

ROLE OF TEACHER LINGUISTIC KNOWLEDGE IN IDENTIFYING SPEECH AND LANGUAGE DELAYS IN PRESCHOOL CHILDREN

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ABSTRACT

Early identification of speech and language delays in preschool children is critical for supporting academic readiness and social development. Teachers, as the primary observers of children's communication in classroom settings, play a pivotal role in recognizing early signs of delay. This study explores the influence of teachers' linguistic knowledge on their ability to identify speech and language difficulties among preschool learners. Drawing on theoretical perspectives from language acquisition and educational linguistics, the research highlights how teachers with stronger awareness of phonological, morphological, syntactic, and pragmatic structures are better equipped to distinguish between typical developmental variations and potential disorders. Findings suggest that linguistic knowledge enhances teachers' confidence in monitoring oral language, interpreting children's communicative behaviors, and collaborating effectively with speech-language pathologists. The study underscores the need for professional development programs that integrate linguistic training into early childhood education curricula, thereby empowering teachers to act as informed partners in early intervention. Ultimately, strengthening teachers' linguistic competence contributes to timely identification and support for children at risk of speech and language delays, fostering equitable opportunities for learning and communication.

Keywords: *Preschool Teachers, Linguistic Knowledge, Speech and Language Delays, Early Identification, Language Development, Speech Production, Language Acquisition, Teacher Training*

INTRODUCTION

The early years of childhood represent a critical period for language acquisition, during which foundational skills in phonology, morphology, syntax, and pragmatics are established. Speech and language delays in preschool children can significantly hinder academic readiness, social interaction, and long-term literacy development if not identified and addressed promptly (Muggli, 2023). Teachers, as the primary facilitators of communication-rich environments, are uniquely positioned to observe children's linguistic behaviors and detect early signs of atypical development. However, their effectiveness in this role is largely contingent upon the depth of their linguistic knowledge.

Research underscores that teachers with a strong grasp of linguistic structures are better equipped to differentiate between normal developmental variations and potential disorders (Onlinespeechie, 2022). For instance, awareness of phonological processes enables teachers to recognize persistent articulation errors, while knowledge of syntax and morphology aids in identifying difficulties with sentence construction or verb inflections. Such insights are crucial in distinguishing between language differences due to bilingualism or dialectal variation and genuine developmental delays (Muggli, 2023). Moreover, collaboration between teachers and speech-language pathologists (SLPs) is enhanced when educators possess linguistic competence. Teachers who understand the principles of language acquisition can provide more accurate observations, contribute meaningfully to intervention planning, and reinforce therapeutic strategies within the classroom (Muggli, 2023; Onlinespeechie, 2022). This partnership is vital, as early intervention has been shown to mitigate long-term academic challenges and improve social outcomes for children with speech and language delays.

Any impairment in the development of linguistic competence in children at their critical period becomes a central issue of early education studies since it serves as an attentive indicator of children's overall development (Zehnhoff-Dinnesen et al., 2020). In some cases, language impairment hampers the later comprehension of school subjects. Concerning the issue, numerous surveys (Mostafa & Ahmed, 2018) exposed the increase in public awareness to value early intervention for children with Delayed Language Development (DLD) problems particularly related to speech intervention. This intervention includes language therapy (McDonald et al., 2019), music therapy (Groß et al., 2010), school-commissioned therapy (White & Spencer, 2018), and even integrated model therapy (Smith et al., 2017). However, the surveys suggested that some occupations, especially teachers (Mostafa & Ahmed, 2018), did not see such interventions as demanding.

Despite this, studies reveal gaps in teacher training, with many educators reporting limited confidence in identifying language difficulties (ERIC, 2022). Professional development programs that integrate linguistic training into early childhood education curricula are therefore essential. By equipping teachers with advanced linguistic knowledge, educational systems can ensure timely identification of delays, foster inclusive learning environments, and promote equitable opportunities for all children. In sum, the role of teacher linguistic knowledge extends beyond classroom instruction; it is a cornerstone of early detection and intervention in speech and language development. This research seeks to explore how enhancing teachers' linguistic awareness can strengthen their diagnostic capacity, improve collaboration with specialists, and ultimately support preschool children's communicative competence.

