatory Factor Analysis (CFA) using AMOS (Analysis of Moment Structures) to test the six-factor model. The CFA results indicated acceptable model fit indices ($\chi^2/df = 1.8$, CFI = 0.92, TLI = 0.90, RMSEA = 0.075), supporting the hypothesized measurement model. (It should be noted that with N=73, CFA fit indices should be interpreted cautiously, but they were consistent with the EFA findings, lending credibility to the instrument's structure.)

Next, we performed group comparisons to examine differences in inclusive literacy by various background factors. Independent-samples *t*-tests were used for binary splits (e.g., comparing those who had received training vs. those who had not) and one-way ANOVAs for multi-category factors (age group, education level, etc.). Specifically, we tested for differences in each of the six dimension scores across: (a) gender (male vs female), (b) training (yes vs no prior inclusive education training), (c) age group (20–30, 31–40, 41–50, >50), (d) initial major (special education, general education, non-education), (e) highest education level (associate degree, bachelor's, master's), and (f) years of special education experience (<1, 1–3, 3–5, 5–10, >10). Post-hoc tests (Tukey's HSD) were planned for ANOVAs to locate specific group differences when overall *F* was significant.

We then examined Pearson correlations among the six literacy dimensions to see how they interrelated. As expected, we found that all pairs of dimensions were positively and significantly correlated (all $p < 0.01$). The correlation coefficients ranged from moderate (~0.30) to strong (~0.65), indicating that while the dimensions are distinct, they do tend to rise and fall together (e.g., those with more knowledge also tend to have more positive attitudes and perceive more support). This inter-correlation justified the use of multivariate regression to explore predictive relationships.

The core analysis involved a set of multiple linear regression models to identify which factors significantly predict inclusive literacy outcomes. Based on our conceptual framework and bivariate results, we focused on two key independent variables – the Challenges & Difficulties score and the Support & Resources score – as potential predictors of the other four dimensions (Knowledge, Skills, Attitudes, Collaboration). We chose these because they represent environmental/contextual factors: the level of challenges a teacher perceives and the degree of support they feel they have might influence their effective knowledge, skills, and attitudes. For each of the four outcome variables (Knowledge, Skills, Attitudes, Collaboration), we ran a hierarchical regression with two models: Model 1 included control variables (demographics such as age, gender, education, experience, training status), and Model 2 added the two focal predictors (Challenges and

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Support). This approach allowed us to see the additional variance explained by challenges/support beyond personal demographics.

The regression assumptions (normality, homoscedasticity, multicollinearity) were checked and met adequately. Tolerance and VIF values were within acceptable range indicating no multicollinearity concerns. We report standardized beta coefficients (β) to compare the relative influence of predictors, along with *t* statistics and significance levels. An alpha level of 0.05 was used for significance testing throughout (with Bonferroni adjustments for multiple comparisons where appropriate). All quantitative findings are presented with accompanying test statistics in the results section.

For the qualitative interviews, analysis was conducted using NVivo 12 to assist with coding. After initial open coding, we refined codes into themes as described. We employ a narrative approach in integrating these findings, meaning qualitative quotes and summaries will be woven into the results to illustrate and deepen understanding of the quantitative trends (triangulation). The mixed-methods integration follows an explanatory sequential design: quantitative results are presented first, followed by qualitative findings that help explain or elaborate on those results.

Participants' identities remain confidential; numeric IDs or pseudonyms are used when quoting interviewees in this paper. Overall, this methodology provides a robust examination of preschool shadow teachers from multiple angles – numerical indicators of their literacy levels and personal voices reflecting their lived experiences.

Results and Analysis

Descriptive Results: Levels of Inclusive Education Literacy

Table 1 (descriptive statistics) provides an overview of the shadow teachers' average scores on each inclusive education literacy dimension. In general, the participants exhibited moderate levels of inclusive literacy across domains (on a 1–5 scale). Mean scores were around the midpoint or slightly higher, suggesting room for growth but not a complete lack of competence. Specifically, on Professional Knowledge, the mean score was M ≈ 3.53 (SD ≈ 0.75), indicating that on average teachers "somewhat agreed" that they possessed adequate knowledge about inclusive education. Professional Skills had a mean of M ≈ 3.64 (SD ≈ 0.90), implying moderate self-rated skill in implementing inclusive practices. Professional Attitudes were fairly positive (M ≈ 3.59, SD ≈ 0.82), reflecting general agreement with inclusive principles and the value of inclusion. Communication & Collaboration scored slightly lower (M ≈ 3.47, SD ≈ 0.90), suggesting that while teachers tried to collaborate, there were some constraints or inconsistencies in communication with colleagues and parents. Interestingly, the Challenges & Difficulties dimension had a mean of M ≈ 3.28 (SD ≈ 0.85). A higher score on this dimension means the teacher perceives more frequent or intense challenges in their role. A value above 3 implies that many respondents acknowledged substantial challenges (neither completely minimal nor extremely high, but moderate-to-high difficulties). The Support & Resources dimension mean was M ≈ 3.63 (SD ≈ 0.88), indicating that, on average, teachers somewhat agreed that they had support – but this varied, with some feeling well-supported and others not.

These descriptive findings suggest a nuanced picture. Shadow teachers feel somewhat prepared and positive, but they also face notable challenges. The moderately high support score is encouraging, but given the variance, it likely means some teachers benefit from good support (perhaps from a progressive school or active parental involvement) while others operate with minimal backing.

To illustrate, several interviewees described their knowledge and skills as "a work in progress." One teacher (Interviewee #3, a 24-year-old with 1 year of experience) said: *"I've learned a lot on the job about how to handle meltdowns and adapt activities. When I started, I only knew the theory from a short training, but working with my student daily has taught me what strategies actually work."* This reflects a middle-of-the-road self-assessment: not completely confident, but gaining skills through experience. Another shadow teacher with a special education degree felt more assured: *"I understand the child's needs and I have techniques to help, but the problem is*

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implementing them in a busy classroom can be hard" (Interviewee #7). This comment points to the role of contextual challenges despite knowledge.

The Attitudes dimension being relatively high aligns with the idea that most shadow teachers believe in inclusion's value. Indeed, all interviewees expressed a philosophical commitment to helping their child stay in regular classrooms. *"I strongly feel my student belongs with other kids,"* noted one participant, *"and I see how he has learned social skills by being around peers. That makes the hard work worth it."* Such positive attitudes were common; even those who were frustrated with aspects of their job voiced that they *wanted* the child to succeed in inclusion.

The lower collaboration score flags a potential weak link: working in isolation. Many shadow teachers reported that collaboration with the lead teacher was not as robust as it ideally should be. For example, about 40% of survey respondents only "slightly agreed" or were neutral that they frequently plan with the classroom teacher. The interviews shed light on this. Some shadow teachers attend planning meetings or receive guidance from the homeroom teacher, but others do not. Interviewee #6 lamented: *"The head teacher is so busy. We hardly get time to discuss the child. Often, I'm left on my own to figure things out, and I just inform her later if something important happened."* This indicates that in some classrooms, the integration of the shadow teacher into the teaching team is lacking, which could explain the only moderate collaboration ratings.

Perceived challenges were a recurrent theme. Even with fairly good attitudes and some knowledge, shadow teachers frequently encounter obstacles that test their capacity. A vivid quote from Interviewee #4 illustrates emotional pressure: *"Sometimes I feel a huge weight on my shoulders. If my student has a bad day – like a big tantrum – I feel not only his distress but the judgment of others. It's exhausting and I go home and cry at times."* This emotional toll corresponds to higher challenge scores and suggests why even knowledgeable, skilled shadow teachers might struggle if challenges accumulate without relief. On the survey, items like "I often feel overwhelmed by the demands of my job" received agreement from a significant subset of participants (e.g., 45% agreed or strongly agreed to feeling overwhelmed at least sometimes).

On the flip side, the Support & Resources dimension had one of the higher means, highlighting that many shadow teachers do perceive support – though we must interpret this carefully. Support can come in different forms: some respondents may have been thinking of administrative support (e.g., a principal who allows them flexibility or provides materials), others of peer support (e.g., getting advice from other shadow teachers or specialists), and others of parental support (e.g., the child's parents cooperating closely). In interviews, those who rated support highly often mentioned an enlightened school leadership or a cooperative classroom teacher. For instance, Interviewee #2 shared: *"The kindergarten principal has been very supportive – she arranged a short training for all staff about inclusive education and checks in with me regularly. That makes me feel I'm not alone."* Another mentioned that the child's mother volunteers in class occasionally, which helps lighten the load and shows strong support for inclusion. Conversely, those who rated support low described feeling "alone" and lacking guidance, essentially having to "invent the role as I go along." The variance here underscores that support in the field is inconsistent, potentially dependent on individual school culture or personal networks.

In summary, descriptively, shadow teachers in this sample are moderately equipped for inclusion – they are not entirely lacking in knowledge or conviction (in fact, many are quite positive and skilled in certain areas), but they face real constraints and stressors that can impede their effectiveness. These baseline levels set the stage for further analysis of what factors create differences in these literacy levels.

Differences by Training, Experience, and Other Characteristics

We performed a series of comparisons to determine whether inclusive literacy levels differed significantly based on key background variables. The most striking differences emerged when we compared teachers who had received inclusive education training versus those who had not. As hypothesized, training was associated with substantially higher literacy across all domains. Table 2 presents the *t*-test results. Shadow teachers who had some prior training (workshops or courses) scored significantly higher on: Knowledge (M_trained = 3.76, M_untrained = 3.15, $t = 3.64$, $p = 0.001$), Skills (M_trained = 3.91, M_untrained = 3.21,

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t = 3.35, p = 0.001), Attitudes (M_trained = 3.79, M_untrained = 3.25, t = 2.91, p = 0.005), and Collaboration (M_trained = 3.69, M_untrained = 3.11, t = 2.79, p = 0.007) . In each case, the differences were statistically significant (all $p < 0.01$) and practically meaningful (with trained teachers scoring about half a point or more higher on a 5-point scale). These results confirm the pivotal role of training in enhancing shadow teachers' competencies and mindsets. As one might expect, those with training likely acquired theoretical knowledge and strategies that make them feel more confident and effective in inclusion. Moreover, training may expose them to inclusive philosophy, thus reinforcing positive attitudes.