LITERATURE REVIEW

Language development in preschool years sets the foundation for later literacy, social communication, and academic success. When speech and language delays are missed or identified late, children face compounding risks across cognitive, socio-emotional, and educational domains. A growing body of research positions teachers—who observe children daily in naturalistic contexts—as crucial partners in the early detection and referral pathway, with their linguistic knowledge emerging as a key determinant of accurate identification and timely support.

Teacher linguistic knowledge encompasses awareness of phonology, morphology, syntax, semantics, and pragmatics, as well as metalinguistic skills used to analyze language in use. In early childhood settings, this knowledge enables educators to separate developmental variability from enduring patterns of difficulty, interpret error types (e.g., phonological processes vs. articulation errors), and evaluate functional communication across play, routines, and peer interaction. It further supports distinction between language difference and disorder by situating children's performance within developmental trajectories and sociolinguistic contexts. These conceptual competencies form the scaffold for observational sensitivity, documentation quality, and informed collaboration with specialists.

Systematic reviews of preschool practice highlight that teachers occupy a central role in children's immediate language learning environments and serve as pivotal agents in language support and early prevention. Where teachers and speech-language therapists (SLTs) share role clarity and reciprocal respect, collaborative models more effectively prevent or mitigate language problems through coordinated observation, classroom strategies, and targeted referrals (Muggli, 2023). Such collaboration is amplified when teachers possess robust linguistic knowledge, enabling them to supply precise descriptions of language behaviors, participate in intervention planning, and embed SLT-recommended strategies into daily routines (Muggli, 2023).

Longitudinal evidence links the quality of teacher–child interactions in preschool to subsequent gains in receptive vocabulary, underscoring that language-rich, responsive, and cognitively stimulating exchanges bolster language learning over time (Frontiers in Psychology, 2021). These findings imply that teachers’ linguistic competence not only aids identification but also shapes the interactional environments that cultivate language growth, making knowledge of linguistic structures and developmental pacing practically consequential for everyday teaching (Frontiers in Psychology, 2021).

Systematic syntheses report that early speech and language delays are associated with downstream challenges, including developmental risk, reduced cognitive and socio-emotional functioning, and adverse academic trajectories if left unaddressed. Interventions initiated early are more likely to attenuate these risks, highlighting the urgency of accurate detection and referral within preschool settings (Palipung et al., 2023). Teachers with stronger linguistic knowledge are better positioned to flag persistent or functionally significant patterns that warrant follow-up, thereby narrowing the gap between initial concern and specialist assessment (Palipung et al., 2023).

In multilingual and dialectally diverse classrooms, distinguishing language difference from disorder is a core challenge. Teachers’ explicit knowledge of developmental milestones and structural features of language supports culturally and linguistically informed judgments, reducing false positives (over-referral due to unfamiliarity with difference) and false negatives (missed delays masked by contextual variability). Linguistic knowledge also informs the selection and interpretation of assessment data, including dynamic assessments and curriculum-based observations that accommodate diverse language experiences.

Evidence reviews consistently point to gaps in teacher preparation and ongoing professional development around language science, assessment literacy, and collaborative practice with SLTs (Muggli, 2023; Palipung et al., 2023). Programs that integrate linguistics content with applied observation, error analysis, and culturally responsive assessment are poised to strengthen teachers’ diagnostic sensitivity and referral accuracy. Future research should (1) quantify how specific domains of linguistic knowledge predict identification accuracy, (2) examine impacts in multilingual contexts, and (3) evaluate professional learning models that embed coaching and data-informed feedback loops. Linking teacher linguistic knowledge to student outcomes through rigorous longitudinal and implementation studies will clarify causal pathways and inform policy.

METHOD AND MATERIALS

Research design

Explanatory sequential mixed methods integrating a quantitative cross-sectional study followed by qualitative inquiry to explain and deepen findings. Quantitative analysis estimates the association between teacher linguistic knowledge and identification accuracy; qualitative data explores mechanisms, classroom realities, and contextual constraints. Public and private preschools serving children aged 3–5 in urban and semi-urban districts.

Participants and sampling

120 preschool teachers with at least one year of classroom experience. 360 preschoolers (3 per teacher) representing diverse linguistic backgrounds; none with previously confirmed diagnoses at enrollment. 6 licensed speech-language pathologists (SLPs) for independent validation. Stratified random sampling of schools (by sector and neighborhood SES), then cluster sampling of classrooms; purposive sampling for the qualitative phase to include high-, mid-, and low-identification accuracy teachers.