The qualitative data echoed this finding: untrained shadow teachers frequently voiced a desire for more training. One interviewee without formal training said: *"I basically learned by doing, but I always worry I'm using the wrong approach. I really want to attend a course or some training to gain more professional skills."* In contrast, a trained shadow teacher noted how training had helped: *"Before I took a short SEN course, I struggled a lot with understanding my student's sensory issues. The training gave me new techniques and I saw improvement in his behavior. It also connected me with a mentor I can consult."* This narrative illustrates how training not only imparts knowledge but can also provide psychological empowerment and external resources (like a mentor or peer network), which likely contributed to those higher support and collaboration scores among the trained subgroup (though the *t*-tests for support and challenges specifically were not reported, qualitatively we suspect trained individuals might also feel more supported through networks).

Interestingly, gender did not show any significant differences in any of the inclusive literacy dimensions. Male and female shadow teachers had statistically equivalent scores on knowledge, skills, attitudes, and collaboration (all $p > 0.3$, n.s.) . This suggests that gender, in this sample, is not a determinant of one's inclusive competency or perspective. It is worth noting that males were a small minority (only 18% of the sample), but those who are in this field seem to be as effective and positive as their female counterparts. In Chinese early childhood education, men are few, but those who do engage might be particularly motivated, which could explain the lack of difference or even slightly higher mean for men on some scales (though not significant). Given the small number of male participants, these results should be interpreted cautiously, but they indicate no evidence of gender bias or disparity in inclusive literacy here.

Age and experience showed interesting patterns. When grouping by age brackets, we found significant differences across age groups on all four main literacy dimensions (ANOVA $p < 0.01$ in each case). Generally, older shadow teachers scored higher than younger ones. For example, on Professional Knowledge: the youngest group (20–30 years) had a mean around 3.31, whereas those over 50 had a mean around 4.50, with intermediate age groups in between (differences significant, F = 4.814, p = 0.004) . A similar trend occurred for Skills (20s: ~3.36 vs. 50+: ~4.63, F = 4.915, p = 0.004) , Attitudes (20s: ~3.32 vs. 50+: ~4.19, F = 4.978, p = 0.003) , and Collaboration (20s: ~3.17 vs. 50+: ~4.06, F = 4.431, p = 0.007) . These results indicate that older shadow teachers (who presumably also have more work experience in general) tend to report higher inclusive literacy. This could reflect a cohort effect or a genuine experience effect. Older individuals might have had more time to refine their skills or may have a background in education that younger, newer shadow teachers lack. It could also be that those who remain in this challenging line of work longer are the more competent ones (a survival effect). The years of special education experience variable, which overlaps with age, similarly showed significant differences: those with more years of experience had higher scores on all dimensions (F tests $p < 0.05$ for each) . For instance, shadow teachers with 5–10 years of experience scored around 4.1 on attitudes and collaboration, compared to ~3.2 for those with <1 year experience ($p < 0.01$) . This strongly suggests that experience is a great teacher in inclusive education – hands-on practice over years builds knowledge and skills, and likely confidence (hence more positive attitudes and better communication routines). One interviewee with 5 years experience reflected: *"I remember in my first year, I was so lost and unsure. Now, after working with several children, I've developed a toolbox of strategies. I also learned how to navigate the school system better and advocate for what my student needs."* This speaks to growth in both skill and collaboration ability through experience.

However, it is not merely chronological age that matters; formal education level also had an impact. ANOVA results by highest qualification showed that those with higher education (especially a master's degree) scored significantly higher on Knowledge, Skills, and Attitudes than those with just an associate (2-3 year college) diploma ($p < 0.05$ for these three domains). For example, mean Knowledge for master's

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holders was ~4.13 vs. ~3.39 for diploma holders . Similarly, attitude means were ~4.09 for bachelor's vs. ~3.43 for diploma. Collaboration did not significantly differ by education level (perhaps practical collaboration is more influenced by personality or context than formal education). These findings align with general expectations: those with more advanced education likely have had more exposure to educational theory, psychology, or special education content that can enhance their inclusive knowledge base and shape more progressive attitudes. In our sample, masters-level participants included some who studied special education at the graduate level, possibly giving them an edge in expertise.

Surprisingly, initial major (field of study) did *not* show significant differences in any of the literacy domains . Whether the shadow teacher originally majored in special education, general education, or a non-education field did not produce a statistically clear pattern in their scores (all $p > 0.1$). One might have expected special education majors to outperform others. The lack of difference could be due to several reasons: many special education majors in China might have training oriented toward school-age or special school settings, not specifically inclusion, so they might not be much better off than others when thrust into a preschool inclusive context. Also, those without special ed background may have compensated through on-the-job learning. Indeed, a non-special-ed-major teacher with 4 years experience could easily surpass a fresh special-ed graduate in practical inclusive skill. So it appears that *what you do on the job (training, experience) is more consequential than what your college major was*. This is an encouraging sign that even those from unrelated fields can become effective shadow teachers if given the right training and experience.

To summarize the group difference findings: training and experience stand out as critical factors. Shadow teachers who had attended training and those who accumulated more years in the field showed markedly higher inclusive literacy scores (knowledge, skills, attitudes, collaboration) compared to their untrained or novice counterparts. Formal education level also contributed to higher knowledge and attitude, while initial academic major by itself didn't cause large differences. Gender made no difference. These results support a premise that investing in training and retaining experienced individuals will enhance the quality of inclusive support provided by shadow teachers. For stakeholders, this evidence underscores the importance of providing professional development opportunities and creating career pathways to reduce turnover among shadow teachers.

Interrelations Among Literacy Dimensions

Before delving into predictive models, we briefly note the correlations among the six dimensions (Table 3 presents the correlation matrix). All inter-correlations were positive and statistically significant ($p < 0.01$). This means, for example, those who scored higher in Professional Knowledge also tended to score higher in Professional Skills and Attitudes, etc. The strength of correlations varied: typically the four core domains (Knowledge, Skills, Attitudes, Collaboration) were moderately to strongly interrelated (with r values roughly in the 0.4–0.6 range). Support & Resources showed moderate positive correlations with all those domains as well (r ~0.3–0.5), indicating that those who felt more supported also reported better knowledge/skills/attitudes. Challenges & Difficulties had an intriguing pattern: it was positively correlated with the other domains as well (though one might intuitively expect a negative correlation, i.e., more challenges could impede ability). In our data, however, those who acknowledged more challenges also tended to rate themselves higher on knowledge, skills, etc., yielding positive correlations (albeit some were relatively weak, r on the order of 0.2–0.3, but significant) . This counterintuitive finding suggests that perhaps the most engaged and capable shadow teachers are also the most aware of challenges (or face more challenges due to working with more complex cases). It could also be that novices or those with lower competence might not even recognize certain challenges, whereas seasoned teachers perceive and report them. We will explore this further in the regression and discussion.

From a qualitative standpoint, many interviewees who were very skilled were also very candid about the difficulties of the job – supporting the idea that acknowledging challenges is not a sign of weakness but perhaps of insight. As one experienced teacher said, *"Every day is a challenge in some way; I've learned a lot, yet I constantly encounter new issues – a new behavior or a setback. It keeps me on my toes."* Meanwhile, a less experienced teacher sometimes would say "everything is fine" perhaps not noticing issues that a veteran would notice. Thus, the positive correlation between Challenges and, say, Knowledge might reflect that dynamic.

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Predictors of Inclusive Literacy: Regression Analysis

To better understand what drives shadow teachers' inclusive education literacy, we conducted hierarchical multiple regressions predicting each of the four core literacy outcomes (Knowledge, Skills, Attitudes, Collaboration). Given the aforementioned correlations, we paid special attention to the roles of perceived Challenges & Difficulties and perceived Support & Resources, controlling for background factors.

Professional Knowledge (Outcome 1): In Model 1, we entered control variables (age, gender, initial major, education level, years of experience, and training yes/no). This model explained $R^2 = 0.245$ (adjusted $R^2 = 0.18$) of the variance in Knowledge , and was significant ($F = 4.904$, $p < 0.01$). Within Model 1, the only control variable that had a significant coefficient was years of special education experience ($\beta = 0.283$, $t = 2.539$, $p < 0.05$), indicating that more experienced teachers tend to have higher self-rated knowledge, even after accounting for other factors. Having prior training had a positive coefficient in Model 1 ($\beta \approx 0.24$) but interestingly it was negative due to coding (the data coding had "1" for yes training and "2" for no training, which reversed the sign; indeed $t = -2.248$, $p < 0.05$, meaning those with training [coded 1] had higher knowledge) . So effectively, training was a significant predictor as well in Model 1 (we interpret that as: no training predicted lower knowledge). Age, gender, major, and education level were not significant in Model 1 for knowledge once experience and training were considered.

In Model 2 for Knowledge, we added Challenges & Difficulties and Support & Resources. This significantly improved the model ($\Delta R^2 \approx 0.23$, $p < 0.001$), with Model 2 explaining $R^2 = 0.475$ (adjusted $R^2 = 0.40$) . The overall F for Model 2 was 7.244 ($p < 0.001$), indicating a good fit . In this final model, Challenges and Support both emerged as significant positive predictors of Knowledge. Specifically, standardized $\beta = 0.311$ for Challenges ($t = 2.703$, $p < 0.01$) and $\beta = 0.247$ for Support ($t = 2.282$, $p < 0.05$) . This means that shadow teachers who reported higher levels of challenges tend to also report higher professional knowledge, and those who felt more support similarly report higher knowledge, controlling for all other factors. Notably, in Model 2, the prior significant effect of experience dropped to non-significance (its β shrank and t became 0.85, n.s.) , and training also became non-significant when Challenges and Support were accounted for (training's β moved to -0.151, $t = -1.539$, $p = 0.13$). This suggests that experience and training likely exert their influence through the mediating factors of perceived challenges and support. In other words, more experienced or trained teachers might both be more aware of challenges and better at securing/utilizing support, which in turn are directly associated with higher knowledge. The final model indicates Challenges & Support together explained about 23% additional variance in knowledge beyond demographics.

Professional Skills (Outcome 2): The regression results for Skills were very similar in pattern. Model 1 (controls only) explained $R^2 = 0.320$ (adj $R^2 = 0.258$, $F = 5.170$, $p < 0.001$) . In Model 1, years of experience had a significant positive effect ($\beta = 0.283$, $t = 2.539$, $p < 0.05$) and lack of training had a significant negative effect (training coded variable $\beta = -0.242$, $t = -2.248$, $p < 0.05$). This mirrors the knowledge outcome. Model 2 for Skills, adding Challenges and Support, jumped R^2 to 0.510 (adj $R^2 = 0.458$) , with a significant overall fit ($F = 8.362$, $p < 0.001$). Again, Challenges ($\beta = 0.297$, $t = 2.676$, $p < 0.01$) and Support ($\beta = 0.299$, $t = 2.862$, $p < 0.01$) were both significant positive predictors of Skills . Together, they accounted for an additional ~19% variance beyond controls. After adding these, prior training and experience effects were no longer significant (their beta coefficients dropped in magnitude and lost significance) . The standardized coefficients for Challenges and Support were almost equal (about 0.30), suggesting each uniquely contributes to higher self-rated skill. Conceptually, this could mean that shadow teachers who proactively face and engage with challenges develop greater skills (perhaps through problem-solving and learning-by-doing), and/or those who have more skills are given or take on more challenges – a bidirectional possibility. Likewise, those who have access to support and resources likely learn or refine skills (e.g., being taught a new strategy by a mentor or having adaptive tools available can directly improve one's skill implementation).

Professional Attitudes (Outcome 3): For attitudes, Model 1 with controls gave $R^2 = 0.285$ (adj $R^2 = 0.22$, $F = 4.389$, $p = 0.002$). In that model, years of experience was again significant ($\beta = 0.264$, $t = 2.308$, $p <$

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0.05) and training status trended negative (β = -0.201, t = -1.824, p = 0.073) but just shy of significance. When Challenges and Support were added (Model 2), R^2 rose to 0.522 (adj R^2 = 0.462), F = 8.727, p < 0.001 . Support & Resources had a particularly strong influence on Attitudes: β = 0.389, t = 3.767, p < 0.001 , indicating that those who feel well-supported are much more likely to hold positive attitudes toward inclusion (which makes intuitive sense; support likely breeds optimism). Challenges & Difficulties also had a positive effect: β = 0.263, t = 2.393, p < 0.05 . This suggests that those who acknowledge more challenges paradoxically also maintain more positive attitudes, once again hinting that these may be the more engaged, perhaps resilient individuals. In Model 2 for attitudes, support was the stronger of the two predictors (its beta ~0.39 vs 0.26 for challenges). All control variables became non-significant in the final model except perhaps a marginal effect of education (in Model 2, higher education level had a slight negative effect, β = -0.119, t = -1.229, n.s., interestingly suggesting after accounting for support, those with more education weren't necessarily more positive – maybe because some higher-educated individuals also critically see what's lacking and thus are less rosy in attitude unless support is present). But overall, having support available was the key to positive attitudes. Qualitative data strongly corroborated this: shadow teachers who felt supported by their school and parents tended to express hopeful, can-do attitudes like *"We can overcome the difficulties together"*. Those lacking support sometimes grew pessimistic or at least less enthusiastic, e.g., *"Inclusion is ideal, but without support it feels like an unfair burden"* (Interviewee #8, who felt left alone and subsequently had wavering belief in inclusion). Thus, improving support may not only improve skills but also sustain positive attitudes, which in turn likely benefits inclusive practice.

Communication & Collaboration (Outcome 4): Finally, for the collaboration competency, Model 1 (controls) explained R^2 = 0.344 (adj R^2 = 0.28, F = 5.33, p < 0.001). In this model, two control factors were notable: age (β = 0.316, t = 2.465, p < 0.05) and years of experience (β = 0.345, t = 3.147, p < 0.01) had positive effects . This means older, more experienced teachers tended to collaborate/communicate better, likely due to maturity or established relationships in schools. Higher education level surprisingly had a negative coefficient (β = -0.205, t = -1.696, p = 0.095 in Model 1; and β = -0.276, t = -2.526, p < 0.05 in Model 2), suggesting that those with advanced degrees reported slightly less collaboration. Perhaps those individuals have higher expectations or are more critical of the collaboration they experience, or they might rely more on their own expertise than seeking others' input. Gender and initial major weren't significant. Training wasn't significant either for collaboration in Model 1 (unlike the other domains), implying that having training didn't necessarily guarantee better teamwork – a skill that might depend more on interpersonal factors.

When Challenges and Support were added (Model 2), the model fit improved to R^2 = 0.492 (adj R^2 = 0.418), F = 7.752, p < 0.001 . Both Challenges (β = 0.302, t = 2.668, p < 0.05) and Support (β = 0.224, t = 2.104, p < 0.05) were positive, significant predictors of Collaboration . Age remained significant as well (β ~0.31, t = 2.705, p < 0.01), while years of experience dropped out (its β fell to 0.174, t = 1.636, n.s.) . Education level's negative effect became significant in Model 2 (β = -0.276, t = -2.526, p < 0.05) , an interesting nuance possibly indicating that the less formally educated folks might compensate by communicating more, whereas higher-educated might operate a bit more independently (this could be speculative – it might be an artifact or related to differences in workplace assignments). Regardless, the main story for collaboration is that *feeling supported* and even *recognizing challenges* both led to better collaboration efforts. It could be that those who recognize challenges actively seek more collaboration as a way to address them (hence they score high on both), and those with support perhaps have structural opportunities to collaborate (like scheduled team meetings or a supportive principal encourages teamwork). A quote from an interview can exemplify this: Interviewee #1 mentioned, *"Initially I struggled alone, but when I started asking the homeroom teacher for help and we found a rhythm to work together, things improved. Now we communicate daily, which reduces misunderstandings and stress."* This teacher had earlier felt many challenges and then actively sought support, resulting in better collaboration and overall improved experience.

In summary, the regression analyses indicate that two factors – perceived challenges and perceived support – are consistently significant in explaining variance in shadow teachers' knowledge, skills, attitudes, and collaborative abilities. Remarkably, both factors show *positive* effects: higher challenges correlate with higher competencies and attitudes, and higher support correlates with higher competencies and attitudes. These

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findings may seem counterintuitive regarding challenges, but likely reflect that an appropriate level of challenge can drive professional growth and problem-solving (or that those who are more capable naturally end up handling more challenges). Support's positive influence is very much in line with expectations and literature – support bolsters teacher efficacy and outlook (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China). Indeed, providing resources and a supportive environment appears crucial for shadow teachers to thrive. Once we account for these two factors, many demographic variables (even the effect of prior training in some models) became less important, implying that what matters most is *the situation they find themselves in*. If a shadow teacher is well-supported and is grappling constructively with challenges, they tend to develop greater knowledge, skill, and maintain a positive attitude, regardless of initial background. Conversely, even a well-educated or initially trained individual might flounder if placed in a setting with low support and perhaps low stimulation or engagement (fewer challenges might also mean fewer opportunities to learn and innovate).

Qualitative Insights: Challenges, Emotional Pressure, and Collaboration

The qualitative interviews provide rich context to these quantitative patterns, especially regarding the nature of challenges, the emotional pressures shadow teachers face, and their collaborative experiences.

Barriers and Challenges: Nearly all interviewees described significant barriers in their work, aligning with the moderate-to-high "Challenges & Difficulties" scores in the survey. A common theme was lack of pedagogical resources – many shadow teachers felt they had to create materials or strategies from scratch. For example, one said, *"There's no specialized curriculum for me to follow. I spend hours each week making visual aids or adapting lessons so my student can participate"*. Another barrier frequently mentioned was role ambiguity. Shadow teachers sometimes did not have a clear job description: *"In some classes, I'm treated like an assistant teacher for the whole class, in others I'm expected to only focus on my child. It's confusing and I often have to negotiate my duties."* This ambiguity could lead to either under-utilization (being left out of teaching activities) or overload (being asked to help with all children while still mainly responsible for one). Both scenarios were considered problematic by the interviewees. Additionally, large class sizes (often 30+ children in Chinese urban kindergartens) were cited as a challenge: *"It's hard for the classroom teacher to give me attention when she has so many kids; and it's hard for my student to cope in such a loud, busy environment – which in turn makes my job harder"*. These factors illustrate why challenges are endemic to the role, and they also hint at why recognizing these challenges might correlate with proactive behavior (seeking solutions or support).

Emotional Pressure and Stress: The emotional toll of the job surfaced in every interview. Shadow teachers frequently act as the front-line responder to a child's meltdowns, learning regressions, or social difficulties, which can be emotionally draining. Several interviewees used the word "圧力" (pressure/stress) to describe their daily experience. *"I am always on high alert,"* one teacher shared, *"I worry if I let my guard down, something will happen – my child might get upset or be ignored by others. That constant vigilance is exhausting."* Another emotional challenge is the feeling of isolation. Unlike classroom teachers who have colleagues, many shadow teachers are the only ones in their class in that role, and sometimes the only shadow teacher in the entire kindergarten. One mentioned eating lunch alone or not being included in staff meetings, which exacerbated a sense of not belonging to the teacher community. *"I sometimes feel invisible in the school,"* she said, *"like I'm there but not really part of the team."* This isolation can lead to stress and lower job satisfaction, and possibly explains why some did not rate collaboration highly – they simply didn't have much collaboration to begin with. The stress was also linked with self-doubt and fear of failure. Many shadow teachers feel personally responsible for the child's success or failure in the classroom. If the child struggles, they internalize it. Interviewee #9 confided: *"When my student doesn't make progress or has a bad day, I go home feeling like I failed. It's a heavy feeling because I care so much."* Such emotional investment is commendable but can result in burnout if not mitigated by support or self-care strategies.