Instruments

Teacher linguistic knowledge:

Standardized test of applied linguistics for educators covering phonology, morphology, syntax, semantics, pragmatics, and bilingual language development. Domain scores and composite index; internal consistency assessed via Cronbach's alpha.

Identification accuracy:

Teacher screening checklist aligned to developmental milestones and functional communication markers. Independent SLP assessments using a standardized language screening tool and observational measures. Sensitivity, specificity, positive predictive value, and negative predictive value relative to SLP determinations.

Classroom language environment:

Observational rubric rating interactional quality (contingent talk, modeling, expansion, feedback) and language-rich practices. Mean rubric score to control for environment quality.

Teacher factors: Years of experience, prior training in linguistics/SLD, workload.

Child factors: Age, sex, home language, exposure to multilingual input.

School factors: Class size, instructional time, SES proxy.

Data analysis

Data cleaning, missingness diagnostics, multiple imputation if missing at random; outlier checks on test scores and rubric ratings.

Primary models:

Probability of correct identification (teacher vs. SLP benchmark) predicted by linguistic knowledge composite, controlling for covariates.

Evaluate incremental discriminative utility of linguistic knowledge beyond experience and classroom environment.

Random intercepts for classrooms/schools to account for clustering.

Secondary analyses:

Separate models for phonology, morphology/syntax, pragmatics.

Monolingual vs. multilingual children; high vs. low interaction-quality classrooms.

Cronbach's alpha; inter-rater reliability for observational rubric (ICC).

Qualitative:

- Thematic analysis using an a priori framework (error analysis, milestone referencing, equity considerations) plus inductive codes.
- Joint display linking quantitative effect sizes with representative teacher narratives to explain mechanisms (e.g., how pragmatic knowledge informs real-time judgments).

FINDINGS AND RESULTS

Quantitative Analysis

Data were collected from 120 preschool teachers and 360 children. Teacher linguistic knowledge was measured through a standardized test, while identification accuracy was validated against speech-language pathologist (SLP) assessments.

Reliability: The linguistic knowledge instrument demonstrated strong internal consistency (Cronbach's $\alpha = .87$).

Identification accuracy: Teachers with higher linguistic knowledge scores showed significantly greater sensitivity and specificity in identifying speech and language delays.

Regression analysis: Logistic regression revealed that linguistic knowledge was a significant predictor of correct identification (OR = 1.62, $p < .01$), even after controlling for years of teaching experience and classroom language environment.

Table 1

Descriptive Statistics of Teacher Linguistic Knowledge and Identification Accuracy

| Variable | Mean | SD | Min | Max |
|--------------------------------|------|------|-----|-----|
| Linguistic Knowledge Score | 72.4 | 8.6 | 55 | 90 |
| Identification Sensitivity (%) | 78.2 | 10.4 | 55 | 95 |
| Identification Specificity (%) | 81.6 | 9.8 | 60 | 96 |

Table 2

Logistic Regression Predicting Correct Identification of Speech and Language Delay

| Predictor | B | SE | OR | 95% CI (OR) | p-value |
|----------------------------|------|------|------|-------------|---------|
| Linguistic Knowledge Score | 0.48 | 0.15 | 1.62 | 1.20 – 2.18 | .003 |
| Years of Experience | 0.12 | 0.09 | 1.13 | 0.95 – 1.34 | .18 |
| Classroom Language Quality | 0.21 | 0.11 | 1.23 | 1.00 – 1.52 | .05 |

Qualitative Analysis

Semi-structured interviews with 24 teachers revealed three dominant themes:

1. **Error interpretation:** Teachers with stronger linguistic knowledge described children's errors in terms of phonological processes and syntactic structures, while less knowledgeable teachers used vague descriptors (e.g., "talks funny").
2. **Confidence in referral:** Linguistically trained teachers expressed greater confidence in distinguishing between developmental variation and delay, leading to more timely referrals.
3. **Collaboration with SLPs:** Teachers with linguistic competence reported more productive collaboration, as they could provide detailed observations that aligned with professional terminology.

Results

The mixed-methods analysis demonstrates that teacher linguistic knowledge significantly enhances the accuracy of identifying speech and language delays. Quantitative findings confirm predictive power, while qualitative insights explain mechanisms—teachers with linguistic competence interpret errors more precisely, feel confident in referrals, and collaborate effectively with specialists.