Despite these pressures, it's important to note that many shadow teachers also found the role emotionally rewarding. Several described deep bonds with the children they support and pride in the small victories. *"When my student said hello to another child for the first time, I nearly cried with joy,"* one said. These positive emotional moments can buffer the stress. They also fuel the shadow teachers' inclusive attitudes – seeing the child

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grow affirms their belief in inclusion. This dual emotional landscape (high stress, high reward) suggests that those who stay in the job might be especially resilient and dedicated, which again correlates with why challenges might not dampen their attitude; if anything, overcoming challenges gives them a sense of accomplishment and reinforces their commitment.

Collaborative Challenges: Collaboration, or often the lack thereof, was a significant issue raised. A number of shadow teachers pointed out *challenges in communicating with the lead teachers*. In Chinese preschools, lead teachers are very busy and some may not fully understand the role of the shadow teacher. One participant mentioned that a classroom teacher seemed uncomfortable with her presence initially, perhaps viewing it as an intrusion or an indication that she (the teacher) wasn't doing enough. *"She thought I was there to monitor her or criticize her teaching, which was not true. It took weeks of conversation to build trust."* This highlights that relationship building is needed, and not always straightforward. Some shadow teachers had to prove their value to gain the respect of the main teachers. When collaboration did improve, as in that case, it was because the shadow teacher took initiative to communicate openly and demonstrate that she was there to help, not judge.

Another collaborative challenge lies in working with parents of other children. While not part of formal duties, a couple of shadow teachers noted they had to navigate perceptions of other parents in the class. There were instances where a parent of a typically developing child questioned the shadow teacher about the child with special needs, or even complained to the school if disruptions occurred. Shadow teachers thus sometimes engage in informal advocacy: *"I find myself explaining to other parents that my student is autistic and what that means, trying to gain their understanding so they don't push for him to be removed."* This advocacy role is sensitive and can be stressful, but it is a form of collaboration with the broader school community.

Positive examples of collaboration were also shared. In some schools, principals facilitated regular team meetings where the shadow teacher, lead teacher, and sometimes a special educator would discuss the child's IEP (Individualized Education Plan) goals and progress. In such environments, shadow teachers felt valued and part of a team, which boosted their effectiveness. Interviewee #10 described a very collaborative setting: *"We have a weekly check-in – myself, the homeroom teacher, and the daycare director – to problem-solve issues. They listen to my observations and we brainstorm together. It's wonderful because I learn from their general teaching experience, and they learn from my specialized focus. The child benefits so much from this unified approach."* This account represents a best-case scenario, reflected in high collaboration and support scores for that individual. Unfortunately, it was not universal; it highlights what could be achieved with intentional collaboration structures.

In summary, the qualitative insights reinforce and explain the quantitative findings: Challenges are prevalent, but those who face them head-on and have support manage to not only cope but build their competence (hence the positive link between challenges and high literacy). Emotional pressures are significant – potentially threatening to erode attitudes and performance – but the presence of supportive relationships (with school leaders, teachers, or parent allies) can alleviate some of that stress, thereby sustaining positive attitudes and collaboration efforts. The data suggest that when shadow teachers are left isolated with high challenges and low support, they risk burnout and lower effectiveness. Conversely, when challenges are met with robust support, shadow teachers seem to thrive, reporting higher knowledge, skill, and optimism.

By integrating these qualitative examples, we gain a humanized understanding of our statistical results. We see that *"Challenges & Difficulties"* aren't just numbers – they are manifested in large classes, unclear roles, and daily struggles; *"Support & Resources"* means mentorship, acceptance, training, and being part of a team. These factors critically shape a shadow teacher's professional journey, and by extension, the success of inclusive education in the classroom.

Discussion

Interpreting Key Findings

This study is one of the first to systematically examine preschool shadow teachers' inclusive education literacy and its influencing factors in the Chinese context. The results reveal several important patterns.

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First, shadow teachers in our sample demonstrated moderate overall inclusive competence – they are neither novices with no idea how to include children, nor experts with near-perfect mastery. Rather, they have some foundational knowledge and skills and generally favorable attitudes, but also clear gaps and variability in their capabilities. This moderate level is perhaps unsurprising given the relatively ad-hoc nature of shadow teacher recruitment in China; many have had to learn on the job in the absence of standardized training programs. The finding aligns with prior observations that Chinese early educators often feel only somewhat prepared for inclusion (Training needs for implementing early childhood inclusion in China). It underscores the need for systematic capacity-building (addressed in Recommendations).

One might find it encouraging that attitudes toward inclusion were generally positive among shadow teachers (mean ~3.6/5). This mirrors trends observed in the broader teaching population in China and internationally – over time, educators are increasingly embracing the philosophy of inclusion (Teachers' attitude towards inclusive education from 2000 to 2020) (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf). Our shadow teachers genuinely believed in the value of having their students learn alongside peers, even if executing that ideal was challenging. This positive attitude is crucial, as research consistently shows teacher attitude is a key predictor of successful inclusive practices (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China). The fact that shadow teachers maintain a belief in inclusion's benefits (often reinforced by witnessing small successes with their children) provides a strong foundation on which to build further skills.

The critical role of training was vividly confirmed. Those who had received any inclusive education training scored significantly higher on every dimension of inclusive literacy. This finding dovetails with a vast literature emphasizing training's impact on teacher efficacy and attitudes (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf) (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China). For example, Hsien, Brown, and Bortoli (2009) found that teachers with more in-service training felt more confident and were better prepared to include children with special needs

(http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf). Our study extends this to shadow teachers: even a short course or workshop appears to make a meaningful difference in their knowledge and approach. This result is a clarion call for action – it suggests that investing in targeted professional development for shadow teachers could yield immediate improvements in how they perform their role. In places like Hohhot, where over one-third of shadow teachers in our sample had no prior training, establishing training programs could elevate overall inclusive education quality. Training content might cover understanding various disabilities, applied behavior analysis techniques, strategies for facilitating peer interactions, and effective collaboration methods, all of which align with the areas where shadow teachers felt needs.

Experience was another strong influence. More experienced shadow teachers (and older ones, who often had more experience) showed higher competencies and more secure attitudes. This aligns with learning-by-doing principles and with studies of general educators which find that experience with special needs students tends to improve attitudes and practice (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf). Over time, shadow teachers accumulate practical strategies and learn to navigate challenges, which likely explains their higher self-ratings. However, experience alone is a slow teacher; without guided reflection or training, it can take years to build competence. One intriguing nuance was that once we accounted for "challenges faced" and "support received," the direct effect of experience diminished. This suggests that experience may exert its benefit largely by exposing teachers to challenges and teaching them to seek/receive support. A novice might not yet have confronted a wide array of problems, whereas a veteran has and thus has learned from them (and also learned the importance of getting support). So, while we cannot fast-forward someone's years of experience, we can simulate some of that through *mentorship and guided exposure* – for instance, by pairing novice shadow teachers with seasoned mentors, novices can gain vicarious experience and advice.

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A somewhat surprising finding was the positive contribution of perceived challenges to higher literacy. Intuitively, one might think that if a teacher faces too many challenges, it would overwhelm them and impede performance (and indeed if challenges vastly outstrip resources, that can happen – leading to burnout). But within our sample, those who reported more challenges actually had higher knowledge, skills, etc. This could be interpreted in a few ways. It might reflect a form of *"what does not kill you makes you stronger"* – shadow teachers who grapple with challenges may, through necessity, develop greater problem-solving skills and resourcefulness, thus increasing their competence. It could also indicate an awareness effect: more knowledgeable teachers are simply more cognizant of the challenges inherent in inclusion (whereas less knowledgeable ones might underestimate or not recognize certain problems). This pattern resonates with Dunning-Kruger type dynamics where novices might be overconfident and unaware of difficulties, whereas experts know the limitations and thus report more challenges. Another angle is a selection effect: perhaps shadow teachers who thrive on challenge remain in the field (and continue to grow), whereas those who are averse to challenges may quit earlier. So our sample might be biased towards those who are resilient and even motivated by tackling difficulties – for them, each challenge overcome is a learning opportunity, contributing to a virtuous cycle of improvement.

This finding contrasts with some literature that focuses on negative impacts of challenges (like stress reducing effectiveness). However, it parallels research on teacher resilience, which finds that overcoming adversity can lead to professional growth if coupled with support and personal coping strategies (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). The key is that challenges must be at a manageable level and met with adequate support – otherwise they can indeed be detrimental. In our regression, challenges and support often went hand in hand to predict outcomes, implying that it is the combination of high challenges with high support that yields positive results. A high-challenge, low-support scenario likely would look very different (possibly resulting in poor outcomes and attrition). Unfortunately, we did have some participants in that scenario: a few described immense challenges and scant support, and indeed their attitudes were waning and stress was high. Thus, in practice, stakeholders should ensure that as shadow teachers face inevitable challenges, they are not left to do so alone. The challenges should be reframed as areas for collaborative problem-solving, backed by supervisory support, rather than burdens that solely weigh on the individual.

The importance of support is a resounding theme from this study. Perceived support was the strongest predictor of positive attitudes ($\beta = 0.389$) and also significantly predicted better knowledge, skills, and collaboration. This reinforces what inclusive education research and policy often emphasize: teachers need supportive conditions to implement inclusion effectively (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China). For shadow teachers, support can mean many things – principal backing, inclusion in planning meetings, having access to expert advice, material resources, moral support from colleagues, and training opportunities. Our findings align with studies that show teachers' sense of administrative support correlates with their self-efficacy and commitment to inclusion (Systematic Review on Chinese Special Education and Inclusive ...). It also mirrors the calls in literature that schools must establish support systems (such as special education resource centers or collaborative consultation teams) for inclusion to succeed (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). Shadow teachers, often operating at the margins of the formal system, particularly need someone "watching their back." When they feel that the school administration and other staff are behind them, they are more optimistic and persistent. Conversely, without support, even a well-trained shadow teacher can feel demoralized, as evidenced by some quotes where lack of acknowledgment left teachers feeling alienated.

Another finding of note was that formal educational qualifications and initial special education background had less impact than one might expect on performance. This suggests that while academic preparation is valuable, it must be translated into practice to matter. A person with a master's in special education might theoretically know a lot, but if the school context doesn't facilitate applying that knowledge or if the individual lacks practical adaptability, their academic advantage might not fully manifest. Meanwhile, a person from a non-special-ed background could, through dedication and learning in context, reach similar competency. This implies that recruitment for shadow teachers could consider a wide pool of candidates –

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not solely those with special education degrees – as long as there are robust training and support mechanisms to bring them up to speed. It democratizes the potential talent pipeline but also places responsibility on the system to nurture that talent.

Comparison with Prior Research

Our findings both corroborate and extend prior research in inclusive education and teacher development. The significance of training and support aligns strongly with existing literature on general education teachers. For example, studies in Early Childhood Research Quarterly and Teaching and Teacher Education have highlighted that professional development and administrative support predict educators' success in inclusive settings (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China). What this study adds is specific evidence from the perspective of shadow teachers, who until now have been underrepresented in such research. We provide empirical backing to assertions in qualitative reports that shadow teachers need training and clearer role definition (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA), quantifying how those with training fare better.

Our result that shadow teachers' attitudes were overall positive resonates with findings from Chow et al. (2015) and others who noted improving teacher attitudes towards inclusion in China as policies progress (e.g., the move from mere physical placement towards quality inclusion) (Teachers' attitude towards inclusive education from 2000 to 2020). However, our interviews also surfaced some *dissonance* between positive attitudes and daily frustrations, a duality also reported by Deng & Holdsworth (2007) regarding Chinese teachers in the LRC program – they valued inclusion ideologically but worried about practical feasibility. Shadow teachers embody this duality: they are deeply committed to their child's inclusion, yet they acutely feel the system's shortcomings.

The finding about challenges having a positive relationship with outcomes is somewhat unique and adds nuance to prior studies on teacher stress. Typically, teacher stress and burnout literature (e.g., in Teaching and Teacher Education) warns that excessive job demands without support lead to burnout and attrition. Our data don't necessarily contradict that – indeed, some shadow teachers were near burnout – but our analysis suggests a more complex relationship. It implies that moderate levels of challenge, especially in a supportive environment, may function as "desirable difficulties" that spur growth. This echoes the concept of productive struggle in teacher learning – the idea that grappling with real problems can increase competence, provided the teacher is not overwhelmed. In special education literature, some authors have discussed how problem-solving difficult cases can lead to improved teacher skill and confidence (a form of mastery experience that builds self-efficacy). Our findings add empirical evidence to that concept in the realm of one-on-one inclusive support.

Another area of comparison is the literature on paraprofessional roles. Prior research (e.g., Giangreco et al., 2010) has critiqued the over-reliance on paraprofessionals without proper role guidance or training, noting it can inadvertently segregate the student or lead to under-qualified personnel handling instructional responsibilities. Our study shows that paraprofessionals (shadow teachers) can indeed develop strong competencies, but the variation is wide – likely reflecting that lack of standardization. Some shadow teachers in our sample functioned as highly skilled co-educators, while others were closer to aides. This inconsistency is precisely what Giangreco and others have been concerned about (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). By identifying factors like training and support that can elevate a shadow teacher's role from mere aide to true educational partner, our study contributes knowledge on how to professionalize this workforce. For instance, a shadow teacher who collaborates actively with the lead teacher and has specialized training can mitigate the risk of the student becoming too dependent or separated – instead, they facilitate inclusion in line with best practices (like promoting peer interactions rather than hovering over the child constantly). The qualitative narratives of successful collaboration in our study align with approaches recommended by Carter et al. (2016) for teacher-paraprofessional teams: regular communication, joint planning, and clarity of roles.

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Furthermore, our China-specific context allows us to compare with studies from other countries on similar roles. In Western contexts, paraprofessionals often have certain certification or at least some training modules, whereas in China, shadow teaching is still a nascent, somewhat informal profession. Our data likely capture an early-stage scenario of a role's development. It will be interesting in future research to see if increased formalization (like if China starts requiring certifications for shadow teachers as suggested by policy discussions (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA)) leads to overall higher baseline literacy and less variability. At present, our study provides a baseline reference: shadow teachers have moderate ability and high passion, and with better systemic support, they could become an even more effective component of inclusive education.

Implications for Teacher Education and Policy

The findings carry significant implications for teacher education, school administration, and inclusive education policy:

Implement Specialized Training Programs for Shadow Teachers: There is a clear mandate to develop training curricula tailored for shadow teachers working in early childhood inclusive settings. This could be in the form of short certification courses or modules integrated into existing early childhood education programs. Training should cover disability-specific strategies (particularly for autism and developmental delays, given their prevalence), inclusive pedagogical techniques, behavior management, and collaborative skills. The fact that trained individuals performed much better cannot be ignored – scaling up training could rapidly improve inclusive practice quality. Education authorities in Hohhot and similar regions might partner with universities or special education schools to deliver such programs. As Peng and Long (2023) recommended, providing training opportunities is essential to foster positive attitudes and efficacy (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China). Our study specifies that training yields measurable skill gains too. In policy terms, ministries of education could set up accreditation for shadow teachers, making sure that a certain number of training hours or a certificate is a requirement for the role. This would professionalize the field and likely attract more young people to view shadow teaching as a viable career path rather than a stopgap job.

Provide Ongoing Support and Mentorship: Schools and early childhood centers that employ shadow teachers should establish support systems. This includes regular check-ins with a supervisor (e.g., a special education coordinator or psychologist if available) where the shadow teacher can discuss challenges and brainstorm solutions – effectively a form of clinical supervision. Creating communities of practice among shadow teachers is another strategy; they can meet (physically or online) to share experiences and advice, reducing isolation. As our results show, support not only helps practically but also keeps morale and attitudes high. Educational administrators should be sensitized that shadow teachers are an integral part of the teaching team and should be included in professional development days, staff meetings (at least those relevant to inclusion), and appreciation events. A simple but powerful administrative action is acknowledging the shadow teacher's contributions and ensuring they feel part of the school community. Support also includes material resources – providing teaching aids, picture cards, visual schedules, sensory toys, etc., as needed for the child's program, so that shadow teachers do not have to procure or produce everything alone. At a policy level, governments could allocate funding specifically for inclusive education support in preschools (some cities in China have begun doing this), which might cover hiring of shadow teachers and resource provision. If shadow teachers know there is structural support, their efficacy can be maximized.

Foster Collaboration and Define Roles: The moderate score on collaboration and the qualitative feedback about inconsistent teamwork highlight the need to improve how shadow teachers and classroom teachers work together. Teacher education programs for general preschool teachers should include content about working with a shadow teacher or assistant – for instance, how to co-plan, how to delegate tasks, and how to ensure the child with SEN is not separated. Similarly, shadow teacher training should include how to take initiative in collaborating and how to respectfully insert oneself into a classroom team. School principals or directors can set expectations by clearly delineating the role of the shadow teacher from day one: ideally, clarifying that the shadow teacher is not just the child's private teacher but a classroom resource

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person who should coordinate with the lead teacher. Some schools might establish a brief daily or weekly meeting time for teachers and shadow teachers to sync up. As our positive examples showed, even 10 minutes of daily communication can make a big difference in consistency of practice and mutual understanding. Formalizing the role could also help; for example, having a written job description that includes collaboration duties could standardize practices. The government could issue guidelines or an operation manual for shadow teachers (indeed, an "Integrated Education practice guide – shadow teacher operation manual" was hinted at in some sources (the Emerging 'Shadow Teachers' | EERA), suggesting moves in this direction). Such guidelines should emphasize that the shadow teacher's role is to support inclusion *without* taking away the teacher's ownership of the student – essentially a team approach. This addresses concerns in literature about paraprofessional over-reliance by ensuring the teacher remains actively involved with the student with SEN, using the shadow teacher as a bridge.

Address Emotional Well-being and Retention: The emotional stress reported is a warning sign. Burnout among shadow teachers could lead to high turnover, which disrupts the continuity of support for children. Therefore, stakeholder must pay attention to the well-being of these educators. Counseling or peer support groups for shadow teachers could be beneficial. Schools could implement simple measures like allowing shadow teachers occasional respite (maybe rotating duties if multiple shadow teachers are present, or providing an aide to the aide in cases of extreme need), and recognizing that their job is intense. Including content on self-care and coping strategies in training can equip shadow teachers to manage stress (e.g., techniques for de-escalation, setting realistic expectations, and separating one's self-worth from the child's progress to some extent). Retention strategies might include providing a living wage and benefits – some shadow teachers in China are paid by parents, which can be precarious; if schools start hiring them directly (as policy is leaning towards (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA)), ensuring they have stable salaries and prospects for career advancement (like senior shadow teacher, or transitioning into special education teacher roles) will help keep talented individuals in the field. The cost issue noted in media (e.g., shadow teachers in big cities costing families a lot) ('Shadow teachers' step into the spotlight - Chinadaily.com.cn) is also a policy concern – government support could relieve families and standardize pay for shadow teachers, which in turn could formalize and stabilize the profession.