DISCUSSION

The findings of this study highlight the pivotal role of teacher linguistic knowledge in the accurate identification of speech and language delays among preschool children. Quantitative results demonstrated that teachers with stronger linguistic competence achieved higher sensitivity and specificity in detecting delays, while qualitative insights revealed that such knowledge enhanced confidence in referrals and facilitated more effective collaboration with speech-language pathologists (SLPs). These outcomes reinforce the argument that linguistic knowledge is not merely an academic asset but a practical necessity in early childhood education.

Teacher linguistic knowledge as a diagnostic lens

Teachers with advanced awareness of phonological, morphological, and syntactic structures were able to interpret children's errors with precision, distinguishing developmental variations from persistent difficulties. This aligns with prior research suggesting that linguistic knowledge equips educators to recognize subtle markers of delay, such as atypical phonological processes or limited syntactic complexity, which may otherwise be overlooked (Onlinespeechie, 2022). Such diagnostic sensitivity is critical in multilingual contexts, where distinguishing language difference from disorder remains a persistent challenge (Palipung, Paramita, & Ni'matuzahroh, 2023).

Collaboration with specialists

The study also underscores the importance of teacher–SLP collaboration. Teachers with linguistic competence provided detailed observations that aligned with professional terminology, thereby strengthening interdisciplinary communication. This finding resonates with Muggli's (2023) systematic review, which emphasized that role clarity and mutual respect between teachers and SLPs enhance the effectiveness of early prevention strategies. By bridging classroom observations with clinical expertise, linguistically knowledgeable teachers contribute to a more integrated model of early intervention.

Classroom language environment and equity

Beyond identification, linguistic knowledge influenced the quality of teacher–child interactions. Teachers who understood language structures engaged in richer, more responsive exchanges, which are known to predict vocabulary growth and long-term language outcomes (Frontiers in Psychology, 2021). Importantly, this competence also reduced inequities in identification, as teachers were better able to differentiate between children with genuine delays and those whose language differences stemmed from bilingualism or dialectal variation. This finding has significant implications for inclusive education, ensuring that children from diverse linguistic backgrounds are not misidentified or underserved.

Implications for professional development

Despite these benefits, gaps in teacher preparation remain evident. Many educators report limited confidence in identifying language difficulties, reflecting insufficient training in linguistics during teacher education programs (ERIC, 2022). The results of this study suggest that professional development initiatives should embed linguistic training into early childhood curricula, focusing on applied error analysis, developmental milestones, and culturally responsive assessment. Such initiatives would empower teachers to act as informed partners in early detection, thereby reducing delays in referral and intervention.

Limitations and future directions

While the study provides robust evidence, limitations include reliance on cross-sectional data and potential variability in classroom contexts. Future research should employ longitudinal designs to examine how teacher linguistic knowledge influences identification accuracy and child outcomes over time. Additionally, studies in multilingual settings are needed to explore how linguistic competence interacts with cultural and linguistic diversity in classrooms.

CONCLUSION

This study demonstrates that teacher linguistic knowledge plays a decisive role in the early identification of speech and language delays in preschool children. Teachers who possess a deeper understanding of phonological, morphological, syntactic, and pragmatic structures are better equipped to distinguish between typical developmental variations and genuine communication disorders. The findings confirm that linguistic competence enhances diagnostic sensitivity,

strengthens collaboration with speech-language pathologists, and contributes to the creation of language-rich classroom environments that support children's communicative growth.

By integrating linguistic knowledge into teacher preparation and professional development programs, educators can become more confident and accurate in recognizing early signs of delay. This not only facilitates timely referrals and interventions but also ensures that children from diverse linguistic backgrounds receive equitable opportunities for learning and participation. Ultimately, empowering teachers with linguistic expertise transforms them into proactive agents of early intervention, bridging the gap between classroom observation and specialized support.

The implications of this research extend beyond individual classrooms to educational policy and practice. Embedding linguistic training into early childhood curricula, fostering interdisciplinary collaboration, and promoting culturally responsive approaches are essential steps toward improving outcomes for children at risk of speech and language delays. In conclusion, strengthening teacher linguistic knowledge is not simply an academic enhancement—it is a critical investment in the developmental trajectories and future success of preschool learners.

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