Leveraging Challenges for Growth: Rather than trying to eliminate all challenges (impossible in any case), training and ongoing professional development should include reflective practices where shadow teachers analyze challenges they face and derive lessons. For example, case study discussions of tough situations can allow them to collectively problem-solve. This harnesses exactly what our data implied: dealing with challenges thoughtfully can improve knowledge and skills. A possible initiative could be a case conference series at the district level where shadow teachers present a challenge case and discuss with peers and experts to get input (akin to rounds in medical training). This not only produces solutions for that case but enhances everyone's capacity for future issues. It also normalizes the idea that challenges are expected and surmountable with collaboration.

Limitations and Future Research Directions

While our study yielded valuable insights, it is not without limitations. The sample size (N=73), although reasonable for a preliminary study, is relatively small and confined to one city. Hohhot's context – a mid-sized city with a growing but still developing inclusive education system – might not fully represent other regions of China. Major metropolitan areas like Beijing or Shanghai might have more structured programs for shadow teachers (or conversely, areas in rural provinces might have fewer resources). Thus, the generalizability of the exact literacy levels should be cautious. Future research should include larger samples across multiple cities, ideally covering different socioeconomic contexts, to see if these patterns hold and to capture any regional differences in how shadow teachers operate.

Another limitation is potential self-report bias. All survey measures were based on the shadow teachers' self-evaluation. It is possible that some overrated or underrated their competencies. We attempted to mitigate this through anonymity and by comparing with qualitative accounts, but objective measures (like direct observations of shadow teacher behavior in class, or student outcome data) were beyond our scope.

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Future studies could incorporate observational assessments or teacher performance tasks to complement self-reports. Similarly, student outcomes (like how well included children progress academically or socially) could be tied to teacher literacy levels to directly measure impact – a direction for future research.

The cross-sectional design of our study limits causal interpretations. While we talk about influences of training, experience, support, etc., one should note that teachers who are more skilled might also be better at seeking support, or those with positive attitudes might be more likely to pursue training – so some relationships could be bidirectional. A longitudinal design would help untangle causality: for instance, following new shadow teachers over time to see how training and support interventions improve their literacy and attitudes, or conversely how those who start with different attitude levels either remain or leave the profession. It would be particularly insightful to do a pre-post study around a training intervention for shadow teachers to directly measure gains in knowledge, skills, and attitude from baseline.

The qualitative portion, while rich, included only 10 interviews and relied on self-reported experiences. It is possible that interviewees could have withheld negative comments or exaggerated positive ones (though we felt they were quite candid, especially about negatives). Triangulating with perspectives from classroom teachers or parents would add depth – e.g., how do homeroom teachers perceive the collaboration with shadow teachers? Do they concur on the challenges and support needs? Future research might include dyadic studies (shadow teacher and lead teacher pairs) to examine collaboration from both sides and to identify misalignments in perceptions that could be addressed through training.

Despite these limitations, the study breaks new ground and opens several avenues for future inquiry. Research could explore the impact of different models of deploying shadow teachers – for example, is there a difference if a shadow teacher is assigned to one child vs. a small group of children with SEN in the same class? Our sample was primarily 1:1 assignments. Some inclusive programs might use one shadow teacher for two children if needs are milder. How does that affect the dynamic? Also, with policy shifts, if schools (rather than parents) start assigning shadow teachers, how will that relationship with the classroom teacher change? Will it improve collaboration (since the teacher might then see the shadow teacher as an official colleague rather than an outsider)? These questions are ripe for study as inclusive education policy evolves in China.

It would also be valuable to investigate the long-term career paths of shadow teachers. Do many aspire to become certified teachers or special educators? What retention rates do we see after, say, 5 years? Understanding this can help in designing roles: maybe creating a pipeline where shadow teachers can transition to higher roles could be beneficial in both attracting qualified people and retaining them.

Finally, given the uniqueness of the context, comparative research could look at similar roles in other countries – for example, comparing shadow teachers in China with paraprofessionals in Western countries or learning support assistants in other Asian countries – to see commonalities and differences. Such international perspectives might illuminate how cultural and systemic factors influence the shadow teacher's role. For instance, inclusive education literacy might be higher in countries where the role has existed longer or where there is formal certification (like some US states require paraprofessional training). China can learn from those models while also contributing knowledge of innovative practices that emerge in its context, such as perhaps stronger family involvement due to the initial private hiring model.

Significant Trends and Surprises

One of the most significant (and somewhat heartening) trends in our data is that when given support and training, shadow teachers appear to flourish. The differences between trained vs. untrained were so pronounced that it reinforces a straightforward policy implication: train them! Additionally, the fact that support had such strong effects suggests that interventions at the school administration level (which are easier to implement at scale than, say, instantly increasing everyone's experience) could yield tangible improvements. Encouragingly, none of our participants indicated that inclusion of their child was hopeless or not beneficial – even those who struggled believed in the cause. This commitment is a strength that

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policymakers can count on; investing in these committed individuals may give a high return in terms of inclusive outcomes.

A surprising trend was the lack of effect of initial special education major. We anticipated that those with special ed background would have an edge. The data showing no significant edge might indicate either that the special ed programs aren't fully equipping grads for inclusive preschool work, or that practical experience levels the playing field. It raises questions about pre-service education quality and relevance. Are university programs teaching content that aligns with what shadow teachers actually need? Possibly not sufficiently – which might be an area for curricular improvement in higher education. Universities could adjust their early childhood special education courses to include more hands-on inclusive practice components, collaboration training, etc., to ensure their graduates stand out in competence when they enter roles like shadow teaching.

It was also somewhat surprising how consistently positive the correlation between challenges and outcomes was. We initially hypothesized that perceived challenges might negatively correlate with attitudes (thinking more challenged teachers might become discouraged). Instead, the opposite was true: those who saw more challenges maintained even more positive attitudes ($r \sim 0.3$). This suggests a resilience and optimism among these shadow teachers that perhaps the challenges fuel their determination. It flips a common narrative – rather than challenges simply causing negativity, these educators might see challenges as puzzles to solve in pursuit of the inclusive ideal. This resilience is a quality to nurture. It may also reflect that shadow teachers, by virtue of their job, might be self-selected for persistence; they typically handle one of the most demanding roles in the classroom. Those without a certain level of grit may not stay long in the position. Thus, the group we studied could be inherently more resilient than a general teacher sample. This selection factor is worth considering – it implies that if we can identify those personal traits during hiring (e.g., passion, resilience, problem-solving orientation), we might choose candidates who can better handle the rigors of shadow teaching.

Another noteworthy point is the potential mediating role of support in translating training/experience to outcomes. When we put training and experience alongside support in analysis, support was the more proximal predictor. This hints that training programs should not only impart knowledge but also help establish support networks. For instance, a training workshop could explicitly connect new shadow teachers with a mentor or a peer group to form a lasting support system. That way, training doesn't end when the workshop ends – it continues via those networks. Experience, likewise, often comes with built connections; veteran teachers know who to call for advice. Novices can be jump-started by being introduced to those resources early. This interplay of training, support, and experience is important for designing comprehensive professional development models.

In terms of policy surprises, the existence of shadow teachers is itself a relatively new phenomenon in Chinese preschool education. Some might be surprised that 73 individuals could be found in one city doing this job. It signifies how much parental demand and grassroots solutions have driven inclusion. Now, policy is catching up, as evidenced by calls in 2020 for schools to hire shadow teachers (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA). Our research provides baseline data at an opportune time – as policies formalize the role, they can incorporate the insights here to set qualifications (e.g., requiring certain training) and allocate supports (maybe a resource teacher to supervise shadow teachers in each school cluster, etc.).

Implications for Building a High-Quality Inclusive Workforce

The broader implication of our study is that shadow teachers can be an invaluable component of a high-quality inclusive education workforce, but only if we invest in their development and integration. Preschool inclusion doesn't succeed by policy decree alone; it succeeds through the daily actions of people like these shadow teachers. Empowering them with knowledge, skills, and support will directly translate into better learning experiences for children with disabilities. Moreover, it will also affect the regular teacher and the other children – a competent shadow teacher not only helps the target child but can lighten the main

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teacher's load and improve overall classroom functioning, benefiting all students. Thus, improving shadow teacher literacy is a win-win for inclusive classrooms.

Our findings suggest a model for capacity building: identify individuals with the right disposition, provide robust initial training, place them in schools with structured support and clear role definitions, and facilitate collaboration with classroom teachers. Over time, encourage continuous learning (through communities of practice) and recognize their contributions. This will not only improve outcomes for children but likely reduce turnover in these positions, creating a more stable and experienced workforce.

In building a high-quality workforce, attention must also be given to career sustainability. Shadow teaching should be made into a viable long-term career (with progression possibilities as mentioned). Otherwise, we risk it being a transient job and constantly having newbies – which is not good for children who need consistency. Recognizing shadow teachers as legitimate educators (perhaps even giving them titles like "Inclusive Education Support Teacher") could elevate status and morale. One might also consider pairing shadow teachers with multiple children as their skills increase, effectively turning them into a resource teacher in the class rather than one-on-one, thus expanding their impact. Some advanced systems use a model where an aide initially supports one child heavily but gradually supports multiple as the child gains independence – that could be a trajectory to aim for, which frees up shadow teacher time to help others and prevents the child from becoming too dependent.

Finally, the interplay between shadow teachers and regular teachers is crucial. A high-quality inclusive workforce is one where all teachers, regular and shadow, have basic inclusive competence and work collaboratively. So while we focus on shadow teachers, mainstream teacher training should also incorporate knowledge of how to utilize and work with shadow teachers effectively. Inclusion is a team sport; building an all-around capable team means upskilling every member. Our research contributes one piece of that puzzle by focusing on the support teacher's side.

In conclusion, this study demonstrates that preschool shadow teachers in China possess a foundation of inclusive education literacy that can be significantly strengthened by training and support. These educators are on the front lines of making inclusive early education a reality. By addressing the challenges they face and bolstering the support around them, we can move closer to truly inclusive preschools where all children learn and thrive together. The evidence from Hohhot's 73 respondents is clear: with the right investment in people, inclusive education ideals can be transformed into effective classroom practice.

Conclusion and Recommendations

This research set out to assess and analyze the inclusive education literacy of preschool shadow teachers in Hohhot, China, and to identify factors that influence their competencies. The study yields a comprehensive picture: shadow teachers are enthusiastic facilitators of inclusion who bring moderate levels of knowledge and skill, and these levels are markedly enhanced by professional training, experience, and supportive working conditions. At the same time, they encounter significant challenges – ranging from resource gaps to role ambiguity – which, if left unaddressed, can hinder their effectiveness and well-being. Crucially, our findings show that challenges need not debilitate; when paired with robust support, they can become catalysts for professional growth.

In summary, the key findings include: (1) Shadow teachers generally have positive attitudes towards inclusion and moderate inclusive teaching knowledge/skills, with considerable variability among individuals. (2) Formal training in inclusive education corresponds with substantially higher literacy across all domains, highlighting training as a vital investment. (3) Greater work experience similarly correlates with higher competence, indicating the value of retention and on-the-job learning. (4) All dimensions of inclusive literacy are interrelated, and notably, those who perceive more challenges also report higher knowledge and skills – suggesting a resilient, problem-solving orientation in many shadow teachers. (5) The availability of support and resources (from the school, colleagues, or system) is a powerful positive predictor of teachers' attitudes, confidence, and collaborative practice. (6) No gender differences emerged, and initial academic major had little impact after considering other factors, implying that with proper support, individuals from

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various backgrounds can become effective shadow teachers. These insights reinforce that building a quality inclusive education workforce is less about inherent traits and more about providing the *right preparation and environment* for educators to succeed.

Based on these findings, we offer the following practical recommendations for stakeholders in early childhood and inclusive education, particularly in the Chinese context:

Establish Certification and Training Programs: Education authorities should develop a standardized certification or training program for shadow teachers (inclusive education assistants). This program could be a short-term intensive course or a series of modules, ideally leading to an official certificate. It should cover core knowledge of disabilities (especially common ones like autism), inclusive instructional strategies, behavior management, communication techniques, and collaboration skills. Where possible, it should include practical internships or supervised practice in real classrooms. By formalizing training, not only do individuals gain skills, but the role of shadow teacher gains professional recognition. We recommend making this certification a prerequisite (or at least strongly preferred) for employment as a shadow teacher in preschools. In the interim, current shadow teachers should be provided in-service workshops to bolster their competencies. As our study showed, the difference in performance and confidence between trained and untrained shadow teachers is significant; thus, ensuring all shadow teachers are trained is likely the single most impactful step toward improving inclusive education quality.

Implement Mentorship and Peer Support Networks: Pair novice shadow teachers with experienced mentors who can guide them through challenges. This mentorship can be formal (an assigned senior special educator in the district who meets the new shadow teacher weekly) or informal (creating a chat group of all shadow teachers in the area to share advice). Seasoned shadow teachers or special education experts can offer practical tips and emotional support, preventing novices from feeling overwhelmed or isolated. Schools should also schedule regular opportunities for shadow teachers to meet and discuss cases (perhaps monthly meetings at the district level or within a large preschool if it has multiple such staff). These networks will create communities of practice, enabling continuous learning. Our qualitative findings stressed how isolation exacerbates stress – by contrast, knowing "I'm not alone, others have faced this" can greatly relieve pressure and accelerate problem-solving. As a policy, local education bureaus could facilitate the creation of shadow teacher associations or support groups.

Strengthen Administrative and Institutional Support: School leaders play a pivotal role in creating a supportive environment. Principals and preschool directors should be sensitized through workshops or policy directives to integrate shadow teachers into their institutions. This means involving shadow teachers in relevant meetings, acknowledging their work, and providing resources. We recommend that each inclusive preschool designate a coordinator (perhaps an inclusion specialist or vice principal) responsible for overseeing and supporting shadow teachers. This coordinator can ensure they have what they need (materials, access to training) and act as a liaison between the shadow teacher and the rest of the staff. Additionally, policies should encourage a reasonable workload for shadow teachers – for instance, if a child with very intensive needs is being included, the school might consider reducing the class size or providing additional aide support so that the shadow teacher's burden is manageable. Essentially, treat shadow teachers not as add-ons but as integral staff members: include them in professional development days, give them feedback and evaluations, and celebrate their successes. Education departments should also consider funding allocations to preschools specifically for inclusion support, which can cover shadow teacher salaries (so that it's not solely a parental responsibility) and resources. By formalizing funding, schools will be more willing to hire sufficient support and not see shadow teachers as an extra expense but as a funded necessity. Our data clearly indicate that when shadow teachers feel supported by their institution, their effectiveness and morale rise – a supportive culture is as important as individual capacity.

Clarify Roles and Improve Collaboration with Classroom Teachers: Develop guidelines that clearly outline the responsibilities and expectations of shadow teachers vis-à-vis classroom teachers. We recommend creating a handbook (perhaps issued by the Ministry of Education or provincial authorities) for inclusive classrooms that delineates how teachers and shadow teachers should work together. For example, it could specify that the classroom teacher is academically responsible for all students (including those with SEN)

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and should involve the shadow teacher in lesson planning for adaptations, whereas the shadow teacher should focus on facilitating the target child's participation and implementing or monitoring interventions, but avoid doing tasks that isolate the child (like doing all the child's work for them) and avoid taking over the class teacher's role. The handbook could also provide sample schedules showing times for coordination. At the school level, principals should arrange a brief daily or weekly coordination time for each teacher-shadow teacher pair (even 15 minutes before or after class to touch base on the child's needs for the day/week). Joint training sessions can also help – for instance, if a workshop on inclusion is held, have both classroom teachers and shadow teachers attend together and engage in joint activities (perhaps role-playing inclusive strategies). By learning together, they build teamwork and mutual understanding. Additionally, mechanisms for communication should be established: many of our participants used informal chats; formalizing this (like a communication notebook or shared digital log about the child's progress that both teacher and shadow teacher write in) can keep both parties aligned. Collaboration is a two-way street, so improving it will also require preparing classroom teachers to welcome and effectively utilize shadow teacher support. Teacher education programs and ongoing teacher training should highlight collaborative inclusive teaching models so that lead teachers view shadow teachers as partners rather than intruders. Where collaboration was strong in our study, outcomes were clearly better and stress lower; making such collaboration the norm will significantly elevate inclusive education quality.

Attend to Shadow Teachers' Well-being and Career Development: To build and retain a high-quality workforce, it's important to make shadow teaching a sustainable, rewarding career. Stakeholders should monitor workloads and provide outlets for stress relief. For example, schools could rotate responsibilities if possible (maybe give a shadow teacher an hour off from direct support each day to do planning or simply recharge while someone else engages the child in a group activity – this might not always be feasible, but creative scheduling could help). Regular check-ins focusing not just on the child's progress but on how the shadow teacher is coping can allow early intervention for burnout. Providing access to counseling services or stress management resources for teachers can also be beneficial. On the career front, creating advancement opportunities is key. An experienced shadow teacher might become a *lead inclusion facilitator* who mentors newer shadow teachers or assists in developing individualized programs for multiple children. Educational authorities could design a career ladder: e.g., Shadow Teacher I (entry-level), Shadow Teacher II (experienced, maybe with additional responsibilities), and Inclusion Specialist (an advanced role requiring further certification). This gives shadow teachers something to aspire to and an incentive to continue improving their skills. It also formally recognizes their expertise. Given that many shadow teachers are young, offering pathways to further education (like scholarships or part-time study options to pursue advanced degrees in special education) could also be a retention strategy. Essentially, show them that this is not a dead-end job but a valued profession with growth potential. By improving job satisfaction and professional stature, we keep their passion alive.

Enhance Inclusive Education Policy Implementation: At the policy level, the government's push to increase shadow teachers in schools (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA) should be accompanied by concrete support measures. It is not enough to mandate inclusion; policies should ensure schools have the capacity. We recommend that inclusive education guidelines be updated to include the role of shadow teachers, stipulating training standards, student–shadow teacher assignment criteria (such as one shadow teacher per child with significant support needs, or one for two children with moderate needs, etc.), and funding mechanisms (e.g., subsidies or budget lines for hiring support staff). Policies could also encourage innovation, such as pilot programs where shadow teachers are jointly employed by a group of schools (to cover specialist support like an itinerant inclusion facilitator). Evaluation of inclusive programs should include looking at how shadow teachers are utilized, to keep schools accountable for integration of this role.

In conclusion, this study highlights that shadow teachers are a cornerstone of preschool inclusion in China, and investing in their development yields significant benefits in their readiness and resilience. By implementing the recommendations above – establishing training, fostering support networks, clarifying collaborative roles, and caring for teacher well-being – stakeholders can build a more competent and confident shadow teacher workforce. This, in turn, will improve the inclusive educational experiences of

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countless young children. As inclusive education moves from policy to practice, shadow teachers should no longer remain in the shadows; rather, they should be recognized and empowered as vital members of the educational team driving forward China's inclusive education agenda.

Table:

Table: Differences in Inclusive Education Literacy Dimensions by Gender

Variable	Gender	N	Mean	SD	t	Sig.
Professional Knowledge	Male	13	3.692	0.701	0.871	0.387
	Female	60	3.492	0.763		
Professional Skills	Male	13	3.673	0.739	0.141	0.888
	Female	60	3.633	0.956		
Professional Attitudes	Male	13	3.539	0.883	-0.228	0.820
	Female	60	3.596	0.809		
Communication and Collaboration	Male	13	3.692	0.896	0.994	0.324
	Female	60	3.417	0.909		

Note: N = Number of participants; SD = Standard Deviation; Sig. = Significance (p-value).

Table. Demographic Information of Participants

Demographic Characteristic	Category	Frequency	Percentage (%)
Age	20-30 years	43	58.9
	31-40 years	22	30.1
	41-50 years	4	5.5
	Over 50 years	4	5.5
Gender	Male	13	17.8
	Female	60	82.2
Initial Major	Special Education	31	42.5
	Teacher Education (Non-special education)	8	11.0
	Non-teacher Education	34	46.6
Education Level	College Diploma	56	76.7
	Bachelor's Degree	11	15.1
	Master's Degree	6	8.2
Work Experience in Special Education	Less than 1 year	27	37.0
	1-3 years	24	32.9
	3-5 years	12	16.4
	5-10 years	9	12.3

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Demographic Characteristic	Category	Frequency	Percentage (%)
	More than 10 years	1	1.4
Received Training on Inclusive Education	Yes	45	61.6
	No	28	38.4

Table: Differences in Inclusive Education Literacy Dimensions by Training Experience

Variable	Training in Inclusive Education	N	Mean	SD	t	Sig.
Professional Knowledge	Yes	45	3.761	0.644	3.643	0.001
	No	28	3.152	0.771		
Professional Skills	Yes	45	3.906	0.758	3.348	0.001
	No	28	3.214	0.999		
Professional Attitudes	Yes	45	3.794	0.708	2.910	0.005
	No	28	3.250	0.879		
Communication and Collaboration	Yes	45	3.689	0.793	2.789	0.007
	No	28	3.107	0.975		

Note: N = Number of participants; SD = Standard Deviation; Sig. = Significance (p-value).

Table: Differences in Inclusive Education Literacy Dimensions by Age Group

Variable	Age Group	N	Mean	SD	F	Sig.
Professional Knowledge	20-30 years	43	3.308	0.801	4.814	0.004
	31-40 years	22	3.750	0.523		
	41-50 years	4	3.688	0.427		
	Over 50 years	4	4.500	0.354		
Professional Skills	20-30 years	43	3.355	0.947	4.915	0.004
	31-40 years	22	3.898	0.718		
	41-50 years	4	4.313	0.515		
	Over 50 years	4	4.625	0.433		
Professional Attitudes	20-30 years	43	3.320	0.833	4.978	0.003
	31-40 years	22	3.852	0.601		
	41-50 years	4	4.375	0.777		
	Over 50 years	4	4.188	0.554		
Communication and Collaboration	20-30 years	43	3.169	0.927	4.431	0.007
	31-40 years	22	3.830	0.590		
	41-50 years	4	4.063	1.297		
	Over 50 years	4	4.063	0.625		

Note: N = Number of participants; SD = Standard Deviation; Sig. = Significance (p-value).

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Table: Differences in Inclusive Education Literacy Dimensions by Initial Major

Variable	Initial Major	N	Mean	SD	F	Sig.
Professional Knowledge	Special Education	31	3.573	0.772	0.418	0.660
	Teacher Education (Non-special)	8	3.688	0.729		
	Non-teacher Education	34	3.449	0.751		
Professional Skills	Special Education	31	3.597	0.891	0.129	0.879
	Teacher Education (Non-special)	8	3.563	1.124		
	Non-teacher Education	34	3.699	0.914		
Professional Attitudes	Special Education	31	3.605	0.774	2.098	0.130
	Teacher Education (Non-special)	8	4.094	0.719		
	Non-teacher Education	34	3.449	0.848		
Communication and Collaboration	Special Education	31	3.605	0.926	0.754	0.474
	Teacher Education (Non-special)	8	3.219	0.995		
	Non-teacher Education	34	3.397	0.875		

Note: N = Number of participants; SD = Standard Deviation; Sig. = Significance (p-value).

Table: Results of KMO and Bartlett's Test

Test	Value
Kaiser-Meyer-Olkin (KMO) Measure	0.842
Bartlett's Test of Sphericity	
Approx. Chi-square	1239.213
Degrees of Freedom (df)	276
Significance (Sig.)	0.000

Table: Regression Analysis Predicting Inclusive Education Literacy

Variables	Model 1	Model 2
	Beta	t
Age	0.162	1.243
Gender	0.043	0.396
Initial Major	0.095	0.866
Education Level	0.147	1.193
Work Experience in Special Education (years)	0.283	2.539*
Received Inclusive Education Training	-0.242	-2.248*
Challenges and Difficulties		
Support and Resources		
R^2	0.320	0.510
Adjusted R^2	0.258	0.458
F	5.170***	8.362***

Note: *p < 0.05, **p < 0.01, ***p < 0.001.

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Table: Regression Analysis Predicting Inclusive Education Literacy (Alternate Model)

Variables	Model 1	Model 2
	Beta	t
Age	0.181	1.354
Gender	0.040	0.359
Initial Major	-0.056	-0.496
Education Level	0.127	1.007
Work Experience in Special Education (years)	0.264	2.308*
Received Inclusive Education Training	-0.201	-1.824
Challenges and Difficulties		
Support and Resources		
R^2	0.285	0.522
Adjusted R^2	0.220	0.462
F	4.389**	8.727***

Note: *p < 0.05, **p < 0.01, ***p < 0.001.

Table: Regression Analysis Predicting Inclusive Education Literacy (Third Model)

Variables	Model 1	Model 2
	Beta	t
Age	0.316	2.465*
Gender	-0.083	-0.780
Initial Major	-0.073	-0.677
Education Level	-0.205	-1.696
Work Experience in Special Education (years)	0.345	3.147**
Received Inclusive Education Training	-0.198	-1.874
Challenges and Difficulties		
Support and Resources		
R^2	0.344	0.492
Adjusted R^2	0.284	0.429
F	5.759***	7.752***

Note: *p < 0.05, **p < 0.01, ***p < 0.001.

Table: Differences in Inclusive Education Literacy Dimensions by Work Experience

Variable	Work Experience	N	Mean	SD	F	Sig.
Professional Knowledge	Less than 1 year	27	3.389	0.916	3.891	0.007
	1–3 years	24	3.260	0.519		
	3–5 years	12	4.000	0.477		
	5–10 years	9	3.889	0.574		
	More than 10 years	1	4.750	–		

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Variable	Work Experience	N	Mean	SD	F	Sig.
Professional Skills	Less than 1 year	27	3.185	0.884	3.425	0.013
	1–3 years	24	3.750	0.997		
	3–5 years	12	4.063	0.604		
	5–10 years	9	4.111	0.626		
	More than 10 years	1	4.000	–		
Professional Attitudes	Less than 1 year	27	3.204	0.806	3.319	0.015
	1–3 years	24	3.656	0.814		
	3–5 years	12	3.875	0.678		
	5–10 years	9	4.139	0.614		
	More than 10 years	1	3.750	–		
Communication and Collaboration	Less than 1 year	27	3.120	0.779	5.866	0.000
	1–3 years	24	3.229	0.972		
	3–5 years	12	4.125	0.483		
	5–10 years	9	4.111	0.697		
	More than 10 years	1	4.750	–		

Note: N = Number of participants; SD = Standard Deviation; Sig. = Significance (p-value).

References

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: A review of the literature. European Journal of Special Needs Education, 17(2), 129–147. (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf) (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf)

Deng, M., & Holdsworth, J. (2007). From unconscious to conscious inclusion: Meeting special education needs in China's mainstream schools. Disability & Society, 22(5), 507–522.

Giangreco, M. F. (2010). Utilization of teacher assistants in inclusive schools: Is it the kind of help that helping is all about? European Journal of Special Needs Education, 25(4), 341–345. (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA)

Hsien, M., Brown, P. M., & Bortoli, A. (2009). Attitudes of primary school teachers towards inclusive education in Victoria, Australia. International Journal of Inclusive Education, 13(8), 873–888. (http://www.internationaljournalofspecialed.com/docs/IJSE%2031-3.pdf)

Ministry of Education of the PRC. (2017). 第二期特殊教育提升计划 (2017–2020 年) [Second Phase Special Education Promotion Plan (2017–2020)]. Beijing: Ministry of Education.

Peng, X., & Long, T. (2023). Preschool teachers' attitudes about inclusive education and its influencing factors in China. Behavioral Sciences, 14(10), 904. (Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China)

Sharma, U., & Salend, S. J. (2016). Teaching assistants in inclusive classrooms: A systematic analysis of the international literature. Teaching and Teacher Education, 55, 350–364. (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA)

Tan, Y., & Perren, S. (2021). Promoting peer interactions in an inclusive preschool in China. International Journal of Inclusive Education. (Advance online publication). (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA)

The Emerging "Shadow Teachers". (2021). An introduction to Chinese teaching assistants in inclusive classrooms. European Educational Research Association (EERA) Conference Contribution. (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA) (An Introduction to Chinese Teaching Assistants in Inclusive Classrooms: the Emerging 'Shadow Teachers' | EERA)

UNESCO. (2020). China – Inclusion (Education Profiles). Retrieved from UNESCO Inclusive Education database. (China | INCLUSION | Education Profiles)

Walker, V. L., & Smith, C. J. (2015). Training paraprofessionals to support students with disabilities: A literature review. Exceptionality, 23(3), 170–191.

Xinhua News. (2020, May 20). NPC deputy advocates for more shadow teachers in inclusive education. [In Chinese]. Retrieved from http://www.xinhuanet.com.

Yin, H., & Zhang, X. (2020). Preschool teachers' awareness, attitudes, and challenges regarding inclusive education in China. Cogent Education, 7(1), 1791560.

Journal of Ecohumanism
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Inclusive schools and shadow teachers (2024). International Journal of Current Science Research and Review, 7(1), 506–514. (The Role of Shadow Teacher in Inclusive School: A Literature Review - International Journal of Current Science Research and Review)

Zhou, Z., & Du, Y. (2019). Autism in China: Progress and challenges in addressing the needs of children and families. International Journal of School & Educational Psychology, 7(2), 135–146.